the astrogram

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June 6, 1974

National Aeronautics and Space Administration • Ames Research Center, Moffett Field, California

Pioneer milestone

(Photo on Page 3)

On May 23 Ames' Project Pioneer team experienced a major milestone in the Pioneer program. The first phase of a direct command system called the "Pioneer Direct Mode Command System" became operational and proved itself successful in a test using a tracking station at Goldstone, California.

According to Pioneer Project Manager Charles F. Hall the Pioneer Project has long desired a capability to control its spacecraft from Ames without being dependent on the computer system at the Jet Propulsion Laboratory. The new system, put together by the Bendix Field Engineering Corporation (BFEC) in conjunction with the Ames Pioneer Project Office, will allow this capability to be realized.

As a result of the system's success, BFEC personnel at Ames were congratulated on their work and efforts.

Here's how the system works:

The new Pioneer Command System (PCOM) consists of two PDP-11 computers and their associated peripherals located in the Pioneer Mission Operations Control Center (PMOCC). The purpose of the equipment is to generate and transmit commands to Pioneers 10 and 11. The PDP-11 receives instructions from the mission controller, generates the command words, formats for high speed data, and transmits it to the deep space tracking stations. A computer at the station called the Telemetry and Command Processor (TCP) controls the hardware to transmit the command to the spacecraft at the right time, etc. The PDP-11 and the TCP are in direct one-for-one communication with each other with the PDP-11 being the dominant system. The man-in-the-loop exercises control over the PDP-11 at various steps in the operation to keep the machine "honest."

The difference between the new system and the present system is two-fold. First, it has moved the command stack manipulation and control to the computer nearest the mission controller. The second and most important difference is that the ability to transmit a command is no longer dependent on the availability or status of the computer systems at the Jet Propulsion Laboratory.

Future tests will be conducted with stations in Australia and Spain, and then the system will be turned over to Mission Operations for training. The committed operational use of PCOM will begin on Pioneer 10 on September 1, followed by Pioneer 11 on January 15, 1975.

Satellite to relay TV from Apollo-Soyuz

United States and Soviet space crews are planning to use an advanced communications satellite as a main communications link with Earth during the joint orbital flight set for July, 1975.

Communications from the docked Apollo and Soyuz spacecraft will be relayed to Earth through the Applications Technology Satellite (ATS-F, launched May 30) provided the necessary tests and verifications are successfully completed in the coming months.

Although previous space communications have been relayed between ground stations using communications satellites, the Apollo-Soyuz Test Project will make the first use of a satellite to relay television and other communications from spacecraft to Earth stations.

Use of ATS-F to link the spacecraft with Earth will permit communications during approximately 50 percent of the mission and will greatly increase the amount of realtime data available to investigators on the ground as well as realtime television coverage of the flight.

