

March 26, 1982

Stofan to return as new director

Andrew J. Stofan has been named Director of the Lewis center succeeding Dr. John F. McCarthy, Jr.

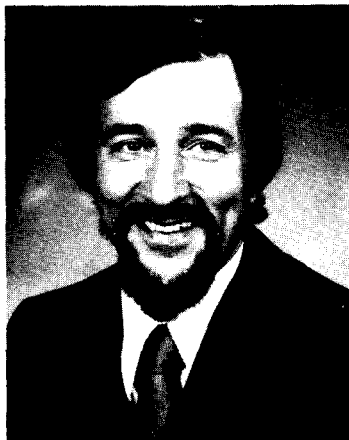
Stofan's appointment was announced March 19 by James M. Beggs, Administrator of NASA.

Stofan was Acting Associate Administrator for Space Science at NASA headquarters in Washington, D.C., from October 1980 until last month, when Dr. Burton I. Edelson became Associate Administrator of a new Office of Space Science and Applications. For the past month, Stofan has been serving as an advisor to Edelson in structuring the new office.

Prior to his assignment to NASA headquarters in 1978, Stofan had been Director of Launch Vehicles at Lewis.

Stofan will assume his new duties July 1, at which time Dr. McCarthy will return to

the Massachusetts Institute of Technology as Professor of Aeronautics and Astronautics.



Andrew J. Stofan

Stofan began his professional career at Lewis in 1958 as a research engineer. In 1962, he was assigned to the original Centaur Project Office as a member of the Propellant Systems Section, becoming head of that Section in 1966. A year later, he was named Project Manager of the B/1-B/2 test programs. In

1969, he was named Assistant Project Manager, Improved Centaur, and a year later became Project Manager of the new Titan/Centaur vehicle project office, where he was responsible for all activities associated with the design and development of the launch vehicle.

He also directed the launch of the Titan/Centaur Proof Flight in February, 1974.

Stofan assumed the role of Director, Launch Vehicles, in 1974 and from then until 1978 directed the launch of 10 Atlas/Centaurs (Intelsat, COMSTAR and HEAO spacecraft) and six Titan/Centaurs (Viking, Helios and Voyager spacecraft).

In January 1978, Stofan was appointed Deputy Associate Administrator for the NASA headquarters Office of Space Science. In October 1980, he became Acting Associate Administrator.

Stofan meets managers



Andrew J. Stofan (left) will become Lewis director when Dr. John F. McCarthy, Jr. (center) leaves in July. Stofan is pictured meeting Dr. McCarthy's secretary Monica Palivoda (right) at a social hour April 7. The event was to introduce Stofan to senior managers he had not met and to renew acquaintances with persons he knew before he left for NASA headquarters in 1978. Spouses of managers also attended the social hour which was held in the Administration Building Auditorium. *Don Huebler photo*

LEWIS NEWS

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Top NASA official to install Stofan

NASA Administrator James M. Beggs will officiate at a change of command ceremony next Tuesday when responsibility for managing Lewis is turned over from Dr. John McCarthy Jr. to Andrew Stofan.

The event, complete with presentation of colors by the U.S. Air Force and music by the Lewis Brass Band, will take place in the DEB

auditorium beginning at 3 p.m.

Both Stofan and McCarthy will speak during the formal installation of Lewis' fifth director.

Beggs will address Lewis employees following the installation.

Tickets for the installation ceremony and talk are available through division offices. No tickets are required for attendance at closed-circuit TV coverage being set up at the Main and DEB Cafeterias, VIC and Administration Building Auditorium.

Beggs will also speak at the 18th annual Joint Propulsion Conference being held in Cleveland next week and at a Greater Cleveland Growth Association breakfast on Monday morning.



James M. Beggs
NASA Administrator



Andrew Stofan (left) discusses lab affairs with Dr. McCarthy.

Paul Farace photo

Beggs reaffirms—No more staff reductions

"Let me put to rest once and for all a concern born of the last two annual budget

exercises. NASA has no intention of closing Lewis, now or for the foreseeable

future."

So stated NASA Administrator, James M. Beggs, in his remarks to Lewis employees at the change-of-command ceremony in the DEB on June 22.

He also commented on the obvious excellence of the Lewis community relations following several downtown events in which he participated.

In his address, fourth in a busy day for the NASA chief executive, Beggs paid tribute to departing Lewis director, Dr. John F. McCarthy, Jr. He stood "strong and tall" when the Center was faced with the crisis of budget reductions and possible closing, Beggs said.

"John, I know, will be remembered here at Lewis not only for his sardonic wit, but for his strong promotion of Lewis' programs in the Cleveland area and throughout the nation. We wish him well in his new job."

The 25-minute speech, which followed installation of Andrew J. Stofan as Lewis' fifth director in history, touched on a variety of topics, most related to Center manpower levels and future viability.

"I'm aware of the severe personnel reductions you have faced in the last several years

and the reductions you face in 1983," Beggs said. "But I can tell you that this is the end. We have assurances for this Administration that once we get down to the 21,000 employee level for NASA they have imposed on us...that will be all—we are finally out of the woods."

Continued on page 3



Andrew J. Stofan (left) takes the oath of office to become the fifth Lewis director. Stofan's wife Barbara holds the Bible while NASA Chief James M. Beggs administers the oath.

Don Huebler photo

Stofan plans cooperative management to keep lab's 'excellence'

Andrew J. Stofan was officially sworn in as director of Lewis Research Center June 22 with the pledge that the lab staff would have a cooperative part in management of the center.

Stofan, the fifth man to head Lewis, said his administration would also, "build upon the strengths of the center" and see that Lewis continues to be "an aeropropulsion and space technology center of excellence."

The ceremony was watched

live by more than 1,100 Lewis staff—both in the DEB auditorium, where the ceremony took place, and in other lab sites equipped with closed-circuit TV.

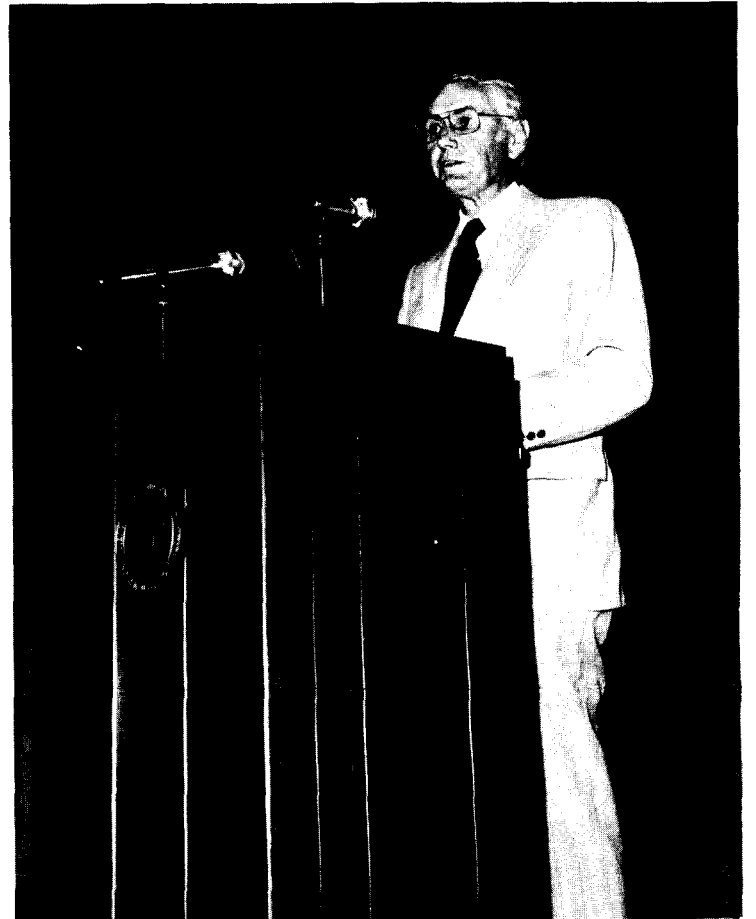
In his remarks to the audience following his assumption of office, Stofan promised: "The lab will be run by the senior staff and by all of the staff at the laboratory. However, like Harry Truman, the buck stops here."

Stofan cited the need to build upon the lab's technical

strengths if the center is to successfully endure in tight budgetary times.

"Together we will make Lewis stronger," he said, "and a more viable institution that will continue to contribute to the nation's goals in aerospace research."

Stofan's wife, Barbara, held the Bible while NASA Administrator, James Beggs, administered the oath of office. Also in the audience were former directors, Dr. Abe Silverstein and Dr. Bruce Lundin and their wives.



James M. Beggs addresses the Lewis staff at the change-of-command program.

Don Huebler photo

McCarthy: moving farewell to Lewis

The excellence of Lewis research efforts was one high point cited by Dr. John F. McCarthy in covering his years as Lewis director at the installation ceremony of Andrew J. Stofan.

Slightly tongue-in-cheek, Dr. McCarthy cited lack of a modern lab phone system as one of the low points of his tenure.

In an occasionally emotional farewell talk to the lab that exhibited his deep affection for Lewis, McCarthy spoke of his triumphs in getting Lewis involved in more than just

aeropropulsion and seeing a new "super-computer" approved for the lab. He pointed out that the new computing capability will enable the center to continue to move rapidly into advanced analytical areas. He also praised the Lab's success in getting support service contractors on board to free-up civil service workers for more productive research work.

In the column of disappointments, McCarthy expressed concern that the High Pressure Facility is taking longer than expected to

become fully operational. He also expressed his disappointment over the fact that, "My desk still has two phones on it."

In parting, McCarthy gave these words of advice: "I don't think Lewis can survive on just aeropropulsion alone; there aren't enough resources in the kitty." He gave clear indication of his affection for his Lewis co-workers and his strong wishes for Lewis' continued success.

McCarthy leaves Lewis to join Northrop Aviation in California as a corporate officer.



Dr. John F. McCarthy Jr. steps down as center director to a standing ovation from the more than 500 staff and officials in the DEB auditorium.

Don Huebler photo

Beggs.....

from page 1

Beggs told employees that they should not get their hopes up that Congress would replace all of the programs cut by the Reagan Administration in energy. If Congress does strongly continue energy programs, he added, NASA will consider adding manpower at Lewis for that work.

"But don't get your hopes up," he again warned. "In the end, I think Congress will agree to a compromise budget that will closely approximate what this Administration proposes."

Beggs also said that Headquarters would be flexible in applying the Administration's ground rules concerning systems development activities. "We will get sufficient money to push forward the research and technology work that is important to our country," he said.

Beggs outlined the role that military personnel had played in NASA's history in helping to manage parts of the NASA program. He cited statistics showing that far fewer military people are now detailed to NASA than was the case in the Apollo period some years back. He assured the audience that the military would continue to be fully welcome as Shuttle customers. He played down the label of militarism of the Shuttle as not in keeping with the facts.

"As long as we operate Shuttle, anyone with money...will get our attention whether the customer is military or commercial."

Of Lewis' new director, Beggs cited Stofan's many contributions to NASA space achievements of the past, and said that "it didn't take us long to realize that we had a rising star in Andy."

"He exemplifies that remarkable spirit of commitment to excellence that is a hallmark of Lewis, and, indeed, all of NASA. And I have no doubt that this commitment will continue to mark Lewis' work through the decade of the eighties and beyond."

Beggs promised to return to Lewis to address further the concerns of employees

dealing with matters of Lewis operations not answered as the assembly.

He concluded by saying that Lewis has been working at the cutting edge for more than 40 years, and "I marvel at the ability of this Center and of the men and women who work here to have created and maintained for so long that tradition of excellence of which I spoke earlier." He repeated his assurances that this Administration supports NASA programs, that Lewis does not face further reductions. He indicated that he expected in return the continuation of "hard work and new ideas."

Elaine Roberts (standing) and Christina Schneider demonstrate two yoga positions. *Paul Farace photo*

Manage your body energy through Yoga

Managing energy is not only the goal of Lewis Research Center, but also a goal of a new Hatha Yoga course that begins here Tuesday. Mrs. Elaine Roberts, head of the Lewis Awareness Office, will conduct the classes.

Hatha Yoga is an ancient Eastern discipline that stresses physical fitness through the posturing of the body and correct breathing. Continual practice of these disciplines is claimed to result in a more stable mental state and complete relaxation.

Students in a six-week program will meet Tuesdays in the Administration Building auditorium from 5 to 6:30 p.m. Lewis and contractor employees and their families are invited to participate. Students should wear loose fitting clothes and bring a mat or quilt on which to practice.

Those interested in participating can call Mrs. Roberts at PAX 5202 or PBX 785.

