Largest Invention Award at the Center
Given Kaufman; Esgar, Morgan, Kemp Honored

The largest invention award ever made to a Lewis Research Center scientist was presented to Harold R. Kaufman at National Aeronautics and Space Administration Headquarters in Washington, D. C., yesterday.

Three other Lewis engineers, Jack B. Esgar, William C. Morgan, and Richard H. Kemp, also received invention awards from NASA Deputy Administrator Dr. Hugh L. Dryden during the special ceremony.

Kaufman received $4,000 for his invention of an electron bombardment ion engine which may be used for space flights to Mars and beyond. The award was made for a contribution of “significant value in the conduct of aeronautical and space activities,” under provisions of the Space Act.

An ion engine can operate only in the vacuum of space and creates thrust by electrically accelerating charged ions of cesium or mercury to high velocities. The efficiency of such engines has already reached 80 per cent. Present engines appear to have a life of three or more years necessary for trips to other planets.

Kaufman and his wife, Elinor, have three children: Brian, 11, Karen, 9, and Bruce, 6. They live at 301 Kraft Street in Berea.

Esgar, Kemp, and Morgan received a joint award of $1,400 for their invention of a boltless attachment and seal for pressure tank heads that may save hundreds of thousands of dollars during the coming years. Their award was made under the Government Employees Incentive Awards Act.

The device invented by Esgar, Kemp, and Morgan is used for testing possible materials at various wall thicknesses for use in tanks for spacecraft and rocket vehicles. Prior to the Lewis innovation actual tanks had to be fabricated for testing. Now a simple hollow cylinder is utilized between the two reusable self-sealing heads. The device saves about $300 a tank.

Both inventions were considered by the Inventions and Contributions Board because of a determination that applications for patents should be filed.

KAUFMAN
Kaufman is head of the Advanced Systems Section, Electromagnetic Propulsion Division and has applied for several patents in the electric propulsion field. He joined Lewis in 1951 immediately after graduation from Northwestern University where he earned a doctorate in mechanical engineering. At Lewis he has specialized in research on turbojet engines and electric propulsion.

Kaufman and his wife, Elinor, have three children: Brian; 11, Karen, 9, and Bruce, 6. They live at 301 Kraft Street in Berea.

ESGAR
Jack Esgar joined the Lewis staff in 1947 and participated in aircraft piston engine development and gas turbine cooling problems. As Chief, Structures Branch, he is currently supervising research on space vehicle structures and materials.

A native of Wiley, Colorado, he earned his bachelor of science degree in mechanical engineering from the University of Colorado in 1943.

Esgar, his wife, Evelyn, and daughter, Colleen, 19, reside at 5097 Whithorne Avenue, North Olmsted.

KEMP
Richard Kemp is Head of the Powerplant Structures Section of Materials and Structures Division. He has specialized in stress and vibration research in propulsion structures.

A native of Genoa, Ohio, Kemp graduated from the University of Toledo just prior to joining the Lewis staff in 1943.

Kemp, his wife, Frances, and three sons, Richard, 19, David, 17, and Paul, 16, live at 999 Richmar Drive, Westlake.

MORGAN
William Morgan is presently engaged in the study of stress and strain distribution in thin wall structures in Lewis' Materials and Structures Division.

A Lewis employee for nearly 21 years, Morgan is a graduate of Ohio University with a bachelor of mechanical engineering degree. He also holds a patent for aircraft turbine blades.

And his wife, Margaret, reside at 27350 Langle Road, Westlake, with their two children, Barbara, 19, and John, 16.

Additional Recent Awards

For Inventions

Three inventions to increase the usefulness of the nuclear research reactor at the Plum Brook Station won incentive awards for inventors late in January.

A fourth award went to a Lewis inventor who devised a better logic circuit to handle data accumulated by satellites and transmit it back to earth.

Seven hundred dollars went to Robert Steinberg and William B. Schwab.

Steinberg, Reactor Analysis Section, and Schwab, Materials and Stresses Services Section, developed a method and device for mapping the neutron flux or power level of each section of a reactor in a fraction of the time necessary by previous methods.

John W. Macomber of Mechanical Design Section was awarded $500 for his invention of a nuclear reactor control rod assembly with improved driving mechanism. This assembly is used for controlling power level in the reactor.

A $200 award was presented to Joseph M. Savino and Chester D. Lanzo for developing a simulated fuel assembly for the reactor. The simulated fuel assembly is substitute for the actual fuel rods in the reactor and is instrumented to measure the flow of cooling water through the reactor.

Lanzo works in the Reactor Components Section, Savino in the Heat Transfer Branch.

The transistorized logic circuit developed by John C. Sturman, Instrument Development Section, won a $100 award. Used for relaying information back from satellites and space probes, the circuit offers improved efficiency and increased power consumption.
Conference Speakers

Electric Propulsion

Seven Lewis researchers will discuss various phases of the Center’s electric propulsion work at an upcoming conference.

Sponsored by the American Institute of Aeronautics and Astronautics, the Fifth Electric Propulsion Conference will be held March 7-9 in San Diego.