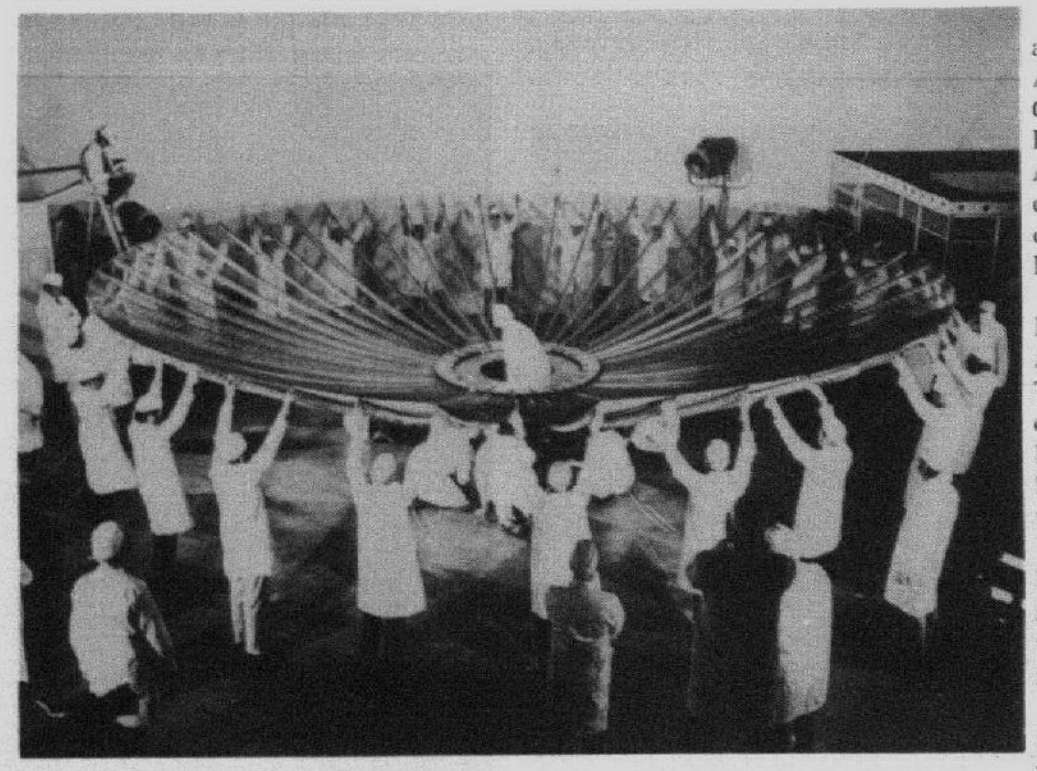
Apollo, using a wide-band antenna, will home in on the signal and, after establishing contact, will transmit telemetry, voice communications, and live TV to the satellite. ATS-F will relay the communications to a ground station near Madrid, Spain, and the ground station will then relay them via other satellites to the Johnson Space Center.

It is planned that at the time of the Apollo Soyuz mission, ATS-F will be stationed over Kenya, Africa, so that it can transmit to India, delivering instructional TV programs provided by the Indian government to 5,000 isolated villages.

Use of ATS-F by India will follow a year's transmission of educational programs and medical services by television to low-cost community receivers in the Rocky Mountain states, Appalachia, and Alaska in an experiment by the Dept. of Health, Education, and Welfare.

The objectives of ATS-F are to develop and demonstrate spacecraft systems and technologies for satellite broadcasting and other kinds of space communications. ATS-F will support user experiments demonstrating applications of these technical capabilities. To further this goal, ATS-F will demonstrate the feasibility of deploying a 9-meter (30 foot) diameter antenna in space, with a fine pointing accuracy of about a tenth of a degree.

In addition to these primary objectives, ATS-F serves as a vehicle for a number of other experiments in communications, navigation, meteorology, particles and fields, and spacecraft technology.



REFLECTOR ANTENNA: Engineers and technicians support the 30-foot-diameter Dacron mesh reflector antenna which is being carried into space aboard NASA's Applications Technology Satellite-F (ATS-F). The ATS-F was launched last Thursday, May 30 from Cape Canaveral. Among other experiments, the satellite is scheduled to be used to broadcast television from New Delhi to villages throughout India.

Schmitt heads Energy Office

Astronaut Harrison H. Schmitt has been named NASA's Assistant Administrator for Energy Programs by Dr. James C. Fletcher, NASA Administrator.

"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," Fletcher 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.

Kilgore new Deputy Center Operations

Edwin C. Kilgore has been appointed to the position of Deputy Associate Administrator for Center Operations. Kilgore had been assisting Dr. George Low, Acting Associate Administrator for Center Operations, in organizing and managing the new Office of Center Operations since the NASA Headquarters March 15 reorganization.

Before joining Center Operations, Kilgore served as Acting Associate Administrator for Aeronautics and Space Technology since the fall of 1973. He came to Headquarters in August 1970 as Deputy Associate Administrator for Management in the Office of Aeronautics and Space Technology.