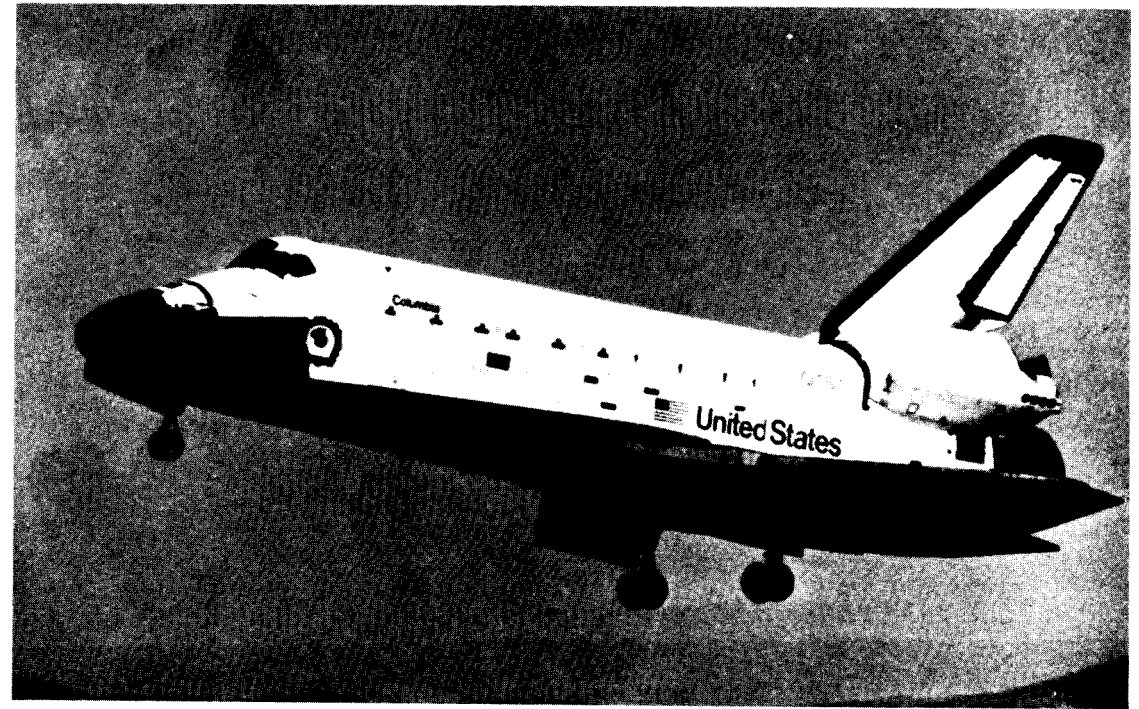
Columbia returns to 'firecracker' welcome

Highlighting Independence Day on Sunday will be the scheduled triumphant return of Columbia to Edwards Air Force Base, California, concluding a seven-day orbital mission.

STS-4 is the final test-phase flight before the vehicle is converted for regular operational service, scheduled to begin with STS-5 in November.

In addition to routine mission tasks, Commander Thomas K. Mattingly II and Mission Pilot Henry W. Hatsfield, Jr. are in charge of the Shuttle's first military experiment.

The first in a series of "getaway specials"—small,



self-contained experiment packages—is in the STS-4 cargo bay.

An automatic flight control system will pilot Columbia all the way from re-entry to

touchdown on Sunday, 12:13 a.m. EST for the first cross wind landing.

Center in mainstream of Shuttle program

\$107.4 million added to Lewis budget

Lewis Director Andrew J. Stofan announced Tuesday the addition of \$107.4 million to the Lewis budget which will provide funding for three key Lewis programs.

In a memorandum to employees Stofan said that the Urgent Supplemental Appropriations Bill for FY 1982, signed into law by President Reagan on July 18, provides for additional Lewis expenditures in aeronautical propulsion, Centaur-in-Shuttle and space communications. The added funding represents approximately half as much as was previously budgeted to Lewis in the whole '82 budget from NASA Headquarters.

Stofan said the additional money will provide for an \$80 million design, development and procurement program of Centaur upper-stage vehicles for use in future Shuttle launches of Galileo and Solar Polar spacecraft. About \$12 million will be allocated for aeronautical research and technology on the E-cubed project—an energy-efficient engine design. It will also provide for continued work on the advanced turboprop and increased support for Hot Section technology to extend jet engine durability.

Also, \$15.4 million was earmarked for a new communications test satellite for Lewis-pioneered 30/20

gigahertz frequency range—as yet untapped as a broadcast band.

Stofan said that the major portion of the new money—that which is intended for adapting the Lewis-developed Centaur vehicle for use in Shuttle—“Puts Lewis directly into the mainstream of the Shuttle program.”

Stofan said that the segment intended to bolster research in the advanced communications satellite program will “Maintain U.S. leadership in communications satellites,” and he added that the funding for the flight testing segment of the project will eventually total more than \$400 million.



Lewis News: August 27, 1982

Shake hands with Stofan: program starts Sept. 15

When Andrew J. Stofan was sworn in as fifth director of the Lewis Center on June 22, he said that participative management was a near-term goal.

A chance to sample his philosophy in a relaxed, informal atmosphere will come on September 15. On that date, some 100 members of the Energy Directorate will be the guests of the Lewis director. Object: to meet, shake hands and exchange comments about Lewis, jobs and the future.

The program is under the auspices of the Awareness Committee and will be the first of a series on a semi-weekly basis to provide an opportunity to "rub elbows" and exchange thoughts on subjects of mutual concern.

The Ad Building Auditorium will be the site for these "meetings," and light refreshments will be served to help establish a relaxed atmosphere.

For each get-together, an
Continued on page 2

Director to meet employees

Continued from page 1

RSVP will be issued to members of the division or directorate being invited. The complete schedule will be published in the near future.

“I can’t think of any better way to rather quickly get to

meet all the people who work for Lewis,” said Stofan. “This kind of program will give me a better appreciation of what’s on their minds. At the same time, it will help employees understand the thinking up front. I think we can all profit. I hope as many

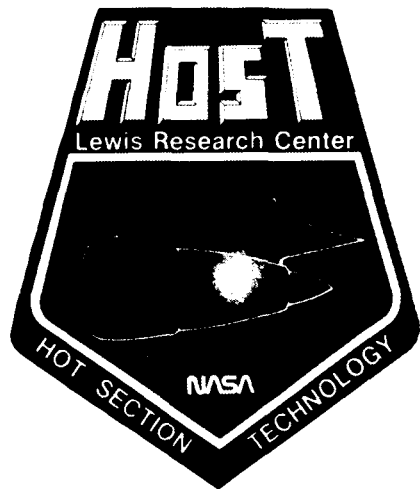
as possible will respond to their invitations.”

The “meetings” will incorporate both open discussion and a chance for direct personal contact, Awareness spokespersons said.

Awareness has new HOST decals

The Turbine Engine Hot Section Technology (HOST) Project decal, pictured, is to remind Lewis employees of the pride they can take in the Center’s contributions toward improving the modern gas turbine engine. The goal of the NASA HOST project is to improve the analysis methods needed to increase the durability of hot section components in advanced aircraft turbine engines.

The Awareness Office encourages interested employees to obtain decals from their division secretaries.



Director’s message

Lewis Employees:

I understand that a cartoon appeared in the March 26 issue of the *Lewis News* which offended a number of our employees.

I have looked at that material and agree that it carried sexist overtones and was certainly in bad taste. Prior to my arrival, reprimands were issued to the parties involved, and they were alerted to exercise caution in the future to avoid similar incidents.

I wish to take this opportunity to reaffirm that this Center is dedicated to the proposition of fair play and equal treatment for all regardless of race, religion, national origin, sex or any other such consideration.

I intend to adhere to those principals and to vigorously pursue our objectives of equal employment opportunity and affirmative action. Any action which tends to compromise these goals will not be tolerated.



Chatting with the boss, Director Andrew Stofan (left), met members of The Energy Directorate at the first in a series of such informal meetings for lab employees. Story and schedule on page 3.

Stofan hosts first employee social

More than 100 members of the Energy Directorate joined Director Andrew Stofan for beer, pretzels and conversation at the Picnic Area recently. It was the first of a series of meetings that will enable Stofan to meet casually with all lab employees.

The Energy crowd listened to the Director's plans for the lab's future.

The following is a schedule of proposed meeting dates for all the lab organizations:

Aeronautics: Oct. 13, May 18

Energy: Sept. 15, Feb. 9

Space: Dec. 1, Mar. 23

Science & Technology: Oct. 27, Feb. 23, June 29,
Aug. 24

Technical Services: Sept. 29, Jan. 26, Mar. 9, May 4,
June 15, July 27, Sept. 14

Engineering Services: Dec. 15, June 1, Aug. 10

Administration: Nov. 17, April 20, July 13

Ext. Affairs, EEO, Air Force, Army: Jan. 12

Contractors: April 6, Sept. 28

WS

NASA

Lewis Research Center
Cleveland, Ohio

December 3, 1982

Stofan scans future:

Sees 4000 people, large space station role

Striking a note of strong optimism throughout, Lewis Director Andrew J. Stofan foresees a work staff of some 4,000 and a major role for the center in the space station by 1988 in his reporting results of strategic planning to employees last Monday.

The 4,000 figure would be based on both civil service and support contractor workers and assume approval of new initiatives in the major work areas of the center, aeronautics and space.

On space station technology, the director said:

“We could play a significant role in three of the four new space initiatives we’re planning by 1988: power systems, auxiliary propulsion and communications technology, and we intend to seek the lead role in power systems.”

Lauding Lewis strategy planners who have been at the job of doing the

groundwork for a five-year master plan for the Center since early this year, Stofan said that he had presented the plan last week to officials in Washington and received favorable attention.

“No one has said no to anything thus far at Headquarters,” he told employees, who heard and saw the report live at DEB and via closed-circuit television in other parts of the lab.

Four short-term goals of the plan were set down by Stofan:

1. Increase civil service staffing positions.
2. Strengthen Lewis’ role in space power systems technology and development.
3. Increase funding for support service contractors.
4. Enhance computer capabilities. Stofan said that the

Continued on page 2

Stofan: Lab gets larger role

Continued from page 1

thrust over the next several months will be to prepare the implementation plan and a first order of business to proceed immediately is a reorganization of directorates to achieve the five-year goals.

Under the reorganization, Lewis would continue to have three research and technology program directorates but their character would reflect the directions of 1988.

Accordingly, space activities would be grouped under Space Transportation and communications, to be headed by Lawrence J. Ross, and Space Technology, directed by Henry E. Slone. Aeronautics would remain a directorate, with Melvin J. Hartman as its head. Replacing Science & Technology as a directorate would be Materials and Structures. This would be directed by Neal T. Saunders, who is now materials division chief for the S&T Directorate.

In addition, Engineering Services and Technical Services would be combined in one directorate, under the leadership of Warner L. Stewart.

Stofan said the plan shows a need to add 350 civil service positions for research and development professionals during the five-year period. Most of these would be "fresh-outs," from engineering colleges, entering the work stream at the ground level, in generic research positions.

"I expect that our present civil service staff of 2452 persons will be increased by 150 slots to reach about 2600 by the end of fiscal 1983," he said. "It will be tough but I'm optimistic," he added.

To meet five-year civil service staff increase goals, Stofan said that institutional support positions would be reduced by 200 slots, largely affecting indirect support positions. "Core" capability

support would not be affected.

The civil service staff overall would be augmented through increased use of support service contractors to the extent of 500 positions by 1988.

Funding requirements for support service contractors in 1983 dollars is expected to rise from \$20 million today to \$70 million by 1988 if new initiatives and current commitments are carried out.

"Although our plan comes too late to measurably affect funding in the 1983 budget, we will be in good position for 1984 to gain what we need to stay on schedule," he explained.

Lewis' current terrestrial energy programs would be "successfully" phased out in the five-year plan, Stofan said. These include automotive engine research and efforts to demonstrate electric power generation from wind, sun and fuel cells. The nearly 200 people now

involved in these efforts would be diverted into other areas.

He added that, should NASA itself re-enter the terrestrial energy field, Lewis would receive principal consideration.

General conclusions of the strategic plan are that Lewis should build on current capabilities but needs to strengthen and broaden current roles and responsibilities, particularly in space research and development. Staffing needs,

for example, for space are seen as needing to almost double by 1988, to about 900 civil service positions, to meet anticipated growth.

New initiatives for space research, according to the strategic plan, are to maintain the lead in space power technology, develop materials science for space, improve space propulsion durability, and major space station technology development including power, auxiliary propulsion, communications and experiments.