Lewis speakers and the papers they will present are:

Paul D. Reader, “Durability Tests of Mercury Electron-Bombardment Ion Thrusters”.


Joseph F. Wasserbauer, Kerslake and Margosian, “A Mercury Electron-Bombardment Ion Thruster Suitable for Station Keeping and Attitude Control”.

Daniel S. Gold and George L. Kvitke, “An Analysis of Particle-Formation Efficiency in a Colloid Thruster”.

Harold Kaufman, Chief of the Ion Physics Branch at Lewis, will be chairman of the session on Ion Engines.

The Electric Propulsion Conference is held annually to discuss advances in electric propulsion design and engineering.

Plasmadydamics

Two Lewis staffers will present papers at the AIAA’s Plasmodynamics Conference to be held at the U. S. Naval Postgraduate School in Monterey, Calif., March 2-4.

Roman Krawec will discuss “Radial Density and Temperature Profiles at the Ion Cyclotron Wave Resonance Point”.

David N. Bowditch will present a paper entitled “Investigation of the Discharge and Exhaust Beam of a Small Arc Plasma Thruster”.

Correction

A statement was incorrect in the Lunar Orbiter caption in the last issue of the Lewis News. The Lunar Orbiter program is under the direction of NASA’s Langley Research Center, not the Jet Propulsion Laboratory, as was stated in the story.

EXPLORER SCOUTS IN SESSION. Shown above is a recent meeting of the newly-formed Aerospace Explorer post here. The meeting was held at the 10x10 Supersonic Wind Tunnel and included a look at the control room, wind tunnel models, etc. James F. Connors, head of the Office of Research Plans and Programs, explains a point, above. Photo by Clifford Brooks.

Eight Years For Explorer I

Explorer I, the United States’ first satellite, marked its eighth anniversary in space Monday, January 31.

The small stovepipe-like package - - 86 inches long and six inches in diameter --- sailed into space in a big loop reaching 1,585.2 miles at apogee and 223.7 miles at perigee on that historic day in 1958. The first orbit required 114.9 minutes.

As of January 15, 1966, reports the Goddard News, Explorer I’s apogee was 969.9 statute miles and its perigee was 211.9 statute miles. Its orbit period was 11 minutes shorter, or 103.9 minutes.

The satellite was launched by a Jupiter C rocket developed by the Wernher von Braun group (now serving with the Marshall Space Flight Center) and the Jet Propulsion Laboratory.

Explorer I chalked up an extremely important achievement immediately - - it discovered the Van Allen radiation belt, the most significant discovery of the International Geophysical Year.

The satellite’s “voice” went silent, as expected, later that year. Scientists, figuring a decay rate based on information about the Sputnik satellite, predicted that Explorer I would not stay in orbit for five years.

It has now been there eight years and shows no inclination to return soon. Mathematicians expect it to reenter in 1968.

Technology Utilization Publications

Currently available at the Center’s Technology Utilization Office - - Room 214, Administration Building, PAX 5233 or 8049, mail stop 3-19 - - are the following new publications.

TECH BRIEFS


“Computer Circuit Calculates Cardiac Output”, Kaman Aircraft Corp. under contract to MSC, B66-10006.


“Thin-Film Semiconductor Rectifier Has Improved Properties”, MSC, B66-10012.

“Electroless Discharge Lamp is Easily Started, Has High Stability”, Varian Associates under contract to WOO, B66-10015.

Technical Papers

Now available at the Center Library are the following recently-published technical papers, written by Lewis staff members:

TECHNICAL NOTES


Ball Lightning Characteristics, W. D. Rayle, TN D-3188.
Invention Awards Presented

The Inventions and Contributions Board has given $2,600 recently to 15 Lewis staff members for the development of significant inventions. They are:

- Dale W. Cooper and Perry W. Kuhns, Spacecraft Technology Division, $100 for Generator for a Space Power System;
- Harold R. Kaufman, assistant chief, and William R. Kerstake, Electromagnetic Propulsion Division, $400 for Ion Thruster Cathode;
- John W. Gregory and Donald L. Nored, Chemical Rocket Division, $200 for Combustion Chamber;
- Robert C. Finke and Robert H. Vetrone, Electromagnetic Propulsion Division, $500 for Electrode and Insulator with Shielded Dielectric Junction;
- Robert C. Finke and Walter M. Krawczenez, Electromagnetic Propulsion Division, $500 for Apparatus and Method for Measurement of Electrical Signals;
- James D. Heckelman, Reactor Division, Plum Brook, $400 for Multi-Alarm Summary Alarm; and

AIAA Members Hear Bede Talk


At the AIAA's first meeting on September 21, Bede talked about his proposed trip in the near future for the first solo, non-stop, non-refueled flight around the world. He plans to make the trip in six and one-half days in his specially designed, single-engine BDO2 cruise plane.

The aircraft and related equipment were on display for AIAA members and guests at the Cuyahoga County Airport where the meeting was held.