Kilgore joined the staff at Langley Research Center, Hampton, Va., in 1944 after graduation from Virginia Polytechnic Institute with a B.S. degree in mechanical engineering.

Kilgore received NASA's Outstanding Leadership Medal in 1973.

BLOODMOBILE
JUNE 14
AUDITORIUM
9-12

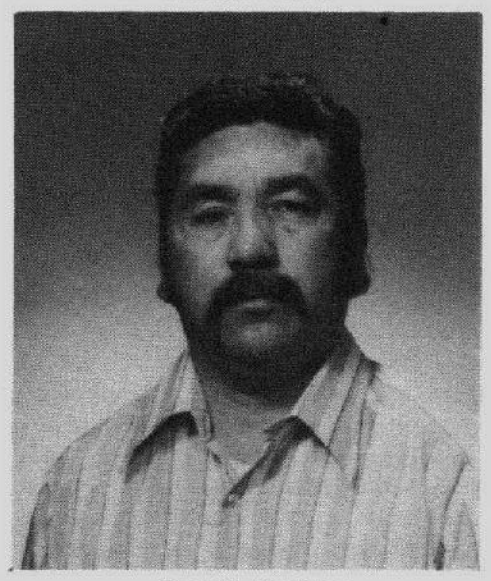
3 new EEO counselors announced

Dr. Hans Mark, Ames Director, has appointed three employees to serve as Equal Employment Opportunity counselors. They are Charles C. Kubokawa, Man-Machine Integration; Eloy G. Martinez, Large Scale Aerodynamics, and Allison Ybarra, Training and Special Programs.

Counselors are responsible for maintaining an open and sympathetic channel through which personnel may raise questions, discuss grievances, get answers, and obtain resolutions to problems in equal employment opportunity. Any employee who feels that he/she is being discriminated against for reasons of race, color, sex, religion, or national origin should talk to an EEO counselor.

Allison Ybarra

Charles C. Kubokawa



Eloy G. Martinez

The new appointees join counselors Nancie L. Bell, Biological Adaptation; Dorothy M. Davenport, Computer Operations; Wayne O. Hadland, Research Equipment Engineering; George Lee, Physical Gas-Dynamics and Lasers; Esther Levy, Astronautics Directorate Office; Sheldon M. Smith, Astrophysics; and Lewis A. Turner, Model and Instrument Machining.

Dr. Fletcher cites Equal Employment advancements

Equal employment opportunity continues to be a major NASA concern and an area in which NASA is making encouraging progress, Administrator, James C. Fletcher said recently.

In a report circulated to all space agency employees, Dr. Fletcher cited current EEO program statistics. He reaffirmed total commitment to the agency's minorities program, on behalf of himself and Dr. George M. Low, Deputy Administrator.

NASA has committed to hiring 80 minority people and 80 women in professional positions, during calendar year 1974. Through the end of April, 58 women and 44 minorities people had been placed at NASA at the professional level. With this increase, NASA has raised its minority employment level to 5.8 percent. A goal of 6.1 percent has been set for minority employment for the 1974 calendar year.

Dr. Fletcher indicated that progress was also being made in other equal opportunity areas:

Recruitment

The Office of Personnel in NASA Headquarters has established the Equal Opportunity Professional Recruiting Office staffed by three full-time professional recruiters with the express purpose of focusing agency-wide efforts to locate minority and female professional candidates.

Aerospace Fellowship Program

NASA has established arrangements with seven universities having predominantly minority of female enrollments. Under these agreements NASA is awarding a total of 20 fellowships of $2,500 each plus a grant to the school to cover administrative costs. Students selected under this program have also been invited to work at a NASA center during the summers to augment their formal training with related work experience. NASA hopes to significantly expand this program during 1975.

Upward Mobility Programs

Each installation has developed and is implementing an Upward Mobility Program to provide greater career growth for employees who may be in dead-end positions.