News Notes

Servicemen dance in DEB

The 1982 NASA Servicemen's Club is planning to hold its annual New Year's Eve Dance in the DEB cafeteria. Joe Hanslik and his band will provide the musical entertainment.

Aerobics comes to Lewis

A demonstration of aerobic dancing will be held on Dec. 14 in the DEB cafeteria from 5 to 6 p.m. Aerobic dancing is open to all employees, families and friends. Come prepared to join in the fun and wear your tennis shoes. Classes in aerobics begin in January. For more information, call Pat Hannan at PAX 5172.

Work smarter to work better is thrust of Quality Circles

By Andy Stofan

Most of you have heard me speak of the need for all of us to get involved in helping manage Lewis. By that, I don't just mean doing our jobs well or better. I mean doing them in such a way that the total effect becomes much greater than the mere sum of individual parts. That idea has been called by many names but I prefer to think of it as "participative management."

So much of success in whatever the endeavor comes down to people, and nowhere is this better demonstrated than at Lewis where brains and dedication have always been the strength and hope of our future.

But how do we maximize the ideas, experience, enthusiasm and professionalism that flow so deeply at this center? Given the seemingly limited opportunity spectrum of the moment, how do we make the parts fit together to make the whole more efficient and more productive? The answer is by interacting with others in our work environment in a more conscious, deliberate way. In so doing, teamwork becomes better,

problem solving is easier, productivity is higher and, not incidentally, personal fulfillment is enhanced.

Is there one mechanism that will make all of these good things happen? No. There are many approaches I intend to follow to accomplish the objective of participative management. One approach that we are looking at seems to be coming on fast in the business world: Quality Circles. We will start a pilot on it after the first of the year.

Langley, our companion aero center in Virginia, started a QC program several months ago; we will be going there to look it over soon. Many large companies, including Lockheed Missiles and Ford, report major productivity gains from Quality Circles.

Our "proof-of-concept" pilot will have three to six circles made up of volunteers. After six to nine months, we will evaluate the program with the idea of expanding to all areas of the center.

A Quality Circle is a team of seven to ten people who do similar work.

Continued on page 3

Quality Circles at Lewis

Continued from page 1

They meet for one hour a week within working hours. People are free to join, not join or drop out of a circle at will. They identify, analyze and solve problems related to their work. They can accept or refuse a problem submitted from any source. They present potential solutions to management for approval.

Some of the things QC'ers do not discuss during meetings are salaries and benefits, hiring and firing policies, and personalities. Nor are any jobs eliminated due to improvements recommended. A major objective at all times is to improve communications

among employees.

Bob Hoffman, assistant to the director of Technical Services, has the assignment of implementing the QC program at Lewis. He tells me that successful QC programs are showing that one hour spent in a QC meeting each week makes all the other 39 hours of the week more efficient. Experience is showing that every QC hour results in five hours of productivity.

Quality Circles came to prominence in Japan, but the concept originated in the U.S. a generation ago. It is built on the so-called McGregor "Theory Y" principle of

management which assumes that an employee has more to offer than a pair of hands. Workers are viewed as intelligent, motivated by improvement, willing to accept responsibility, fulfilled by suitable recognition, and receptive to communication and feedback.

Developed in the late 1940's by an American, W. Edwards Deming, Quality Circles especially appealed to the Japanese because, after World War II, that nation was looking for a way to improve product quality. Today, Japan has more than eight million workers engaged in Quality Circle programs. The sheer size and success of the Japanese experience prompted U.S. manufacturing executives to look to their programs for techniques directly transferable to their operations.

Lockheed sent a team to Japan to bring back exact procedures for conducting

QC's in its Missiles & Space Division. Overall, some 400 U.S. firms have now adopted Quality Circles.

During initial Quality Circle meetings, members are trained in problem-solving techniques borrowed from group dynamics, industrial engineering and quality control. These techniques include brainstorming, what is called Pareto analysis, cause-and-effect analysis, histograms, control charts, stratification, and scatter diagrams.

In the beginning, the group's supervisor leads the circle. Later, a facilitator or coordinator attends most of the meetings to help train members and coach the leader. The facilitator is to be responsible for coordinating the work of all circles at Lewis. He or she will report to a steering committee made up of main original elements, including our unions.

The steering committee

supports the QC program, provides guidance and direction to the circles, attends circle meetings, reports to senior management as requested, and implements QC solutions that are feasible and practical.

Formally speaking, QC goals are:

- To allow and stimulate employees to recommend solutions to problems in their work environment.
- To improve communications among employees at all levels.
- To create an atmosphere of trust, understanding, and mutual respect among employees.
- To improve quality, productivity, and working conditions by finding solutions and exploiting opportunities.

It is my personal belief that those of you who take part in this experiment will truly enjoy it. In addition, you may find it of enormous benefit.

LEAV

October 8, 1982

Vol. 19 No. 20

Seeding the future— stronger Lewis is object of strategic planning

**By Andrew J. Stofan
Director**

The second half of last year was a difficult time for Lewis. Our program funding was reduced significantly, and our very existence seemed threatened. It was especially distressing in the light of the Center's having provided extraordinary public service for more than four decades.

But the period may have been a blessing in disguise. It gave rise to the beginning of a critical assessment and

From time to time, the Director will be reporting from these pages on matters of special concern to us all. This is the first such article.

planning effort aimed at matching Lewis capabilities to long-term future contingencies and expectations.

In March of 1982, a Strategic Planning Working Group was established to assess the present state of health of the Center and to lay the groundwork for a detailed look at where Lewis should go in the future.

The ad hoc working group assembled was made up of key Lewis managers. They reflected a broad sweep of the Center's technical capability. By name: Merv Ault, Stu Fordyce, Herman Mark, Joe Nieberding, Don Nored, Don Packe, Don Petrash, Neal Saunders, Lloyd Shure, Joe Sivo and Bob Walker. Bill (Red) Robbins, as chairman, served in the key position. Pat

Continued on page 8

Marketplace master of technology?

Continued from page 3

fluid would be an answer to the problem of fluid management in a zero gravity environment. He demonstrated that magnetic forces could replace gravity in orienting a fluid in a zero "g" condition. Industrial interest in this curious fluid developed promptly and corporations were founded to produce the fluid under license from NASA. Numerous marketable uses for this intriguing fluid have been found by this new industry. Over 250 industrial patents have been issued. Among the applications have been fluid seals, hi-fi loudspeakers, mineral scrap recovery, semi-conductor chip sorting, videotape quality assurance and high speed printing. In recognition of the recent widespread industrial uses of his invention, Steve Papell received a substantial cash award from NASA some 18 years after the original invention. The successful story of the ferro fluids industry illustrates the need to cultivate a continuous program of investigative research which is not controlled or justified by the market place. In the long run, the market place flourishes from the flow of innovations emanating from research.

The market place needs an influx of ideas, innovations, and inventions which it itself cannot provide. Inventiveness is the result of curiosity, ingenuity, and the desire to excel, which are human qualities not market commodities. Establishing a sustaining environment that allows people to take risks as they try ideas will encourage innovation. There needs to be long-range financial support for those who are engaged in research or other related ventures in technology. Erratic support will have a devastating affect on innovation. A second important technical problem to consider is the encouragement of greater productivity.

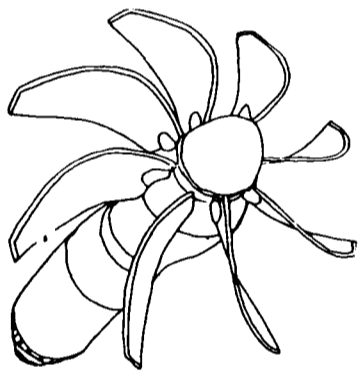
The individual performance of workers in the production lines of factories will influence the market demands. Quality workmanship will eventually sponsor sales and greater use of a product. Certainly, if the individual worker takes seriously his/her influential role in the marketability of the product, productivity will be helped.

Another important facet of productivity is plant equipment. Modern machines and production methods are

essential to high production rates; and, at the same time, a quality-controlled product. Studies of some plant shutdowns in Ohio, particularly in steel and auto production, have shown that unenlightened management practice was responsible for the retention of outmoded processes and manufacturing methods. Inefficient production methods were allowed to persist even when competition was introducing superior methods. Eventually, the older methods could not compete with the new, resulting in shutdown of the plant. Without modern equipment and processes, even the best in workmanship cannot save an outmoded manufacturing facility. In these cases, the market place didn't prompt renewal of outdated plant equipment.

Adequate energy supply is the third problem area which some claim should be handled or controlled exclusively by the market place.

There is no question that the fuel sources of energy are



influenced by what people are willing to pay for them on the market. Market prices always represent the here and now; the reaction to present-day or perhaps near-future conditions. The present temporary glut on the world oil market has reduced prices and has put aside energy supply concerns for the future. At the same time, the oil glut indicates the reduced use of oil by the United States and Western Europe because of current depressed economic conditions rather than intentional efforts to conserve. One can interpret this course of events as evidence of the influence of the market place on fuel usage and pricing. When economic conditions improve, consumption of oil will increase and so will the price. The latter should temper the rise in use.

There is nothing one can point to in the scenario of today's energy markets that shows promise for providing incentives for long-range planning on alternative energy supplies.

As a part of our national

strategy, we should be prepared for the introduction of alternate sources of energy to counteract a potential adverse impact on our national economy should an abrupt interruption of fuel supplies take place. As we all realize, we are dependent upon a politically unstable part of the world for a sizeable fraction of our petroleum. An international incident could wreak further havoc with our economy if there was a disruption of imported oil. Also, we should anticipate the time in the future when oil supplies will become scarce. Eventually there will be insufficient oil for all who wish to use it; the oil market of the future will experience big demands and exorbitant prices. Today's somewhat favorable market conditions will not promote preparation for that kind of eventuality. Initiatives to prepare will have to come from organizations or authorities who can act independently of the current state of the market.

In this article, I have raised cautions about the ability of the market place to determine national policy in three important technical areas; namely, invention, productivity, and alternate energy supply. In all three areas, the limitations of the market place stem from its poor ability to anticipate future needs. In today's difficult world, we need some vision of the future which the

Space Trivia Test

How high is your space trivia quotient? The following is our space trivia test.

1. How many U.S. Astronauts have been in space at any one time? When, on what mission, and what were their names? —for bonus points.

2. What happened to the Apollo command module in which Astronauts Grissom, Chaffee and White died in the tragic Apollo I fire?

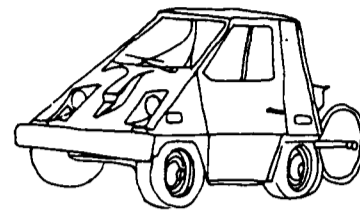
3. What was the first rocket ever launched from what is now Kennedy Space Center Atlantic Missile Range?

4. Where was the first Mercury capsule assembled?

5. What were the names given to the Mercury capsules flown by the Mercury Seven? In what order did they fly?

Send your answers to the Lewis News office, MS 3-11 within five days of publication date. Names of those who submit all of the correct answers will be printed in a future issue.

market place can't give us. As a nation, we need to establish some longterm, non-partisan goals that address the issues of inventiveness, productivity, and energy supply. These national technical goals must be a consensus of what the country should achieve in the



next two or three decades and a commitment should be made to achieve them. They should be developed by cooperative agreements of both the private

and governmental sectors. There is need for greater joint participation in the planning and execution of national policy which also will counteract antagonistic positions between the private and governmental sectors.

The market place should continue to serve as an assessment of the current value of goods and services but can't be expected to do more. I fear that those who are championing the market's ability to determine future policy may adversely affect its total creditability and even lead to its demise. Certainly, that must not be allowed to happen if free enterprise is to continue.

Lewis solar cell research presented

Five papers authored by Lewis scientists were presented at a recent international solar cell conference held in San Diego.

The 16th IEEE Photovoltaic Specialists Conference is a forum for the presentation of leading research in the solar cell field. Henry W. Brandhorst, Jr., Chief of Lewis' Space Photovoltaic Branch, led a group of researchers to the conference. Researcher Americo Forestieri was the conference publication chairman, in charge of all papers presented. Cosmo Baraona, also of the solar cell branch, served as space solar arrays session chairman at the conference.

Conference papers authored by Lewis staff were:

"Effects of Indirect Bandgap Top Cells in a Monolithic Cascade Cell Structure," by H.B. Curtis and M.P. Godlewski.

"Evaluation of Electrode Shape and Non-Destructive Evaluation Method for Welded Solar Cell Interconnects," by C.R. Baraona, S.J. Klima, T.J. Moore, W.E. Frey and A.F. Forestieri.

"The Effect of Ta205 on the Interaction Between Silicon and Its Contact Metallization," by V.G. Weizer.