Flu Shots

Dr. J. J. Gulian, Lewis' medical director, urges all employees to receive immunization against influenza on October 9 through 13 in Medical Services Office, Room 104 ERB.

Early epidemiological evidence, Dr. Gulian says, suggests there will be a higher incidence of influenza this year than for the last several years.

Take advantage of this opportunity to receive free flu immunization.

Lewis Observes Fire Prevention

What happens when you dial 17 to turn in a fire or emergency alert?

Lewis employees will have an opportunity to gain a better understanding of what happens in the Control Room when such an alert is received during the month of October.

While October 8 through 14 has been designated as National Fire Prevention Week, the Lewis Safety Office is using the month of October to inform employees about this particular hazard.

In addition to a tour of the Control Room, employees will see a demonstration on the use of built-in cardox systems, receive literature on fire prevention and a special Safe-T-Gram. Three films on fire prevention will be shown.

Home fire extinguishers will again be on sale at discount prices to Lewis employees.

HAM AT HEART? -- All radio hams who are interested in forming a Lewis Amateur Radio Club, contact George Fndroh, P.A.X. 3178, M.S. 54-1.

Albert Joseph presently instructs 80 Lewis staff members in his course, "Effective Clear Writing."

Lewis Staffers Sharpen Skills in Writing Through Lab Course

"Accuracy is not enough," Albert Joseph tells Lewis employees who are taking his course here in "Effective Clear Writing."

"Writing must be readable too," Joseph adds. Successful writing, he maintains, depends on clarity. "Ideas not effectively communicated are lost."

To date, the course in clear writing has sharpened the communication skills of more than 300 employees since its inception in the spring of 1966. They have learned to look closely at the basics of good writing — proper vocabulary, sentence structure, and organization.

According to Stan Rea of the Training Office, the course was sparked by management's interest in improving the skills used in business writing and in preparing technical reports.

Joseph has spent a career in professional writing and has been a part-time instructor at Western Reserve University for the past eight years. He takes a practical rather than academic approach in his instruction. "The reason our program here has been so successful, I think, is that I try to teach sound, proven principles of good writing," he says.

"English should be a living thing, a living tool in our society," Joseph contends. He says his first step in teaching good writing is "to destroy all of the bad writing habits." Joseph does this early in the course through numerous student writing exercises which he critiques. He then introduces new principles of writing and organization.

Without blinking, Joseph flouts outdated rules of English, such as beginning a sentence with "and" or "but." He also feels it's all right to end a sentence with a preposition if it gets the message across.

"Bad writing," Joseph says, "is a failure of the English-speaking society." And he means to do something about it.

Andy Schurai, left, Lewis safety officer, shows Dr. Abe Silverstein the newly-completed LEWIS OPERATIONAL SAFETY MANUAL. The manual has consolidated all safety practices and procedures into a single volume which will be made available to all members of the safety organization. It will prove a ready source of information on such topics as building evacuation, fire aid, emergency and disaster control, as well as on specific safety operations and programs at the Lab.
IR-100 Award cites Lewis ion engine

Lewis Research Center was recently honored in Chicago for the "development of one of the 100 most significant technical products of the year."

The award was presented for the electron bombardment ion thruster, a type of electric rocket engine, invented by Harold R. Kaufman, Assistant Chief of the Electromagnetic Propulsion Division at Lewis.

 Winners are selected by a panel of some of the country's best known scientists and engineers including a Nobel prize laureate. The IR-100 awards are sponsored by Industrial Research Inc. of Beverly Shores, Indiana.

Lewis has been honored four times in previous years since first entering the competition in 1966. The winners are selected by a panel of leading scientists and engineers.

There are two electron bombardment ion thrusters presently on a spacecraft orbiting the Earth to demonstrate the engine's ability to function reliably for long periods of time in space. The spacecraft, called SERT II for Space Electric Rocket Test, was launched February 3 of this year. The first engine operated continuously for 3,786 hours, a little more than five months. The second engine has been operated for more than 1,000 hours now and it is hoped it will meet the objective of continuous operation for six months in space.

In the future the ion thrusters may be used to position Earth-orbiting satellites or as a primary propulsion system to propel spacecraft to distant planets.

The development of the electron bombardment ion engine has spanned many years. Initial studies started back in the 1950's at Lewis. By 1964 the first space test was conducted on a suborbital flight which proved this type of thruster would work and produce useful thrust in space. The SERT II orbital flight of this year is proving the thruster's feasibility for application to a wide variety of space missions.

Check diabetes

The Cleveland Diabetic Association will visit the Center October 5-9, as part of their program to find unknown cases of diabetes.

This is the fourth visit since 1964 according to John Gulian, head of the Medical Services Section. The first year, 2,434 employees were tested and 25 positive unknown cases uncovered, and in 1965, 36 cases were found out of 1,760 employees tested.

The DAC program is concerned mainly with case finding since most physicians feel that early detection and control of diabetes are important steps in preventing complications.

"It is hoped that people previously tested will take the time to be tested again this year since diabetes can have its onset at any time," Dr. Gulian said.