In addition, minority and female employees are moving from non-professional to professional positions through the normal Merit Promotion procedures.

There are also continuing education programs, associated with the Upward Mobility effort, in operation at all NASA installations.

Identification of Candidates for Management Development

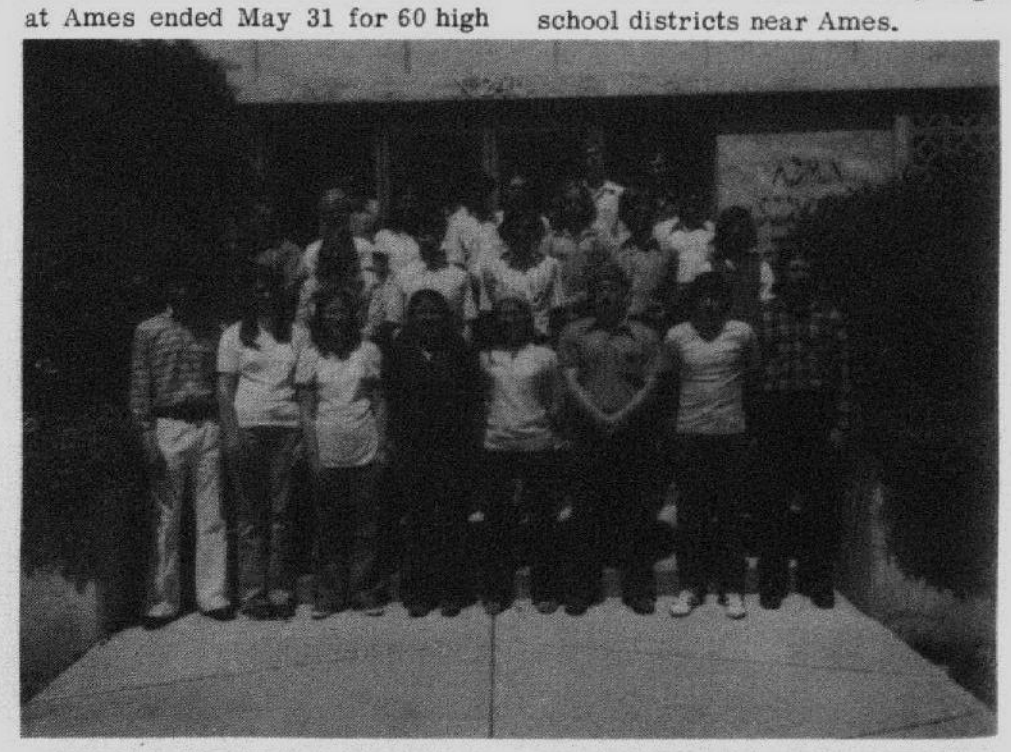
NASA is developing a data file on its professional minority and female employees and getting inputs from installations about training plans for those individuals. This data and the training plans will be reviewed by the Management Development Education Panel (MDEP) before the end of June 1974. Seminar for Minority Businesses

Last day for high school work experience students

The 1973-74 academic school year and 15 hours of work per week at Ames ended May 31 for 60 high school work experience students from 3 Santa Clara County high school districts near Ames.

The students received 10 credits each semester, a grade and no pay. The program is coordinated by the Training Branch and will begin again in the fall.

FREMONT UNION HIGH SCHOOL DISTRICT students include: (1st row, l. to r.) M.Allard, K.Hendrickson, D.Hobbs, J.Gonzales, J.Kane; (2nd) M.Tossy, C.Hawkins, M.Moore (Ames Coordinator), T. Hail, J. Rosenboom, C.Castro; (3rd) B.Jolitz, D. Riley, B.Johnson, D. Palmer, S.Koolhof; (4th) B.Liptrap, M.Askins, J.Collins, K. Tucker, R.Kiessig, E.McCune and L.Groves.