"A New Strategy for Efficient Solar Energy Conversion: Parallel-Processing with Surface Plasmons," by L.M. Anderson.

"Radiation Damage in Front and Back Illuminated High Resistivity Silicon Solar Cells," by I. Weinberg, C.K. Swartz and H.W. Brandhorst, Jr.

Up the ladder at Lewis

Daniel C. Mikkelson is the new chief of the Propeller and Icing Branch. Mikkelson is the former head of the Propeller Research Section and a lab staffer since 1966. He and wife Arlene live with their two children in Strongsville.

Brent A. Miller of the Aeronautics Directorate is the new chief of the Inlet and Nozzle Branch, following his role as head of the ATP propeller technology section. He, wife Carol and their three daughters live in Olmsted Falls.

The Research Installation and Operations Branch has a new chief - **John W. Schaefer**. The 1962 Case Institute of Technology graduate, his wife Peggy and their two children live in Fairview Park.

The former section head of the Flow Analysis Methods Section, **John J. Adamczyk**, was recently appointed chief of the Computational Fluid Mechanics Branch. He and his wife Angela Marie live in North Olmsted with their two children.

Agreement paves way for quality circles at Lewis

Participative lab management took a step closer to reality with the recent signing of a memorandum of understanding between management and union representatives giving full endorsement to a pilot quality circles program at Lewis.

The agreement certifies that

labor and management cooperation is essential to the success of the program and that full support is to be provided by the signers.

Quality circles, conceived in the U.S. and popularized by Japan, is an experimental method to give employees and additional voice in making the

lab more productive and their jobs more fulfilling.

When started, quality circles will provide a vehicle for small groups of workers meeting informally to identify problems and develop solutions for management's approval.



Signing the Quality Circles memorandum (left to right) are Coulson Scheuermann, president of IFPTE Local 28; Robert G. Hoffman, Quality Circles coordinator; Leroy G. Sidorak, AFGE Local 2182; Director Andrew J. Stofan; Lawrence J. Andrews, IFPTE Local 28; Thomas A. Cozzens, Chief of Lewis' Employee-Labor Relations Branch, and Andrew J. Benek, Jr., AFGE Local 2182.

Don Huebler photo

Reorganization focuses on national goals

A major reorganization that reflects the outcome of a substantial strategic planning effort is being implemented at Lewis Research Center.

Key changes will see the four current research and technology directorates—Aeronautics, Energy, Science and Technology, and Space—become Aeronautics, Space Flight Systems, Space Technology, and Materials and Structures.

Three other directorates—Administration, Engineering Services, and Technical Services—also are being affected.

In addition, an Office of the Comptroller is established to provide a focal point for all aspects of resources and budget management.

All the changes became effective January 17.

"The reorganization," said Andrew J. Stofan, who became Director of Lewis last June, "will enhance our continuing contributions in aeronautics as well as our ability to contribute to the nation's space technology needs, particularly in satellite communications, space power and space propulsion.

"It provides the best structure to carry out the Lewis mission of defining and developing new propulsion, power and communications technologies." Another goal of the reorganization specified by Stofan is to enhance the Center's computer capabilities for both scientific and business uses.

The Aeronautics Directorate has been reorganized to combine elements of the former Science and Technology and Aeronautics Directorates. Its principal focus will be discipline research and component technology development on high-priority needs of advanced aeropropulsion systems.

The directorate will consist of the following divisions: Aerothermodynamics and Fuels, Fluid Mechanics and Acoustics (both from the former

Science and Technology Directorate), Engine Systems, Propulsion Aerodynamics, and Aircraft Propulsion.

Newly named to head the Aeronautics Directorate is Melvin J. Hartmann, formerly head of the Science & Technology Directorate.

The Space Flight Systems Directorate evolves from the former Space Directorate and chiefly comprises responsibilities for the Atlas/Centaur expendable launch vehicle program, advanced communications satellite technology development, and the Shuttle/Centaur program designed to use a reconfigured Centaur as a high-energy upper stage for Shuttle.

Lawrence J. Ross, who previously served as Space Directorate head, becomes director of the Space Flight Systems Directorate.

The new Space Technology Directorate will be responsible for the planning, overall direction and management of research, technology and development programs in the areas of space power systems, chemical and electric propulsion systems, and certain terrestrial projects in transportation propulsion systems and power generation and storage systems. This directorate also will conduct studies related to Earth orbital applications of space power and propulsion systems, such as a manned space station.

Combining elements of the former Energy, Space, and Science and Technology Directorates, the new directorate consists of the following divisions: Space Power Technology, Space Propulsion Technology, and Energy Technology plus the Space Systems Office.

Continuing Lewis support to the Department of Energy and other agencies for terrestrial energy programs will be centered in the



Director Andrew J. Stofan confers with Edward Richey over the Center's new organizational structure. *Bill Richardson photo*

Energy Technology Division of the Space Technology Directorate.

Assuming command of this directorate is Henry O. Slone, who was head of the Energy Directorate previously.

The new Materials and Structures Directorate comprises two divisions from the former Science & Technology Directorate: the Materials Division and the Structures and Mechanical Technologies Division.

This discipline-oriented directorate is formed because of the increasing emphasis on conducting basic research and developing advanced technologies in the areas of materials, structural design and mechanical technology to support the future needs of aerospace propulsion, power generation, and communications systems.

Named to head this directorate is Neal T. Saunders, who moves up from Materials Division Chief of the old Science & Technology Directorate.

The new Engineering and Technical Services Directorate combines elements from the former Engineering Services Directorate and Technical Services Directorate. Efforts will concentrate on engineering design; test hardware fabrication and installation; facilities planning, construction, operation and maintenance.

Becoming its director is Warner L. Stewart, who had been serving as head of the Technical Services Directorate alone.

In another change, the Administration Directorate has been

Director reports 'very good' 1984 budget

Lewis Director Andrew J. Stofan called the Center's proposed '84 budget "very good for Lewis" in a report to employees last Friday.

He said comparing it with the fiscal years '82 and '83 funding levels was a little like comparing apples, oranges and pears because '82 was history, '83 had had Congressional input and '84 has yet to have Congressional review and action.

The director reported that the total Lewis budget proposal for '84 amounts to \$572 million, as against \$614 million for the current '83 fiscal year.

Much of the difference is traceable to proposed funding cutbacks in DOE-sponsored work, in the level of Atlas/Centaur reimbursables, and in certain aero systems work, he said. He reminded the audience that some money will be added to '84 from '83 carryovers (not spent) plus additional funding could result from Congressional action as happened in '83.

That is the nub of the apples, oranges, pears comparison at this time, he indicated.

"What is very, very good news," he said, "is that no reduction in manpower levels will be required next fiscal year."

He added that an infusion of young technical skills at Lewis is already underway with some "freshouts" (recent college grads with science or engineering degrees) due on board over the next several months. This results from a temporary authorization for such hires, he said.

Lewis' major funding increases in 1984 come in sup-

port of work being done to adapt the Centaur upper stage for use in Shuttle and for the Advanced Communications Technology Satellite (ACTS) program.

The new budget includes \$159 million for STS-Centaur, a jump from \$133 million in 1983. About \$112 million of this 1984 allocation is NASA money and \$47 million is contributed by the Air Force.

The \$25 million budgeted for ACTS work will have a positive effect for Lewis for the next ten years, Stofan said, because it will help to continue the Center's lead role in space communications for a new generation of advanced space communication systems.

In aeronautics for '84, Stofan saw optimism.

While the \$82 million budgeted represents \$5 million less than this year, major programs such as HOST and E-cubed continue. In addition, based on Congressional actions in '83, there is reason to believe that Congress may provide funds for the Advanced Turboprop Program which are not in the present '84 forecast.

In reviewing other elements of the proposed Lewis budget, Stofan said the Construction of Facilities category showed a necessary increase.

The \$11 million appropriated for Construction of Facilities in 1984 (up from \$4 million in 1983) includes \$4 million for modifications to the Icing Research Tunnel and \$7 million for a Small Engine Technology facility.

Stofan said an increased NASA budget for rehabilitat-

ing facilities is an outgrowth of Administrator James M. Begg's concern that the centers originally built by NASA have many aging test facilities in need of attention.

Stofan positively appraised the NASA budget as a whole, based on what he perceives as "the turnaround of an old attitude" that had inhibited the agency from embarking on

new initiatives in recent years.

As evidence of the change, he cited:

"In the new budget, NASA has four very important new starts: our own \$25-million ACTS program, a \$100-million program to obtain major structural spares for the Shuttle orbiter fleet, a \$20-million Advanced Aerodynamic Simulation computer for

Ames and a \$29-million project to send a radar mapping probe to the planet Venus."

While Nasa funding did not dramatically increase, it did increase, not decrease, and that is a positive sign. Also, declining Shuttle development costs should free up dollars for other agency programs and new initiatives, Stofan said.



Stofan



Hartmann



Robbins

Stofan, Hartmann, Robbins receive presidential citations

The Presidential Rank of Meritorious Executive has been conferred on three Center officials, including Lewis Director Andrew J. Stofan.

Other Lewis recipients are Melvin J. Hartmann, newly appointed Director of Aeronautics, and William H. Robbins, manager of the Shuttle-Centaur Office.

The three Lewis officials were honored for "sustained superior accomplishment in the management of programs of the U.S. Government and for noteworthy achievement of quality and efficiency in public service."

Stofan was additionally cited

by NASA for dedicated service to the nation for nearly 25 years in launch vehicle development at Lewis and later at headquarters.

Congratulating Hartmann, NASA Administrator James M. Begg said, "Superiority of the U.S. military and commercial aircraft propulsion system is largely due to turbomachinery technology research managed by you."

Robbins was singled out for major contributions to the development of technology and systems for application to high priority national needs in areas of advanced satellite communications, of large, energy-

efficient wind turbine systems, and development and demonstration of the world's first nuclear rocket.

The Presidential Rank Award is presented annually to selected individuals of the Federal Senior Executive Service who demonstrate exceptional performance for an extended period. The lengthy selection process begins with reviews and recommendations by the nominating agencies, the Office of Personnel Management, and a board composed of distinguished individuals from outside Government. Final selection is made by President Ronald Reagan.



National Aeronautics and
Space Administration
Twenty-fifth Anniversary
1958-1983

New symbol represents 25 years of achievements

Marking a quarter-century of achievements in aeronautics and space exploration, NASA's anniversary logo will be appearing on official agency publications and documents over the next year.

The symbol is a five-pointed star encompassed by the number 25. In a clean, patriotic form it represents NASA's

continuing progress in aeronautics and the nation's leading role in space exploration.

February marks the 25th anniversary of the launching of Explorer I, America's first satellite, several months before the agency itself was formed.

Traditional red, white and blue are used when the symbol

is presented in full color (the numeral 2 is red, the star is white and the 5 is blue).

Look for the new symbol around the center and in agency material in the weeks to come. It stands as a reminder of all the great things we have accomplished.



A RARE SIGHT - The recent dinner honoring Lewis' 100th launch saw the three former and current Lewis Directors gather for a chat. They are Abe Silverstein (left), Bruce Lundin, Andrew Stofan and John McCarthy, Jr.

Don Huebler photo

July 29, 1983

NASA

National Aeronautics and
Space Administration

Lewis Research Center

Volume

Director's corner

Exercising care when old friends become new contractors

by Andy Stofan

As you may have noticed, there has been a dramatic increase in the number of contractor personnel performing on-site work at Lewis. Because this trend can be expected to continue, each Lewis employee should realize the unique situation which has been created.

Many long-time Lewis employees have retired and are now employed by various contractors. Often these are our friends and acquaintances. Contractor employees frequently work in close proximity and on the same project as Government employees. Because of this, we tend



to relate with them in the same way as Government employees.

This familiarity and closeness should not obscure the fact that contractors are not Government employees. While there is nothing wrong with personal and social friendships with contractor employees, and in fact such relationships are to be expected in many cases, these relationships should in no way be allowed to interfere with our duties as Government employees. We should always distinguish between such social friendships and the formal relationship which, of necessity, must exist between Lewis and the contractors and their employees who supply us with goods and services.

This relationship is not controlled by a smile and a handshake but by a written contract administered by Contracting Officers, Contracting Officers' Representatives, and Contract Monitors whose responsibilities are to the Government.

Because of the increase in contracting out support services, we must all do our part as Government employees to ensure that the contracting process is secure, orderly, as efficient as possible and free from any appearance of favoritism or

Continued on page 2

Old friends, new contractors

Continued from page 1

conflict of interest which could bring discredit to Lewis.

Pilot circles off to fast start

I am pleased to report that our Quality Circles program is off to a good start. We now have six pilot Circles going with two in reserve. They represent both office and technical skills. Some 58 employees are participating.