Testing for diabetes consists of giving an employee a measured amount of sugar in a cola-flavored drink. Two hours later, a drop of blood will be taken from the finger and the blood-sugar measured. Employees should not eat during the two-hour interval. The blood-sugar level indicates whether the pancreas is producing enough insulin to handle the known amount of sugar.

A few days before the program begins, each employee will receive a memo giving the test locations, schedules and other pertinent information.

IR-100 Award winner ... the electron bombardment ion thruster.

Nixon seeks agency to study environment

Plans have been submitted to Congress by President Nixon calling for establishment of the Environmental Protection Agency (EPA) as a new, independent agency within the Executive Branch, and the National Oceanic and Atmospheric Administration (NOAA) in the Department of Commerce.

"It has come increasingly clear that we need to know more about the total environment — land, water and air," Nixon stated. "The time has come to organize them rationally and systematically."

The EPA will be brought together in a single organization the major federal pollution control programs now located in four separate agencies and one intragency council. The agency will have an estimated FY 1971 budget of $1.4 billion and 5,650 personnel, and consist of the following:

- The Water Quality Administration now in the Department of Interior;
- The National Air Pollution Control Administration (NAPCA), now in the Department of Health, Education and Welfare;
- Parts of the Environmental Control Administration (Bureau of Solid Waste Management, Water Hygiene and a portion of the Bureau of Radiological Health), also from HEW;
- The pesticides registration authority of the Department of Agriculture;
- Authorities to perform general ecological research, from the Council on Environmental Quality;
- Certain pesticide research authorities of the Department of Interior;
- The environmental radiation protection standard-setting function of the Atomic Energy Commission.

The functions of the Federal Radiation Council.

The mission of the National Oceanic and Atmospheric Administration (NOAA) is to organize a unified approach to the problems of the ocean and atmosphere and to create a center of strength within the civil service of the federal government for this purpose.

Although each of the agencies now comprising NOAA presently carries out oceanic functions according to its particular mission, the lack of overall planning and systems approach has resulted in an impetus towards oceanic affairs which has been much less than it should be, it was reported.

The NOAA will have an estimated 1971 budget of about $3 billion and over 12,000 personnel and will consist of the following:

- The Environmental Science Service Administration, already a part of the Department of Commerce;
- Most of the Bureau of Commercial Fisheries, now in the Department of Interior;
- The Office of Sea Grant Programs of the National Science Foundation;
- Elements of the United States Lake Survey of the Department of the Army;
- Marine minerals technology program of Bureau of Mines;
- Marine Sport Fishing Program of Bureau of Sports and Fisheries and Wildlife, Department of Interior;
- Program of the National Oceanographic Data and Instrumentation Centers of the National Oceanic and Atmospheric Administration and the National Data Buoy Program of the Department of Transportation will be transferred to NOAA by executive action.

Men's space role goal of Skylab

An embryonic space station, the Skylab is due to be placed in Earth orbit in 1972 to gain a better understanding of the requirements for a permanent manned platform in space.

As a major part of the National Aeronautics and Space Administration's Skylab program, the Workshop will make use of hardware and techniques developed in the Apollo lunar landing program to further explore and extend man's usefulness in space. Economy will be achieved through the full use and modification of Apollo spacecraf and Saturn launch vehicles.

The Skylab Workshop will provide an environment in which man can live and work in space under controlled conditions for long periods. Experiments conducted in the workshop will develop data on man's physiological and psychological responses to the space environment and provide more detailed information on his abilities for extended manned flight.

The development of long-duration flight is a key requirement for further advances in manned flight. Extended flight experiments are also necessary as a basis for future design decisions, including permanent manned capabilities in space (such as space stations) or manned flights to the planets (such as the proposed Mars mission).

The launch vehicle for the Skylab Workshop will be the first two stages of a Saturn V. The vehicle's third stage (the S-IVB) will become the Workshop module — fully modified and outfitted on the ground as living and working quarters for three astronauts. The stage's liquid hydrogen tank will become a 10,000-cubic-foot space laboratory, many times larger than any spacecraft yet flown.

Three lecture here

Lewis was host to three lecturers during the month of September.

Dr. Roger Lefebvre of the Air Force Aero Propulsion, College of Aeronautics, Cranfield, England, lectured on the Advanced Airbreathing Engines Division for Dr. Lefebvre.

A few days before the program begins, each employee will receive a memo giving the test locations, schedules and other pertinent information.

September 25, 1970
Ion engine inventor earns PhD

Harold Kaufman, Assistant Chief, Electromagnetic Propulsion Division and recognized throughout the world for his ion engine invention, will receive his PhD in June from Colorado State University.

Assisted by Lewis’ Training Branch, Kaufman began work on his PhD in September 1969. He had previously earned a Bachelor’s degree in mechanical engineering from Northwestern University.

At Lewis Dr. Kaufman has concentrated his research on turbojet engines and electrical propulsion. He developed an electron bombardment ion rocket for which NASA presented him an invention award “for a contribution of significant value in the conduct of aeronautical and space activities.”