MOUNTAIN VIEW/LOS ALTOS and CAMPBELL UNION HIGH SCHOOL DISTRICTS students include: (1st row, l. to r.) D.Long, S.Coonce, S.Neumann, G.Neves, M. Magarian, P.Bays, D.West, R.Heintz; (2nd) C.Cannon, G. Inthout, D.Bratman, M.Spann, B.Johnson, S.Cozart; (3rd) B.Steuart (District Coordinator), S.Gray, C.Shea, J.Manoukian, J.Anderson, B.Barak; (4th) S.Alejandro, J.Blach, R.Hill, B.Adams & T. Alentiev.

Ames Expedition bound for Alaska

The stratosphere above a line north from Fairbanks, Alaska, to within six degrees of the North Pole is the subject of high altitude research aircraft flights by Ames to begin the week of June 10.

Flying at 65,000 feet over Alaska and the Arctic polar cap, a NASA Earth Resources Survey Aircraft temporarily based at Eielson Air Force Base will make measurements of ozone and nitric oxide in the air and sample tiny particles (smaller than a human blood cell) of natural and man-made pollutants.

The mission is to aid a national program which is concerned with how these gasses and particles may affect the global climate over a long period of time, and this is the first time such detailed measurements will have been made at these high altitudes and latitudes.

The Alaska expedition is directed by Martin A. Knutson, manager of the Ames Earth Resources Aircraft Project.

Experimenter for the Stratospheric Air Sampler is Max Loewenstein. Guy Ferry is in charge of the Aerosol Particle Sampler. Both are members of the Ames staff working in the Space Sciences Division under I. G. Poppoff.

NASA captures Sun's energy

NASA will be using energy from the Sun in two test programs to demonstrate solar heating and cooling of buildings.

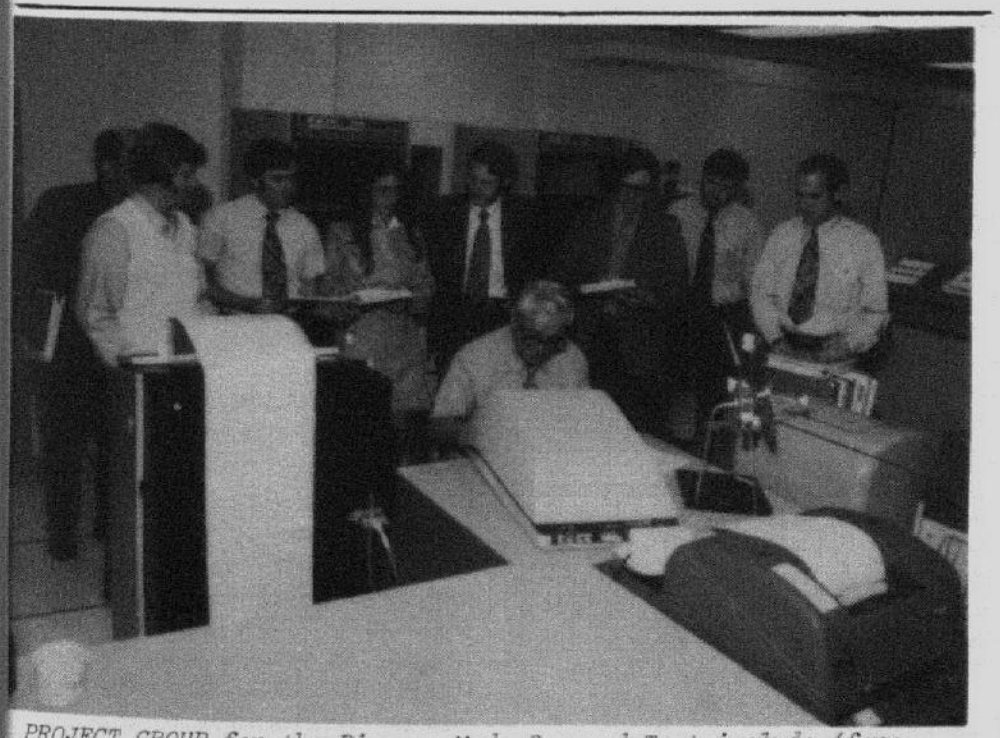
Engineers at Marshall Space Flight Center will use sunshine later this year to heat and cool three house trailers parked together to simulate a residence. They will demonstrate a system which will take from the Sun three-fourths of the thermal energy needed for the simulated living quarters.