Each Circle has a leader and a facilitator, both trained for 40 hours to prepare them for their roles. The Circle meets weekly for an hour during the workday on a subject or subjects of its own choosing.

The QC trial period will last up to a year. At that point, the Steering Committee will decide on the merits of the program. On the basis of the results so far, I feel confident that the program will be productive and expanded to allow more employees to take part.

The current pilot units, with their leaders and facilitators (in that order), are:

- **Purchase Quality Cuties** - Dianna H. Corso and John E. Eckert
- **Technical Service Planners** - Luequention Wilkins and Andrew Benek
- **Fact Finders** - Dale N. Houghtlen and Robert L. Davies
- **Flying Burrito Brothers** - James R. Zelle and Janice M. Rossick
- **Ten-by-Ten Supersonics** - Anthony M. Reddish and Eugene J. Manista
- **Solar Cell** - Americo F. Forestieri and Robert J. Manly

Quality Circles is one approach to participative management. Whether it proves to be the right way for us to go, only time and the experience of our 58 "trailblazers" will tell. But the philosophy of participative

management is here to stay. It's making strong gains in the private sector, and I am convinced it can make any large organization with divergent problems work more productively.

Why am I so strong on participative management? First, let me explain again what I mean by the term. My perception is of a recurring procedure by which employees and supervisors can openly discuss problems relating to their specific work areas before the supervisor makes a decision on how to handle them. It's that simple.

Where better to get the best inputs than from the people who daily work the problem and know it from all sides. Where better to get possible solutions or approaches to solutions than from these people. In a participative setting, the pros and cons are put forward and the solution is worked.

Does everybody gain or stand to gain, including Lewis? A resounding "yes." The decision is a better-informed one because many people who work the problem have contributed their thinking. The employee has had a say, often a key one, in the decision. The interaction of people alone has improved the atmosphere on the job and made performing the job more enjoyable.

From Lewis' point of view, results can be truly impressive; one group's problem-solving synergizing another's - pyramiding effectiveness. Things get done or solved better than through individual effort alone. Not that the individual is sacrificed; the opposite is true. His or her voice *is* heard, in a setting that makes for easy exchange of viewpoint, experience and intelligence.

The participative management process is demanding, however. It takes a lot of time, effort and perseverance, but it can also be exciting - especially for an institution such as Lewis.

I feel strongly about participative management as a major force at

Lewis. It can enrich the quality of our work life and make us all more productive. People like to have a voice in what affects them. Participative management makes that possible in a deliberate, productive and personally meaningful way.



100th LAUNCH TEAM HONORED - Awareness Program staffers Bonnie Kaltenstein (left) and Eileen Cox helped distribute more than 330 souvenir booklets to 100th launch team members honored at the recent Awareness program marking Lewis' century mark of launch successes. Don Huebler photo

Up the ladder

Lewis' Computer Services Division announced the appointment of two staff members to management posts. Promoted are **Roger R. Schulte** and **Charles A. Farrell, Jr.**

As new head of the Communications and Networking Section, Schulte supervises all internal and external data terminal telecommunications at Lewis.

Previously, he served as Project Manager for the Lewis Information

Health Office if **Thomas L. Junod**, a certified health physicist. His responsibility covers recognizing and recommending controls for hazardous factors in the work environment at Lewis, especially in the areas of radiation safety and industrial hygiene.

The beginning of Junod's Lewis association was in 1959. From then until 1974 he worked as Health and Safety Officer at Plum Brook. Since then, his job positions have included



Director tours safety improvements

To emphasize current Center safety efforts, Director Andrew J. Stofan and Deputy Director John M. Klineberg are touring work sites with representatives of the Executive Safety Board and directorate heads.

The stops are part of a two-week series designed to give Stofan and Klineberg (the latter chairman of the Executive Safety Board) a chance to talk personally to the employees about safety concerns.

On the first tour, the group met with members of the Engineering and Technical Services Directorate, starting in Bldg. 107 where the Research Facilities Service Branch operates a shop. Stofan met with members of the shop's Safe Practice Committee and its Machinery Committee. Section Head Larry Petraus detailed modifications and improvements made at the facility.

The next stop, Bldg. 50, afforded tour members an opportunity to see the Fabrication and Support Technologies Division's safety precautions at its new plasma spray booth as well as safety guards being designed for the shop's metal shears. Section Head Clarence Mamere was tour guide.

In Lewis' massive hangar, the group inspected the modern fire suppression system designed to prevent fuel fires, and talked with members of the Test Installation Division, Area 1 Safety Committee and Facilities Engineering Division.

Stofan finished the first of the series with a visit to the ERB, where TID Branch Chief Bill Csak showed off a new anti-slip floor coating and TID staffer Gary Lorenz displayed safety warning stripes applied to large doors of the test cells.



SAFETY BAR - Lloyd Egbert (left) of the Research Installations Section shows Stofan the foot-operated safety bar installed on shop cutting shears.

Don Huebler photo



THANKS FOR A GOOD IDEA - Gary Lorenz (left) receives a grateful handshake from Andy Stofan for the safety warning stripes (middle) Lorenz applied to the massive ERB test cell door ends.

Don Huebler photo

Stofan charts labs future

In an hour-long presentation to Lewis staff, Director Andrew J. Stofan reported on budgets, outlook and strategic planning.

His Oct. 27 address in the DEB Auditorium also was broadcast to employees in both main cafeterias and rebroadcast in the afternoon to similar gatherings.

"We accomplished a lot last year and have some great challenges ahead," Stofan said at the outset. "Our basic strategic plan of last year was well formulated and needed little modification. We achieved 95 percent of what we planned and made substantial progress."

Stofan further explained that Lewis is recognized by Headquarters as diversified and part of NASA's "mainstream" activities.

On the subject of an approved agency space station program, he stated that he believes there are good prospects that NASA will get funds and orders to start development of a space station in 1985.

"To my mind, there is no question about NASA doing it," he explained. "It's only a question of when — and Lewis will play a key role in the space station development."

In strategic planning a year ago, it was decided that Lewis should seek to be lead center for development of the power system and auxiliary propulsion hardware for the manned space station.

Approximately 30 man-years of Lewis effort already have been used in support of the space station task force activities, he said, including assignments at headquarters, on working groups and on the space station technology steering committee. He told how the eight center directors have agreed on general plans for development of the space station,

setting a major milestone that was approved by NASA headquarters.

The approved 1984 Fiscal Year Lewis budget is the largest in recent years at \$682 million including \$138 million for salaries and operations and \$523 million for research and development.

For 1983, the total was \$619 million, with \$126 million for salaries and operations and \$484 million for research and development.

Aeronautics, in the R & D budget, is down slightly at \$81 million; space is up at \$28 million; energy goes to \$83 million for carrying out prior commitments in the energy programs.

Stofan said he was given the okay in Washington last week by NASA Administrator James M. Beggs to go ahead with the Advanced Communications Technology Satellite program which is in the budget for \$25 million.

The STS-Centaur program gets \$185 million to fit a modified Centaur into the Space Shuttle.

"This program will be at its peak in FY 1985, and we are planning increased staffing for it," said Stofan. "I was in San Diego recently to see the first hardware, which is coming along very well. We're in full agreement with the Air Force and have requested a half-dozen more Air Force personnel to work with us on the project."

Commenting on details of the Aeronautics budget, the director said that discussions are proceeding that will convince headquarters that more than \$52 million is needed for the research and technology base. Small engine technology needs more than \$2 million. Advanced turboprop has much potential and will probably grow beyond its '84 budget of \$15 million, he predicted.

Among Lewis' goals revealed by Stofan are aero-propulsion programs directed to achieve the following major advances by 1995:

- 50% reduction in fuel consumption for large-size jet engines.
- 25% increase in engine thrust-to-weight ratio.
- 50% reduction in engine design and development time.
- 100% increase in durability of hot parts of jet engines.



DIRECTOR'S MESSAGE - Stofan discusses the budget. Bill Richardson photo

Lab discovery doubles capacity of new communications satellites

A relatively inconspicuous modification to a communications satellite amplifier tube has proven capable of doubling the channel capacity of the satellite - a major step in alleviating the growing problem of communication satellite overcrowding in space.

Dr. Henry G. Kosmahl, an electron physicist at Lewis for the past 21 years who designed the modification, calls the improvement a Dynamic Velocity Taper or DVT.

"It is actually a relatively minor technical modification of an existing satellite amplifier that has a powerful electronic effect on performance," explained Kosmahl.

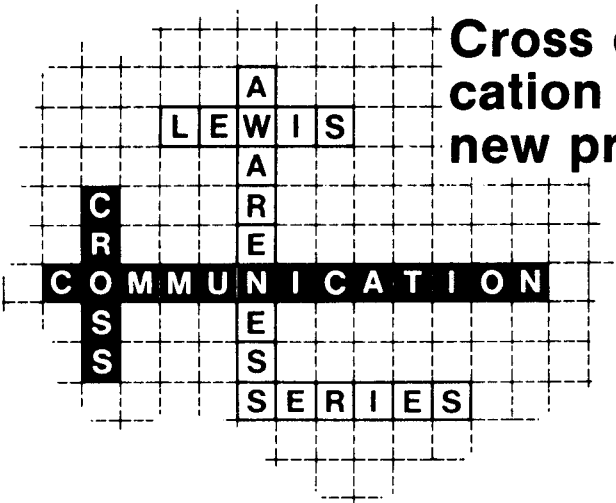
The DVT was designed with the aid of sophisticated computer programs that support Lewis' continuing efforts to develop, build, launch and operate

experimentally advanced communications technology satellites.

In describing the value of the DVT, Kosmahl pointed out that all spacefaring nations in the world, and those who someday hope to be, are discovering that the geosynchronous slots above their countries are becoming increasingly crowded as more and more nations utilize communications satellites for voice, picture and data transmissions.

"The closest that such satellites can be spaced around the globe at the geosynchronous orbit level is two degrees, otherwise the signals from one satellite would interfere with those from an adjacent satellite," explained Kosmahl, head of the Lewis Microwave Amplifier Section.

Cross communi- cation is goal of new program



The Awareness Communications Activity Group will begin a "Cross Communication Series" Feb. 15 designed to exchange views between senior management and supervisors in an informal setting.

The program, set to run until summer, will be formulated around small groups of supervisors meeting informally with Director Andy Stofan at the Guerin House. One or two such meetings a month is the present schedule to accommodate all supervisors who wish to take part.

Invitations to the meetings will be sent to supervisors selected randomly across directorate lines. This concept gives the program its name.

"I really would like each supervisor to share ideas and discuss issues with me," said Stofan, "because their input vitally affects the productivity and strength of the Center."

"Some of the subjects we want to get into involve strategic planning, the budget, quality circles and productivity," said Awareness Coordinator Joyce Bergstrom.

Bergstrom said that Chuck Slauter, chief of the Fabrication Branch and a member of the Awareness Communications Activity Group, developed the name to describe the process envisioned for the get-togethers. □

Peer review of Lewis' basic research instituted

A peer review system of the more basic research activities at Lewis will be implemented this year on a trial basis, Director Andy Stofan has advised.

"If we decide to retain the system we will review basic research every five years." Stofan said.

"I see these reviews as a mechanism for obtaining objective comments from the peers of our researchers from outside the Lewis Center and for subjecting our

research program to the same rigorous standard of review as the corresponding university activities."

Stofan explained that he anticipated the reviewers will truly be peers of the Lewis researchers in the particular group being reviewed. They will be selected by the head of the group with approval of Marvin Goldstein, Lewis' Chief Scientist.

The peers will be instructed to concern themselves only with the context of the research program

and the quality of the researchers and facilities. They will consider the size of the program only as it relates to a "critical mass".

The review will consist of a day to a day-and-a-half of viewgraph presentations to the peers. It will be scheduled so that the peers can report to the director in an executive session immediately following the presentations.

Stofan has asked the Chief Scientist to coordinate the activity, notify and send out guidelines to

the heads of groups being reviewed. The latter will be responsible for organizing the activity.

The initial list of areas to be reviewed:

Combustion fundamentals;
Structures; Electrochemistry
Fundamentals; Polymer-Matrix
Composites; Unsteady Aerodynamics
and Acoustics; Metallic Materials;
Electro-Physics; Fuels; Tribology
and Computational Fluid
Mechanics. □

Lewis assigned power system

Lead responsibility for developing the power system for the nation's first permanently manned space station has been assigned to Lewis.

Director Andy Stofan broadcast the good news to employees by closed circuit television on July 2.

President Reagan has directed that NASA develop a permanently manned space station and have it operating in a decade, which would be early in the 1990's.