Two of Dr. Kaufman’s rockets were used in the SERT II experiment. In orbit, one rocket operated successfully for more than five months and the other nearly three months. Although the test fell short of its goal to achieve six months of operation, it proved that electric propulsion is ready for space applications.

Dr. Kaufman is an Associate Fellow of the American Institute of Aeronautics and Astronautics, a member of Lewis Training Commission representing the Advanced Research Institute and coordinator for the Lewis Advanced Study Program.

Lewis duo judges at youth science fair

Two Lewis employees were among a team of NASA judges sent to the International Science and Engineering Fair held May 10-14, in Kansas City, Missouri to present awards to outstanding high school science students.

Stuart Roosa, command module pilot of Apollo 14, was the main speaker.

The NASA team, headed by Dr. Norman E. Pentz of the Physics and Chemistry Division, was composed of representatives from Headquarters and field installations. Lewis’ other team members were Dr. Charles C. Giamatti, also of Physics and Chemistry. Dr. Pentz has participated as a judge since 1963, except during 1966 and 1968.

The International Science and Engineering Fair (ISEF) is sponsored by Science Service, Inc., a non-profit organization dedicated to inspiring greater interest among students in the field of pure and applied science.

NASA was one of 30 Federal agencies and professional organizations that selected outstanding finalists for awards in their specialized field. Of the estimated one million students who participated in this year’s science fairs affiliated with ISEF, about 400 finalists won the honor of presenting their projects. They came from the U.S., Canada, Europe and Asia.

The NASA judges were broken up into small teams and assigned certain areas to survey for possible awards. The areas included aeronautics, space electronics and communications, space life sciences, mathematics, space physical sciences, space propulsion systems and space vehicles.

NASA awarded all-expense paid trips to seven finalists and their teachers to the Apollo 15 launch at Kennedy Space Center on July 26. The seven winners also received certificates of merit signed by the NASA Administrator, Dr. James C. Fletcher. Seven others received honorable mentions and received letters of commendation signed by Dr. Fletcher. The awards were presented by Dr. Pentz at the special awards ceremony.

Homework helper

Calvin W. Weise (center), Chief of Educational Services Office, helps Mayfield High School students Stan Tonicz (left) and Mark Deshoro select material for their English class project. The students chose space as their topic because of their keen interest in and knowledge of the space program. They were given brochures and loaned slides to bolster their presentation. (John Marton photo)

LeSAC’s Zoo outing features rides, picnic

Did you ever wonder what it’s like to have a picnic at the Zoo instead of the usual picnic grounds and parks? LeSAC is sponsoring this and much more at the Cleveland Zoo, Saturday, June 19. The Zoo is located in Brookside, near West 25th Street. Admission is $1.00 for adults and $.25 for children six to 12 years old. Children under six are admitted free.

Parking lot no. 3 will be reserved for LeSAC employees with LeSAC identification badges. Badges are available from your LeSAC ticket booster at $1 per car.

Those persons wishing to relive the past can take nostalgic train rides to tour the Zoo for only $.25. Those persons wishing to relive the past can take nostalgic train rides to tour the Zoo for only $.25. For the children, there will be a kiddies’ farm where they can feed the chickens, ducks, rabbits and other harmless animals. There will be prizes for girls three to six years of age and games for everyone in the pavilion and picnic area adjacent to parking lot no. 3. All children’s rides are half-price.

Bowlers, chessmen become season champs

The Equalizers (above) are this year’s NASA Bowling League champions, winning the three-game roll-off over other Lewis teams at Buckeye Lanes, May 19. Standing from left to right are, Howard Jackson, Neil Roux, Jack Herman and Howard Schwartzberg (kneeling). Missing: Frank Gue, George Michalson and Ken Baud. (Martin Brown photo)

The winning chess team in the Lewis Chess Tournament (from left to right) are, Dino Pratuci, George Kaplan, Gildo Raffaeli (team captain), Jerry Winter and Morris Perlmutter. Missing: Ed Milner and Carl Aukerman. Raffaeli’s team also won last year’s tournament. “The credit for the win goes to the team members. They came back and won despite a hepatitis attack that hit two players and resignations,” Raffaeli said. (Paul Riedel photo)

Plum Brook Bond reps

Director of Plum Brook Station and Engineering Division, Charles Stewart; Rocket Systems Division, James Dudenhoefer; Reactor Division, Richard Brickley; Space Power Facility, Robert Wolf; Administration Division, William Laterza; Facilities Service Division, Paul Mainzer.

Children to educate? Save bonds.
21 become apprentices

After four years of on-the-job training coupled with classroom instructions, 21 apprentices at NASA's Lewis Research Center completed their apprenticeship requirements and became journeymen in ceremonies held here November 4. They join 731 others who have earned completion certificates in some 30 different trades since the Trades Apprentice Program was started at Lewis in 1942. The program was interrupted briefly during World War II and the first graduation ceremony was held in 1949.