In the second program, Langley Research Center will use the Sun's energy to heat and cool a new engineering building in a test program to obtain realistic engineering and operating experience.

In discussing NASA's plans for the experimental solar collector installation at Langley, Dr. James C. Fletcher, NASA Administrator, said, "This 53,000 square-foot building, so far as we know, will be the first building of its size in the world for which solar energy will provide a significant part of the building's heating and cooling load.

"A 15,000 square-foot collector is planned, since this size will provide most of the heating requirements and some of the cooling requirements. It will also test energy storage capacity, to obtain feasibility data on all aspects of the system."

Water-filled tubes inside solar collectors would absorb the Sun's heat, using it for direct hot water heating and to operate an absorption refrigeration unit for cooling. For convenience in conducting the test program, solar units will be located on the ground beside the building. Lewis Research Center is designing the experimental solar collector system and will select the candidate design. Lewis will evaluate various types of solar collectors, testing them in a solar simulator producing typical sunshine conditions. The National Science Foundation plans to develop a number of units.



PROJECT GROUP for the Pioneer Mode Command Test include (foreground, l. to r.) Fred Moore, BFEC; Tim Bridges, ARC; Rose Seay, BFEC; John Mearns, BFEC; Gerry Jacobson, BFEC; Dave Sinnott, ARC; Earl Levin, ARC; and Charles F. Hall, ARC, Pioneer Project Manager.

Ames retirees honored

Two former members of the Ames Research Center staff were honored by the prestigious Perham Foundation in recent elections. Dr. Seymour N. Stein, retired Chief of the Medical Office, was elevated from membership on the Perham Foundation's Board of Directors to President of the Foundation, and Russel G. Robinson, retired Director of Aeronautics was selected as a new member of the board.

The Perham Foundation is the philanthropic organization that originally founded and now advises the Foothill Community College District on operation of its Foothill Electronics Museum. The museum, on the Foothill College campus in Los Altos Hills, is one of the foremost institutions of its type in the world. Here, both early and modern electronic equipment of every description is not only on display, but can actually be operated by the public. In addition, the Museum houses the Lee De Forest Memorial Library, where scholars from everywhere on the globe gather information on the early developments of our modern Electronics Age.

The museum is open to the public Wednesdays, Thurdays and Fridays from 9 a.m. to 5 p.m. and on Saturdays and Sundays from 1 p.m. to 5 p.m.; closed to the public Mondays and Tuesdays. The Library is open to scholars every weekday from 9 a.m. to 5 p.m. and by special arrangement on weekends. There is no admission charge.

Ames employees and their families are especially welcome at the Foothill-De Anza Space Science Center (of which the museum is a unit), since a strong bond exists between them. Several Ames staff members are on the Space Science Center Advisory Committee, including Charles C. Kubokawa (Man-Machine Integration Branch) who is Chairman of the Committee, and Garth A. Hull (Educational Programs Office of PAO), a Committee member.

GIVE BLOOD FOR GOODNESS SAKE. RED CROSS BLOOD PROGRAM.

Amelia Earhart Fellowships

Amelia Earhart, top-ranking air pioneer was an unusual woman of courage, culture and charm, and long a beloved member of Zonta, first of its Boston club, later its New York City club.

In 1938 a year after Miss Earhart's disappearance during the first attempt to circle the globe by air, Zonta established its annual grants for fellowships in aeronautical sciences as a living memorial to her.