"This is one of the most important assignments ever given to this Center," Stofan said. "It places Lewis in the mainstream at the start of a critically important program to advance the nation's space capability.

"I would like to thank all who worked so diligently to bring this truly challenging responsibility to Lewis. We are doubly grateful because our strategic plan called for Lewis to undertake this vital role. Now it is time to get on with the work itself.

"Besides the power system, we will support the space station in such other major areas as propulsion and communications," Stofan added.

Henry O. Slone, Director of Space Technology at Lewis, said the power system for the station probably will be a photovoltaic system, but a solar thermal dynamic system also is under consideration. He said Lewis' responsibility is divided into four major categories:

- **POWER GENERATION:** to develop the structure and components associated with the solar energy collection and power generation assemblies.

- **STORAGE:** to design and develop the storage system equipment to supply/augment electrical power during occulted and emergency conditions.

- **CONDITIONING:** to develop central equipment required to supply properly conditioned power to the distribution system.

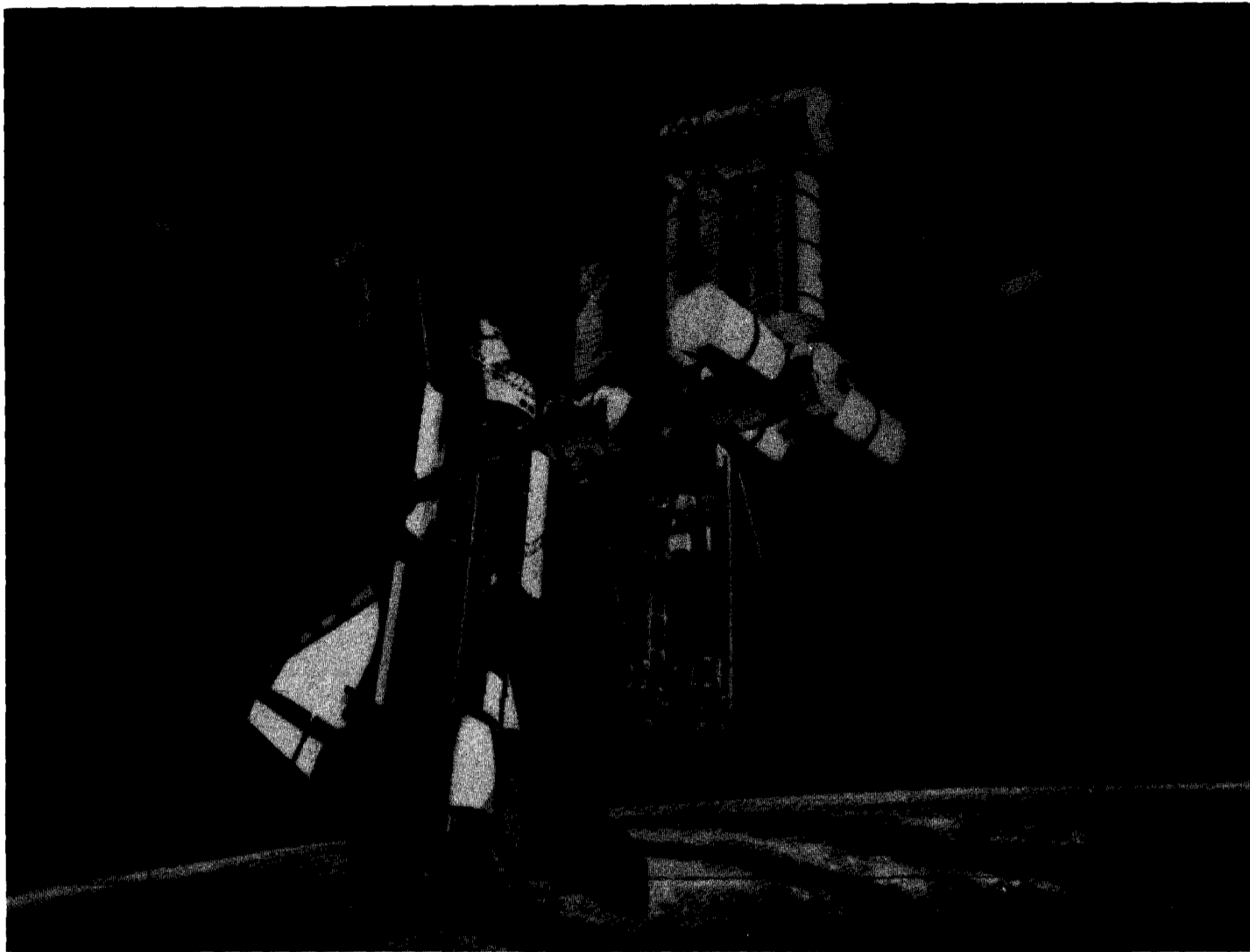
- **POWER MANAGEMENT AND CONTROL:** to develop the necessary equipment that is required to control and manage the power system.

Solar cells that convert the Sun's energy into electricity have been used along with electrical energy storage since the late 1950's to provide reliable electric power for spacecraft. Lewis has played a leading role in the early development and in the continuing advancement of solar cell and energy storage technology, Slone explained.

Lewis has excellent facilities for testing power sub-systems so that new construction of additional buildings or laboratories is not expected to be necessary, Slone said, adding that some modifications of existing facilities may be required.

Electric power will be needed aboard the space station for such essentials as life support systems, experiments, communications and data handling.

A half-acre of solar cells is expected to be required to produce 75 kw of power — the largest electrical requirement to date for space power.



STAR ROUTE TO THE PLANETS. Early 1990's space scene shows the NASA space station nearing completion as the workhorse Space Shuttle arrives with another load of equipment and materials. A half-acre of solar panels, a product of Lewis technology, converts sunlight into electricity as part of the power system designed and supplied under Lewis direction.

That requirement will continue to grow to more than 150 kw by the year 2000, Slone estimated.

By comparison, here are electrical power requirements for common present-day uses in space: communications satellites, 1 to 2 kw; Skylab, 10 kw. Space Shuttle, 12 kw (provided by fuel cells).

A space station electric power system would include generation, storage, distribution, power management and control. All these

Awaiting new 41-D date

At presstime mid-July had been set as the probable launch date for STS 41-D. The mission was aborted four seconds from launch on June 26 due to a suspected fuel valve problem in engine three. The engine was removed for examination. Officials want to identify the cause of the problem before committing to a firm new launch date.

areas, as well as integration of such a system, are already under study at Lewis in unique facilities allowing tests of various generation sources, storage subsystems, power management and distribution concepts, and load management.

Because the electric power requirements for the space station are so much greater than previous space power needs, other generation systems such as solar dynamic will be

considered. A solar dynamic system converts highly concentrated solar energy into heat for a working fluid to drive a heat engine. The engine turns an alternator to generate electricity much like our local electric power systems do, but on a much smaller scale.

The type of electrical power system to be used for the space station will be determined during the next two years of definition studies, Slone said.

The space station itself will be an operations base from which satellites can be serviced and large structures assembled, scientific observations can be made and interplanetary journeys can begin, according to Ron Thomas, leader of the Lewis Skunk Works Team at Johnson Space Center. That team is part of the task force working out preliminary designs for the space station.

"One of the station's important uses will be as a staging base for routine access to higher orbit or interplanetary trajectories," said Thomas. "Orbit Transfer Vehicles are expected to play an important role in moving payloads about for a variety of purposes."

The space station will weigh 40 tons, house six to eight men and women for up to six months at a time and offer living quarters somewhat larger than a one-bedroom apartment.

It will come equipped with scientific and industrial laboratories, a satellite repair shop, a telescope platform for

observing the heavens and another platform for observing the Earth.

Undergirding all, this boldest concept put forward for NASA since Apollo will stimulate new technologies and enhance U.S. productivity, demonstrate U.S. strength in a peaceful way and help realize the commercial potential of space. It will serve as a national scientific and technological laboratory in space for both government and industry.

Meld manned vs. automated space station views

The conference report adopted by the House and Senate on NASA's FY '85 appropriations bill reflects a package supporting man-tended and automation provisions for the space station.

The report specifies that \$155.5 million will be allocated for the space station and that NASA include a man-tended option for examination in the definition studies.

Language in the bill (H.R. 5713) further directs that NASA submit its definition study of various configurations, including the man-tended option, to the House and Senate committees for review.

Conferees stressed that the man-tended option as one of the reference configurations is not intended to delay the schedule for the request for proposals (RFPS), initiation of the studies or the planned narrowing of options during the definition effort.

Center ready for new roles

Strongly Positive Report!

That was the tone of the Director's Message presented to Lewis employees on August 28.

Center Director Andy Stofan reviewed the status and future of the Lab in three main areas: the new look of the organization as it tackles new challenges and missions in the mid-80's and beyond, strategic planning -- both past and future -- and, perhaps most critical of all, resources. The latter, in the main: a record high budget for the Center in recent years that will carry programs through fiscal 1985.

"Make certain of one thing, there will be plenty of work to do, assignments for all our people," the Director said.

"And for those affected by the changing mix of directorate responsibilities and needs, we are working hard to make reassignments match work areas of each person's competence and preference," he said.

In line with that, Stofan said that extensive reviews and discussions had already taken place at levels below directorate and that these would continue until matches and appropriate actions are achieved. He also indicated that an open meeting was scheduled for the following day (August 29) for further review and Q&A for all staff members who wanted to attend.

The Director added that the new organization should be finalized by September 7 and that the Center in its new format should be in place with necessary Headquarters approvals about October 1.

On strategic planning, Stofan said that the first objective of recently set strategy had been met, that of restructuring the Center to perform newly assigned and predictable roles for the future. What we need to do now is implement those strategies to carry out these new missions in the most effective and efficient manner,

Based on the new organization, the Center's strategic plan will be updated and documented later this year, he stated.

The Director pointed to establishment of the new Space Station Systems Directorate as a bright star in Lewis' long range future. Initially it will have 115 employees, devoting its work to developing the power system for America's first, permanent manned space station,

by Stofan in his presentation were small engine technology, and the Space Experiments Office which could provide the Center yet another major activity as the space station comes to fruition. Small engine work comes under Aeronautics, now headed by Neal Saunders, and space experiments is part of the Aerospace Technology Directorate under Henry Slone.

Stofan pointed out the challenging, critically important nature of the

Imminent, the Director said, is a decision on the Center's planned future rehabilitation of the Altitude Wind Tunnel which would convert that veteran installation into a modern test facility for aeropropulsion and icing research. He said there is a good chance that the 1986 initial construction budget would be approved in the very near future. He said that progress to date in preliminary engineering includes extensive AWT modeling work.

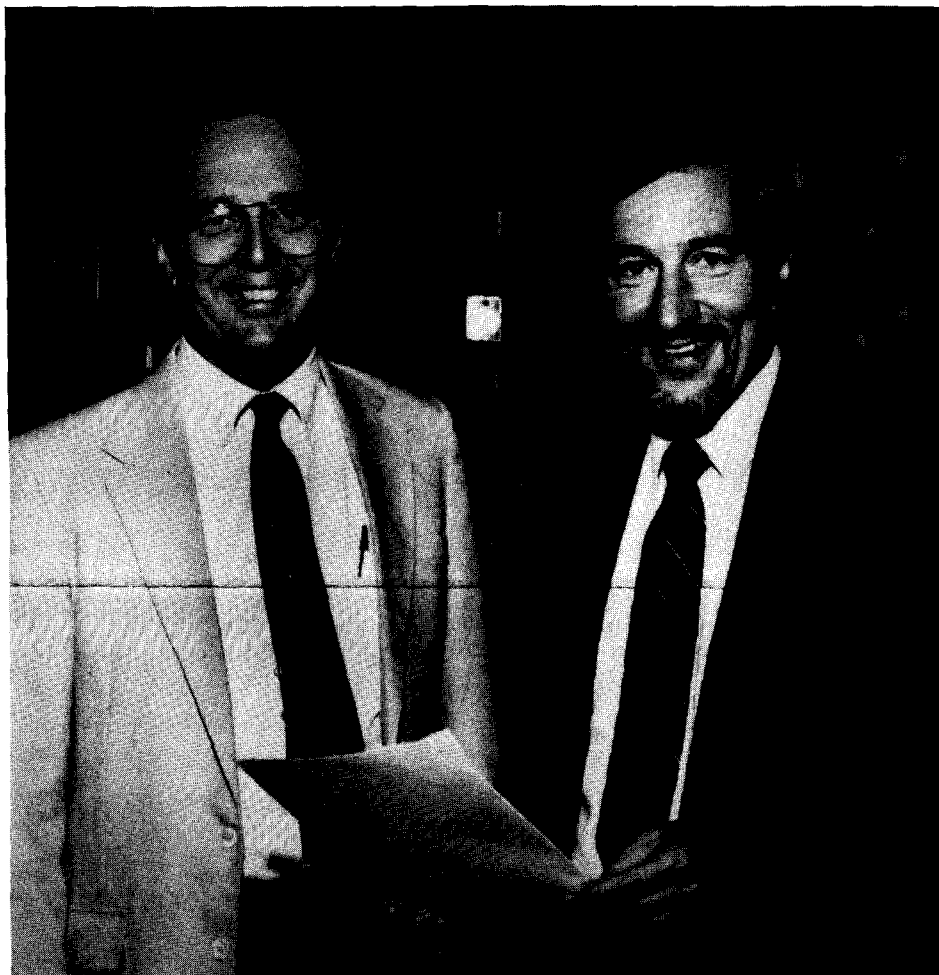
Switching to resources -- the FY 85 budget -- the Director reviewed a Lewis budget for the coming year of \$817 million. Just three years ago, it stood at \$620 million. Under the Research and Program (R&PM) component, Stofan cited the rise in funding for operation of the Center over the past three years as reflective of gains in support service contracting and computerization.