Lewis Director Bruce T. Lundin presided over the ceremonies which featured, Edwin C. Kilgore, Deputy Associate Director of the Office of Advanced Research and Technology at NASA Headquarters as speaker. Michael J. Haaser, class president, spoke on behalf of the graduates.

The journeymen received two certificates, one issued by the State of Ohio, was Himmel, has been re-named the places Charming C. Conger who reimited last month. The three branches

### Staff Conference series

**offers lively, new format**

A new series of Monday Night Staff Conferences — six in all — begins late this month with a lively, different format. Breaking from tradition, each program:

- will begin at 4:30 p.m., a time which may be more convenient to those who have earlier quitting times;
- will always be held on a Monday day or in DEB Auditorium;
- will have admission tickets issued in advance. They can be obtained for free from division office.

The upcoming conference will be led off by Dr. Werner VonBraun, Deputy Associate Administrator for Planning, NASA Hq. On Tuesday, November 23, he will speak on Man's Future in Space.

Other speakers, discussing a variety of timely topics, will include:

- Dr. Alfred J. Eggers, Jr. of the National Science Foundation. He is Assistant Director for Research Applications and will speak on applying technology to national needs.
- Roy A. Jackson, Associate Administrator for the Office of Advanced Research and Technology, NASA Hq. He will discuss new initiatives in OART.

A panel of employees will “Ask the Administration” about Lewis policies (Continued on page 3)

### Director, scientists merit NASA awards

**Director Bruce T. Lundin, John C. Freche, and Dr. Harold Kaufman were honored for outstanding achievements last Friday (October 29) at NASA’s 13th Annual Awards Ceremony in Washington, D.C.**

Each man was accompanied by his wife at the afternoon ceremony.

Lundin received the space agency’s highest award, the Distinguished Service Medal. Dr. James C. Fletcher, NASA Administrator, presented the award to Lundin for his “... distinguished career and significant contributions...” to the nation’s aerospace programs. His citation, in part, reads:”His leadership in management of research and development programs have provided a strong base upon which this nation can build for the future in aeronautics and space.”

Dr. Kaufman, Assistant Chief of the Electromagnetic Propulsion Division, was presented a NASA Exceptional Scientific Achievement Medal. It recognized Dr. Kaufman’s invention and development of the electron-bombardment ion engine, a type of electric rocket which is now ready for space propulsion applications. Ion engines may be used in the future for positioning of spacecraft in earth orbit, or for propelling spacecraft to distant planets.

Freche, Chief of the Fatigue and Alloys Research Branch, also received a NASA Exceptional Scientific Achievement Medal. His award was for “... outstanding contributions to the advancement of high temperature materials technology and in the science of metal fatigue.”

The Exceptional Achievement Medals were presented to Dr. Kaufman and Freche by Dr. George M. Low, NASA Deputy Administrator.

The Lewis men were among 63 agency personnel to receive awards in the ceremony held at the Department of Health, Education and Welfare Auditorium in Washington.

### Trades Apprentice Graduates

A new series of Monday Night Staff Conferences — six in all — begins late this month with a lively, different format. Breaking from tradition, each program:

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A panel of employees will “Ask the Administration” about Lewis policies (Continued on page 3)

### Intelsat slips

The launch of Intelsat IV has been rescheduled for the first half of December. The launch was postponed due to problems encountered during qualification testing of an electronics package on the second stage Centaur launch vehicle.

The Lewis Launch Vehicles Division is responsible for managing the Centaur launch vehicle program, from procurement through modifications, testing and launch of the Intelsat spacecraft.

(Continued on page 4)
Names in the News

Martin J. Braun has recently been appointed to the Mechanical Systems Branch, Atlas/Centaur Project Office. Since joining Lewis in April, 1963, Braun has worked in the Launch Vehicles Division. His appointment confirms the position he has held for the past year, being responsible for all mechanical systems on the Atlas/Centaur vehicle and for mechanical ground systems at Launch Complex 36 at Cape Kennedy. For 12 years prior to his Lewis career, he worked on missile systems for Goodyear Aerospace in Akron.

Murray B. Gordon, Lewis LabHead of Professional Engineers, will chair a meeting sponsored by the American Society of Mechanical Engineers with the Institute of Electronics and Electrical Engineers and the National Society of Professional Engineers participating on November 17 at the Cleveland Engineering and Scientific Center starting with a social hour at 6 p.m. The Center is located at 3100 Chester Avenue. Speakers at the meeting will present a variety of views on the subject "Should Engineers Join a Union."

Apollo 15 has been described as the most scientifically and technologically meaningful mission of the lunar landing program. The mission is of particular interest to the scientific community because it is the first lunar mission to land in the youngest and geologically most active part of the lunar surface. The mission is significant in that it will be the first lunar mission to utilize the new lunar rover, which will allow the astronauts to explore and survey the lunar surface far beyond the range of the traditional "eagle" landing site

The results of Lewis scientific and engineering investigations will be disseminated to the professional public through conferences and special meetings of various technical societies. During the next two weeks, papers by Lewis authors are being presented as follows: "Technology for Low Cost Solid Rocket Boosters," by Carl C. Ciepulch, at the Joint Army-Navy-NASA-Air Force Propulsion Meeting in Las Vegas, November 10-15.


"Review of NASA Aerospace Oxygen Accidents and Incidents" by Paul M. Ordin and John T. Flynn at the Symposium on Oxygen Compressors and Pumps Symposium in Atlanta November 9-10.


"Reliability Testing and Demonstration of Aerospace Provisions for the Gemini Spacecraft" by Dr. Richard N. Lalli at the Ninth Annual Reliability Engineering and Manufacturing Symposium at the University of Arizona November 9-10.

At the Second Symposium on Uranium Plasmas in Atlanta November 15-17, nine Lewis-authored papers will be given: "Effect of Gravity on Fuel Containment in an Open-Cycle Gas-Core Nuclear Rocket Engine" by Henry A. Pature; "Shock Tube Techniques for Measurements of Opacities at High Pressures for Gaseous-Core Rockets" by Vernon H. Gray and Dr. Richard A. Krajekian; "What Use Could Nuclear Engines be to Society?" by Frank E. Reed; "Performance Potentials of Nuclear Gas-Core and Fusion Rockets; A Mission Applications Survey" by Edward W. Balch, jr.; "Laurence F. Fischbach; "Mini-Cavity FROBE Reactor" by Robert E. Hyland; "Optical Transmittance of Fused Silica at Elevated Temperatures during High Energy Electron Bombardment" by Albert B. Smith; "Nozzle "

Papers, tell research story

Accountants hear Lundin

Bruce T. Lundin will speak to the Cleveland Chapter of the Federal Government Accountants Association on November 15, 1971, at Stouffer Restaurants' El Cataina Room in the Spire View Plaza building. Lundin will speak on the future of NASA and the on-going problems of the Contract and Federal employees of the Center are invited. Further information and reservations can be obtained by contacting Charles Calvert at PAX 8412.

Six staffers choose retirement

Now that Harry L. Wonser has retired, he will move to southern Ohio and work on his 73 acre farm that he has purchased. A mechanical modelmaker in the Machine Shop Branch, Fabrication Division, he joined Lewis in October 1943. During his career at Lewis he has worked on research hardware such as ion engines and ordnance engines. He and his wife, Dorothy Hel- en, have one son who teaches school in Portage, Indiana.

After more than 25 years of government service, moving to Florida is on the schedule for Joseph P. Schellhaus and his wife, Mary, Chief of the Administration Services Branch, SNSO, he joined in April 1968 in that capacity. Previously he was with SNSO, Buckeye Plas, Nevada, and the Administrative Services Division.

Buying a new home in North Carolina is included in the after retirement plans for Albert P. Sainsbury and his wife, Marie. He leaves Lewis with more than 25 years of government service. Most recently a member of the Metallurgical Branch, Fabrication Division, he joined Lewis in 1944 and worked for a number of years as a toolmaker and metal modelmaker in the machine shop. Before joining Lewis he was a civilian employee with the Navy Department.

Skis and photography will keep Fred T. Hurley busy during his retirement this month. A nuclear engineer in the Reactor Applications Branch, Nuclear Systems Division, he joined Lewis in 1963. Before that he was a nuclear engineer with the Atomic Energy Commission for two years in the early 1950's. All his work here at Lewis has been related to nuclear reactor concepts. Most recently this has included design of shields for nuclear reactor components. He also has been responsible for thermonuclear cell tests, heat transfer studies and design of fuel support tubes for the Tungsten Water Moderated Reactor. He and his wife, Luci, have three children in school, a new baby on the way, and a son, Andrew.

John R. Hendershot will begin full time management of a bowling alley now that he has retired. A metal worker and leader in the Research Installations Branch, Facilities Operations Division, he joined Lewis in 1950 after four years with the U.S. Navy. During his career here he has been responsible for arc welding, vacuum welding, iron work, and other various other jobs. He and his wife, Irene, have ten children two of which are married.

John T. Flynn retires this month with more than 25 years of government service. An off shift supervisor in the Plant Protection Office, Office of Director of Technical Services, he joined Lewis as a mechanic in the Altitude Wind Tunnel area in 1944. He has worked in a former capacity in the Nuclear Services Division and most recently has been responsible for operations at the Center after hours. He and his wife, Irene, will enjoy being able to take short trips whenever they please. He has one son.
Retirement annuity attracts many

After he retires early next month, Dr. Harold R. Kaufman will end his career as a Professor at Colorado State University. Assistant Chief of the Physical Science Division, Dr. Kaufman joined Lewis in 1961 as a research engineer. He has specialized in research on turbojet engines and electric propulsion. He developed an electron bombardment ion rocket for which NASA presented him an invention award "for a contribution of significant value in the conduct of aeronautical and space activities." In 1969 he received the James H. Wyld Propulsion Award of the American Institute of Aeronautics and Astronautics for the original research on his engine and leadership in his field. In 1973 his Research Center received an award from Industrial Research magazine for Dr. Kaufman's Electron Bombardment Ion Thruster as one of the top 100 inventions. In 1976 he received the NASA Medal for Exceptional Scientific Achievement. Dr. Kaufman and his family will be residing in Fort Collins, Colorado. He and his wife, Elinor, have four children.