Major program gainers -- the coming year over the current year -- are Advanced Turboprop, advancing to \$30 million from \$17 million a year ago; Advanced Communications Technology Satellite (ACTS), almost doubling in 85 over 84; and Shuttle/Centaur, increasing to \$287 million vs. \$235 million a year ago.

Other FY 85 budget highlights reveal energy work next fiscal year continuing at about the same level as the past three years (\$77 million in 85) and aeronautics overall advancing to \$89 million from \$78 million in 84. FY 85 funding for space station technology at Lewis stands at \$16 million.

Stofan said that copies of the viewgraphs used in the presentation would be available to employees through the Awareness Office.

The Director's Message, presented live in the DEB Auditorium, was also carried on closed circuit TV to audiences in the Administration Building Auditorium and the DEB and Main Cafeterias. The Director's Message is a communications activity of the Lewis Awareness Program. □



Bright star in Lewis' long range future is the newly organized Space Station Systems Directorate, according to Director Andy Stofan's message. Ron Thomas, left, has been selected to head it as acting director, named in the message Aug. 29 by Stofan, right.

Lewis photo by Don Huebler.

which has an initial operating capability target of about 1992.

Once that effort goes to the flight hardware stage, further reorganization may be effected to suit new needs. This should present no problem in that Shuttle/Centaur may very well be phasing down at that point, providing an additional cadre of skilled people to augment our space station team, he noted.

Appointed to head up the new Space Shuttle Systems Directorate is Ron Thomas, who previously served as chief of the Center's Space Systems Office. His deputy is Tom Cochran.

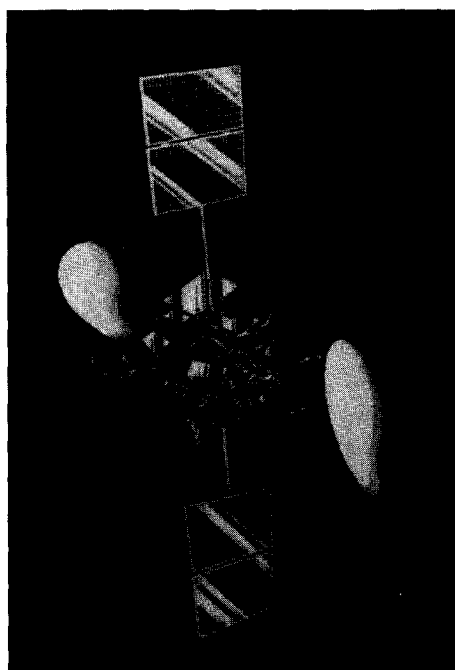
A key change in the new organization discussed by the Director is formation of an Office of Research & Technology Assessment. It will function as an independent means of assessing R&T underway at the Center utilizing a team of senior experts led by Mel Hartmann, with Herman Mark as his deputy. Funded university research and other areas of university relations will also fall under this team's jurisdiction.

Two likely growth areas singled out

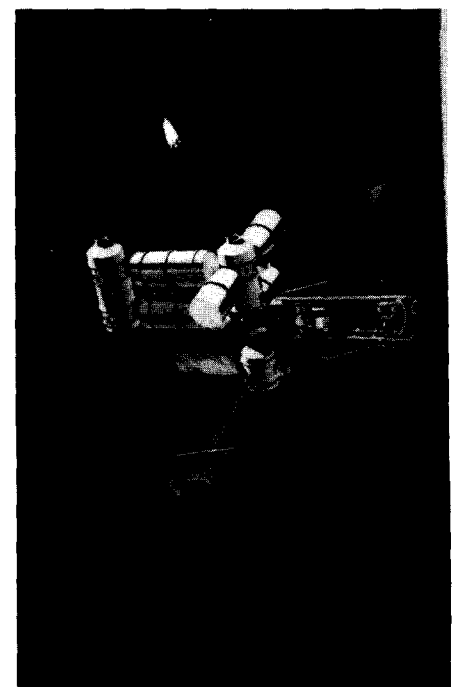
Shuttle/Centaur program underway at the Center. Referring to the launch requirements, he stated: "We expect to stay on schedule and meet the target."

(Centaur modified as a high-energy upper stage for the Shuttle is scheduled to launch the Galileo (Jupiter) and Solar Polar spacecraft on consecutive weeks in May, 1986.)

Stofan added that NASA is committed to lead the Shuttle/Centaur through 1988 but thereafter management could vary according to Air Force and NASA payload requirements. "So important is this Shuttle/Centaur effort that that office was essentially untouched in the restructuring of the Center to meet our assigned program obligations," he said.



Advanced Communication Technology Satellite.



Permanent, manned Space Station.

Lewis participative management in accord with NASA principles for excellence

by Andy Stofan, Director

For two-and-a-half years we at Lewis have been vigorously pursuing the introduction and implementation of participative management as a major strategic goal.

We have established an ambitious program of Quality Circles and have incorporated the principles of participative management into all of our training programs.

It is my sincere desire that every level of management at Lewis embrace the concepts and put into practice this stimulating and productive method of management on a day-to-day basis.

James M. Beggs, NASA Administrator, sent me the statement of management principles for NASA that is printed here. I totally endorse this set of principles, which I believe is consistent with and supportive of our strategic objective of participative management.

I encourage every level of management at Lewis to discuss with subordinates each of the "NASA Management Principles To Achieve Excellence" and to pursue ways at all levels within the organization to make every one of these principles become a

reality at Lewis.

NASA'S MANAGEMENT PRINCIPLES TO ACHIEVE EXCELLENCE

We Demonstrate Belief In Our People By:

Taking on inspiring National goals, translating them to challenging objectives at each level, and

acknowledging the collective responsibility of managers and team members.

Demonstrating confidence and respect for all members of the NASA Team, rather than depending upon regulating behavior through excessive rules and regulations.

Entrusting responsibility and authority to the lowest practicable operating level in order to encourage initiative and pride and to minimize bureaucracy and paperwork.

Encouraging honest, open and frequent two-way communication on all matters affecting team members and the work.

We Manage For Success By:

Hiring a high quality and integrated work force, providing them opportunity for creative and productive work, and maintaining a positive climate for personal development and career growth.

Stressing world class quality and pride in performance at every working level and recognizing each outstanding contribution.

Communicating clearly defined

(Continued on Page 2)

New editor comes aboard

On board this issue as **Lewis News** editor is James Franciscangeli.

Jim's varied editing and communications background includes service as a public relations writer with the Cleveland Electric Illuminating Co., information specialist with the Akron-based Ohio Edison Co. and managing editor of a nationwide trade publication under Hartman Communications in Fairlawn, O.

A native Clevelander, he has also worked with Penton-IPC and Carr Liggett Public Relations. He holds a B.A. in speech and communications and an M.A. in mass media communications.

During schooling, Franciscangeli (pronounced *fran-sis-cón-jelee*) worked part-time as a radio newsman for three years. He and his wife reside in Shaker Heights.

Former editor Charles Tracy moves on to devote more time to writing an aviation history book. Although his service as editor was brief, Chuck is a long-time reporter of NASA doings, having been aviation editor of The Cleveland Press for more than 40 years.

Thanks, Chuck, and hope you put together a best seller. □

Lewis participative management in accord with NASA principles for excellence

(Continued from Page 1)

goals and focusing on successful performance through systematic program planning and execution.

Encouraging as much contractor competition as appropriate, and executing programs through non-adversarial team efforts.

Providing to all offices and facilities the modern equipment needed for quality and productive work.

We Operate With An Open Management Style By:

Recognizing that inherent in R&D are high-risk and high-payoff efforts,

and maintaining high technical credibility and improving performance through free and open reviews of technical failures.

Encouraging those who are responsible for carrying out the work to make suggestions for improvements and participate in the planning.

Providing ample opportunity for our people to communicate with the best minds in science and technology in other organizations.

Maintaining integrity in all our dealings with the NASA Team and all outside individuals and organizations. □

Lewis Newsline

Hiram Honors Director-Center Director Andy Stofan was recently honored by his alma mater, Hiram College, for outstanding contributions and services to humanity, his country and community. As Fellow inductee in the Garfield Society (named for former President James A. Garfield), Andy Stofan joins a long list of distinguished persons recognized by Hiram.

Parachute Jump-Four Lewis "fresh-outs" recently participated in a 2500-ft. parachute jump from a pair of Cessna 182s which took off from Martin Field near Canton. Terry Hardy, Mike Schatz and Peg Whalen of the Space Propulsion Technology Div. and Jeff Trudell of Power Systems Engineering Div. received five hours of instruction before the event. "I loved it; it was great—just too short." is how Peg described the first jump experience.

Propfan Display-A display featuring some of the key technology advancements being developed under auspices of the Lewis-managed Advanced Turboprop Program can be seen by Center personnel on Nov. 21 in the Propulsion Systems Lab. The display will illustrate various aspects of the ATP, including the design, fabrication and test of a nine-foot diameter propfan which will be flight tested in 1987 aboard a modified Gulfstream GII aircraft.

Donor Dash Winners-Lewis' Mary Kay Varholick and Nancy Wolf were recent winners in the Red Cross Blood Services Donor Dash '84—a 10-kilometer race through downtown Cleveland. Varholick, of the R & D Programs Office, placed second in the women's 25 to 29 age category. Wolf, with the Engineering Design Div., won third place in the 40 to 44 category. All 350 "fun run" participants helped meet area blood needs by each having two persons donate blood.

New Year's Eve Dance-The NASA Servicemen's Club says it's not too early for Center folks to be planning on attending the Annual New Year's Eve Dance. The \$32-per-person gala event includes buffet dinner, all refreshments and an evening of dancing to the music of the Dan Peter band. Tickets for the AFGC Local 2182 hosted event are available from any club member or from the Union Office (after 12 noon).

Latin Club Dance-Lewis' folks are invited to attend a Ballroom & Latin Music night on Friday, Nov. 30, from 8:30 PM to 12:30 PM in the Ad Bldg. Auditorium. The \$9-per-couple social features the George Maxin Orchestra and provides free snacks along with a cash bar. Those planning to attend should forward their checks payable to the Latin Dance Club to Dave Hopkins, MS 142-2, by Nov. 21.

NASANational Aeronautics and
Space Administration

Lewis Research Center

Volume 22 Issue 4 February 22, 1985

Lewis News

Director Stofan reports on '86 budget

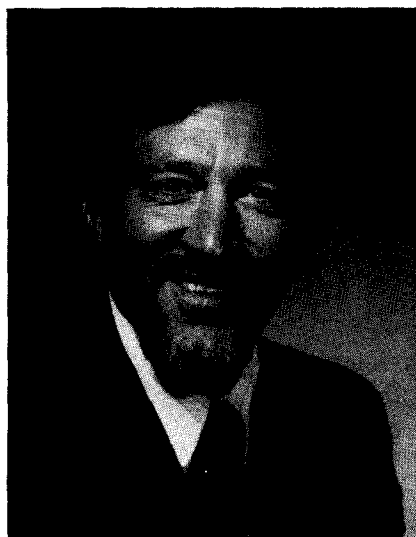
In a recent report broadcast live from his office over Center closed-circuit television, Lewis Director Andrew J. Stofan said the proposed '86 NASA Lewis budget "is one we can work and live with."

The director reported that the total estimated Lewis budget for 1986, including both NASA and reimbursed, amounts to \$830 million, as compared to \$814 million for the current '85 fiscal year.

Stofan said the proposed total NASA budget of just under \$7.9 billion submitted by NASA Administrator James M. Beggs to Congress on Feb. 4 was subject to federal-wide constraints because of concerns to cut costs and reduce the deficit.