John M. Robinson will begin a new career at Davie Besse Nuclear Power Plant near Port Clinton. After a four year stint in the U.S. Air Force, Robinson joined Lewis in January 1945. In 1958 he transferred to Plum Brook and worked as a construction inspector while the first facilities and reactor were constructed. Most recently he has been involved in work as a mechanical engineering technician in the Construction Office, Administration Division. He and his wife, Janet, have two children and three grandchildren.

Robert O. Hickel completes his government career early next month with 22 years of service. He began his career at Langley Research Center in May 1942 and in July of that year he transferred to Lewis. For the last 22 years he has held the position of section head in various areas, the most recent being the Engine Section, Turbine Cooling Branch, Airbreathing Engines Division. He has specialized in the fields of turbine cooling and structures protection. He and his wife, Mildred, are the parents of three daughters. Hickel is looking forward to traveling and having more time to devote to his many hobbies.

John W. Thiel will be spending his winter months in Florida attending the Willow Lake Park Campgrounds in Brunswick, Ohio, to keep busy during the summer months. He recently wrapped up a 21 year federal career. Before joining Lewis in 1954 he served two years with the U.S. Navy. At Lewis he is a cleaning specialist in the Contract Coordination Section, Buildings, Grounds & Traffic Branch, Facilities Operations & Maintenance Division. He and his wife, Virginia, have three children and six grandchildren. Thiel also enjoys fishing and golfing.

Robert G. Belknap will begin a new career as a chemical engineer with Columbia Gas Systems, Inc. in Green Springs, Ohio. After retiring from a 20 year career in the U.S. Navy, Belknap joined Plum Brook in May 1959. He worked as a nuclear weapons technician at the reactor until it was shut down in 1973. For the past year he has been an automatic controls mechanic in the Piping & Automatic Controls Unit, Mechanical Service Section, Facilities Service Branch, Facilities Service Division. He and his wife, June, are the parents of one son. Belknap plans to continue his duties as assistant district commissioner, northwest district, in the Boy Scouts of America. He also is an acting scout master for a Huron, Ohio, troop.

Paul C. Simon completes 26 years with Lewis on May 31, when he leaves to work for a consulting engineering firm. Before joining Lewis in 1948 as an aeronautical engineer working with the Nordon Tunnel, he served as a B24 pilot in the military for three years. In 1964, Simon came to his present position as an operations engineer in Research Facilities Section, Research Installations Branch, Physical Sciences Division. He and his wife, Margaret, have three sons.

Arthur A. Medeiros rounds out a 30 year career at Lewis this month. He joined Lewis in 1944 and was appointed to his present position as Manager of the Reactor Project Office, V/STOL and Noise Division in 1972. He was also with the Space Nuclear Propulsion Office for 10 years and prior to that was head of the Rocket Nozzle Heat Transfer Section, Medeiros is looking forward to touring the United States this summer with the intent of eventually looking for a place to relocate. He and his wife, Rae, have four children.

Astronaut Schmitt heads energy effort

Astronaut Harrison H. Schmitt has been named NASA's Assistant Administrator for Energy Programs. This new office will allow NASA to support the Federal agencies responsible for energy research and development more effectively, which in turn will insure the application of NASA developed technology to the critical energy problems facing our nation today," Dr. James C. Fletcher, NASA Administrator, said.

Dr. Schmitt, lunar module pilot on Apollo 17, will head a newly formed Office of Energy Programs at NASA headquarters. The new post is a consolidation of energy related functions previously performed by several other NASA headquarters offices, notably the Office of Applications and the Office of Aeronautics and Space Technology.

The new office will be responsible for coordinating NASA support of other Federal agencies conducting energy research and development. It will also manage existing NASA programs applying aeronautics and space technology to the generation, transmission, storage, conservation, utilization and management of energy in non-aerospace applications.

A geologist, Schmitt is currently Chief of the Astronaut Office, Science and Applications Directorate, at NASA's Johnson Space Center, Houston, Texas. For the past three months he has been on temporary assignment at NASA headquarters as Special Assistant to the Administrator for Energy Research and Development. In addition to his duties as Assistant Administrator, he will continue to serve as Astronaut Chief of the Science and Applications Directorate in Houston until his responsibilities there are completed and a replacement is named.

Torch leaders

Ernest Roberts (center) of the Materials and Structures Division was appointed to his present position as Manager of the Reactor Project Office, V/STOL and Noise Division in 1972. He was also with the Space Nuclear Propulsion Office for 10 years and prior to that was head of the Rocket Nozzle Heat Transfer Section, Medeiros is looking forward to touring the United States this summer with the intent of eventually looking for a place to relocate. He and his wife, Rae, have four children.