In submitting the budget, Beggs said NASA should be recognized for paying its price and contributing to reducing and holding down growth on federal spending.

Although the proposed NASA budget will not, essentially, allow for any new starts, it does provide some relatively good news. The proposed NASA R&D budget for the Space Station is \$230 million, compared to '85's \$150 million startup funds— an increase that provides a workable budget for Phase B contracts, said Stofan. And with President Reagan's



Director Andrew Stofan

strong support for the program, added the director, growth is expected to continue in the years ahead.

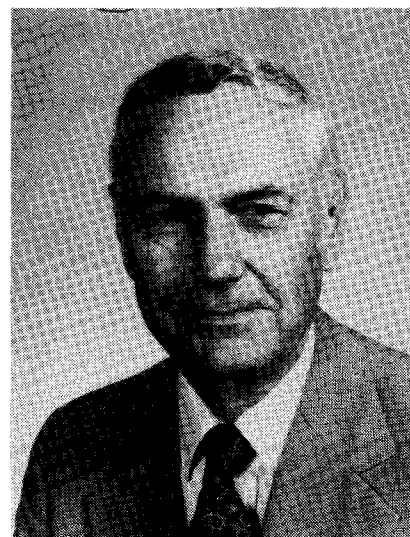
Reporting on Lewis' proposed \$830 million budget for fiscal '86, Director Stofan gave the following assessment:

Aeronautics (\$100 million)—growth, but constrained

Space (\$34 million)—continued, modest growth

Energy (\$66 million)—phasing down as we complete our commitments to the Department of Energy

Space Science & Applications (\$117 million)—healthy growth



Administrator James Beggs

Space Station (\$30 million)—continued, planned growth in keeping with the NASA overall program

Atlas-Centaur (\$325 million)—continued, on-schedule funding, with major Air Force participation.

The expected funds of \$30 million for Lewis Space Station projects and \$117 million for the Advanced Communications Technology Satellite (ACTS) and Materials Processing programs demonstrate a major commitment for continued growth in these areas, reported Stofan.

The Atlas/Centaur program budget at \$325 million is down \$64 million from '85, but the director reported that the program is healthy and the launch schedule is maintained.

Referring to the absence of fiscal '86 funding for the Altitude Wind Tunnel program (no new aeronautical facilities will be established nationwide under '86 funding), Stofan said the Administrator has indicated that aggressive efforts will be made for continued AWT program support in the '87 budget proposals. The director added that Lewis would vigorously continue its current analytical and structural modeling efforts.

The director also reported that Lewis' civil service manpower level will remain stable for the most part, with a modest 200-person attrition NASA-wide in '86.

Overall, Stofan said Lewis will continue to experience controlled modest growth based on the funds available. "We obviously didn't get everything we proposed and hoped for, but, based on what's happening in general to other agencies across the country under the President's debt reduction plan, NASA has been treated well," said Stofan.

"Let us all keep up the good work as we continue to carry out our role for NASA," said Stofan. □

Center Director Stofan Receives Presidential Award

Center Director Andrew J. Stofan was presented the 1985 Presidential Rank Award to Distinguished Executives at the White House on December 12 for his career-long achievements in managing advanced research and technology programs for NASA. He receives a \$20,000 stipend as a result of being selected to receive the Presidential award.

Long recognized both nationally and internationally as an outstanding manager and technical expert, Stofan has directed Lewis since 1982. Within two

years after joining the Center in 1958, Stofan was considered a nationally recognized expert on the behavior of rocket fuels in the unique environment of launch and flight.

As a result of his continuing efforts and successes, he was named Director of Launch Vehicles in 1974. In that capacity, Stofan managed the multi-million dollar development and operation of the Atlas/Centaur and Titan/Centaur launch vehicles and supported the integration and launch of numerous communications satellites,

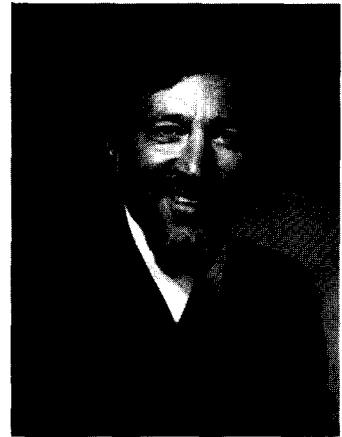
scientific spacecraft, Mars landers, Voyager and missions to the outer planets.

In January 1978, he transferred to NASA Headquarters in Washington, D.C. where he chaired a major subcommittee that reviewed the Space Shuttle flight certification program. His group's recommendations were important to the first successful launch of the Shuttle.

As Acting Associate Administrator for the Office of Space Science and Applications, Stofan was responsible for di-

recting the overall NASA Space Sciences programs concerned with the study of the Solar System and the Universe, and was concurrently responsible for a variety of communications and other "working" satellite programs.

Since returning to Lewis, Stofan has been successful in having Lewis named lead Center for developing the power system for the Space Station, establishing the Microgravity Materials Science Laboratory and strongly encouraging participative management throughout the Center. □



Andrew J. Stofan

Center Director Stofan named to head up restructured Space Station program

Andrew J. Stofan, Lewis Research Center Director since July 1982, will be heading back to Washington, D.C. this September as newly appointed Associate Administrator for Space Station. The announcement was made June 30 by NASA Administrator Dr. James C. Fletcher.

Prior to his Lewis assignment, Stofan, long recognized both nationally and internationally as an outstanding manager and technical expert, served for five years as Deputy Associate Administrator for the NASA Headquarters Office of Space Science in Washington, D.C.

Stofan first started his career at Lewis in 1958 after graduating from Hiram College. Within two years after joining the Center, he was considered a nationally recognized expert on the behavior of rocket fuels in the unique environment of launch and flight. His continuing efforts and successes earned him the position of

Director of Launch vehicles, managing the highly successful Atlas/Centaur and Titan/Centaur launch vehicles and supporting the integration and launch of numerous communications satellites, scientific spacecraft, Mars landers, Voyager and missions to the outer planets.

In 1978 he transferred to Headquarters and, while serving as Deputy Associate Administrator, he chaired a major subcommittee that reviewed the Space Shuttle flight certification program. His group's recommendations were important to the first successful launch of the Shuttle.

Since returning to Lewis, Stofan has been successful in having Lewis named lead Center for developing the power system for the Space Station, establishing the Microgravity Materials Science Laboratory, and strongly encouraging participative management throughout the Center.

Last year, Center Director

Stofan received the 1985 Presidential Rank Award to Distinguished Executives at the White House for his career-long achievements in managing advanced research and technology programs for NASA.

"The appointment offer came as a complete surprise," said Stofan. "I went to a Headquarters meeting with the intention of discussing Lewis' continuing role in the Space Station program, and I left with a very challenging job offer. And accepting the position was not an easy decision. I thoroughly enjoy the promising work at Lewis and have felt quite settled in the community. But I also felt a sense of duty to accept the appointment, knowing the task ahead will be a difficult one."

In addition to the appointment, Fletcher announced a number of organizational and management structural actions, effective immediately, designed to strengthen technical and management capa-

bilities in preparation for moving into the development phase of the Space Station program.

The decision to create the new structure comes as the result of recommendations made to Fletcher by a committee headed by former Apollo program manager Gen. Samuel C. Phillips who conducted a review of Space Station management as part of a longer-range assessment of NASA's overall capabilities and requirements.

Fletcher said the new Space Station management structure is consistent with recommendations by the Rogers Commission which investigated the Space Shuttle Challenger accident. The commission recommended that NASA reconsider management structures, lines of communication and decision-making processes to assure the flow of important information to proper decision levels.

Project managers located here



Don Huebler, Photo Lab

Said Center Director Andrew J. Stofan about the appointment: "It was the toughest decision of my life. It's hard to leave a job I like so much and the community we have become settled in."

Flight Center, Greenbelt, Md;
Johnson Space Center, Houston;

(Continued On Page 2)

...Space Station program

(Continued From Page 1)

Kennedy Space Center, Fla.; and Marshall Space Flight Center, Huntsville, Ala., will report functionally to the associate administrator. They will coordinate with their respective center directors to keep them informed of significant program matters.

In other actions, Fletcher has directed acting Associate Administrator for Space Station John D. Hodge to streamline and clarify NASA's procurement and management approach for the Space Station program and to issue instructions related to work package assignments, procurement of hardware and services, and selection of contractors for the development phase of the program.

In addition, Hodge also has been asked to develop a program overview document that will spell out the role automation and robotics will play in the Space Station program and to conduct further studies in the areas of international involvement, long-term operations, user accommodations and servicing and issue detailed directions in the near future.

Fletcher has authorized NASA to proceed with the procurement of a Technical and Management Information System (TMIS), a versatile computer-based information network. It will link NASA and contractor facilities together and will provide engineering services, such as computer aided design, as well as management support on such things as schedules, budgets, manpower and facilities.

Since mid-April, Phillips has

been examining the Space Station program from a technical as well as management perspective, as part of a broader look into the way NASA manages its programs, including relationships between the various space centers and NASA headquarters. His report reflects discussions with representatives from all the NASA centers and the contractors involved in the definition and preliminary design of the Space Station, as well as officials from other offices within NASA.

In his January 1984 State of the Union message, President Reagan directed NASA to develop a "permanently manned Space Station within a decade." NASA assigned responsibilities for various elements and systems of the Space Station to five of its space centers, and in April 1984, awarded 21-month long contracts to eight industry teams to conduct definition and preliminary design studies (Phase B).

A baseline configuration was selected in May of this year to guide preliminary design activities through the remainder of the Phase B study. Development is scheduled to begin in the spring of 1987. Initial launch of Space Station elements is set for early 1993 with a permanently manned capability to be in place by 1994.

Fletcher said the program will employ the services of a top-level, non-hardware support contractor. In addition to the systems engineering role, the Program Office will contain a strong operations function to ensure the program adequately deals with

the intensive needs of a permanent facility in space.

A Systems Integration Field Office will be established as part of the Program Office organization and will be located in Houston. Fletcher said the new associate administrator will define the longer-term role of the Houston office, the role of the systems engineering and analysis function in Washington, and the schedule of development and transition of functions to Washington. □

Spacecraft Workshop

From July 29 to 31, Lewis will host the **Spacecraft 2000 Workshop** that will examine the critical needs and technologies required to design and build a new generation of spacecraft for the 21st century. Some 150 participants are expected, representing major aerospace industries, Department of Defense and NASA. The workshop is co-sponsored by the NASA Office of Aeronautics and Space Technology and will be held at downtown Cleveland's Hollenden House Hotel. For more information, contact Dr. Robert W. Bercaw, PABX 6112. □

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Editor James Francescangeli
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More than 1600 employees, contractor personnel, and friends from industry gathered in the Hangar for the presentation of gifts and mementos to departing Director Andy Stofan (shown at podium) and his secretary Sharon Whitlock (seated at Stofan's right). Also shown on the dais are Acting Director John Klineberg, who served as emcee, and Stofan's wife Barbara.



Cleveland City Councilman David M. McGuirk (right) of Ward 21 presented Stofan with Mayor Voinovich's proclamation of Aug. 25 as Andrew Stofan Day during a farewell luncheon sponsored by the Greater Cleveland Growth Association.

At the farewell dinner Congresswoman Mary Rose Oakar (right) presented a special plaque to Stofan. The 281 friends of Stofan who attended the dinner also heard a proclamation from Congressman Feighan's office and remarks by Andi Udris, Assistant Director of Economic Development for the City of Cleveland. In addition, they saw a humorous videotape highlighting Stofan's career at Lewis and presented Stofan with a gift of deluxe customized golf clubs.



Mayor Proclaims Aug. 25 Andrew Stofan Day

Monday, Aug. 25 was proclaimed Andrew Stofan Day in Cleveland by Mayor George Voinovich in honor of Stofan's departure for Washington to begin his new assignment as NASA Associate Administrator for the Office of Space Station. The proclamation was read during a farewell luncheon spon-

sored by the Greater Cleveland Growth Association on Aug. 25.

Other events honoring the departure of Stofan and his secretary Sharon Whitlock included a reception in the Hangar on Friday afternoon, Aug 22 and a farewell dinner at Wagner's Country Inn that evening.



Quality Circle Recognition Breakfast Spotlights Accomplishments—At the second annual Quality Circle Recognition Breakfast, held Aug. 18 at the Picnic Grounds, 280 participants from 45 Lewis Quality Circles shared progress reports, ideas, and information. In addition to update reports given by circle leaders, posterboard displays were set up to showcase some of the accomplishments of the quality circles.

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