Supported by contributions from member clubs (640 in 46 countries) grants are $3000 each; their number each year is determined by the number of qualified candidates. Awards have been made to students from Australia, Canada, Egypt, Finland, France, Germany, Israel, Italy, Japan, Sweden, Switzerland, Taiwan, the United Kingdom, the United States and Yugoslavia.

Candidates for the upcoming selection must have their applications filed by January 1, 1975. For an application blank, write to Zonta International, 59 East Van Buren Street, Chicago, Illinois, 60605.

Qualifications and statistics for the Graduate Study in Aerospace Sciences Fellowships are as follows:

- Grants of $3000 will be awarded to best qualified candidates for assistance in the 1975-1976 school year.
- To women recommended for their character and scholastic record, and holding the bachelor's degree in a science acceptable as preparatory for advanced aerospace studies in an approved college of their choice.
- Grants may be used in any school offering fully accredited graduate courses in aerospace sciences and approved by Zonta's Earhart Fellowship committee.
- Past recipients may apply for renewed grants.
- Zonta's Earhart Fellowship committee will carefully study all applications. Its decision on awards, as ratified by the board of Zonta International, will be final.
- Applications must be filed by January 1, 1975.

Dr. Richard Carlson receives award

Dr. Richard M. Carlson of the U. S. Army Air Mobility Research and Development Laboratory, Ames Research Center, Moffett Field, California, received the American Helicopter Society's Annual Honorary Fellowship Award from the Society's Board Chairman Frederick W. Garry during the organization's annual forum meeting May 8 at the Sheraton-Park Hotel, Washington, D. C.

The award, one of two such awards given each year, cited Dr. Carlson "for distinguished and meritorious service in advancing rotary wing aeronautics."

Dr. Carlson, who is Chief of the Advanced Systems Research Office of the Army research laboratory, holds a Bachelor of Science Degree and a Masters Degree in Aeronautical Engineering from the University of Washington, and a Ph.D. Degree in Engineering Mechanics from Stanford University.

Dr. Carlson is an Associate Fellow of the American Institute of Astronautics and Aeronautics, AIAA, a member of the American Helicopter Society, a Fellow of the Royal Aeronautical Society and is the first foreign member of the Swedish Society of Aeronautics and Astronautics.

Dr. Carlson and his wife Venis, reside with their three children in Saratoga, California.

Speakers Bureau

Sal Rositano (Electro-Systems Engineering Branch) made presentations recently to three groups in the area. On April 27 he addressed a Cub Scout Blue and Gold Dinner held in San Jose, on the subject: "So You Want to Be an Astronaut." On May 10 he was the guest speaker for the annual banquet dinner of San Jose State's Tau Beta Pi Chapter (engineering honorary); he spoke on "Bio-Engineering." And on May 30 he discussed "Science and Medicine" at a Career Day at Marten Elementary School in San Jose.

Barbara Busch (Educational Programs Office) spoke on May 24 to a Cub Scout pack meeting in San Jose. She discussed "NASA and Rockets" to conclude the pack's "Space Adventure" activity unit.

Dr. Delbert Philpott (Neurosciences Branch) spoke on "Histological Examination of Five Pocket Mice Retinas after the Flight of Apollo 17" at the recent Aerospace Medicine meeting in Washington, D. C. While on the East Coast he visited Johns Hopkins University's School of Nuclear Medicine and arranged for some collaborative work. He also spent time working in the Veterans Hospital in Brooklyn, New York, on vascular regeneration. Additional speaking engagements were conducted at M.I.T., Boston University, and Harvard. While at Boston University he also taught a class session in "Advances in Microcirculation," a class in which he had once been a student. Del reports, encouragingly, that at all three universities the students were openly supportive of the programs and goals of NASA.

Hervey Quigley (Manager, STOL Research Aircraft Office) was the luncheon speaker for the San Jose Westgate Rotary's meeting on June 4. He spoke on the general field of STOL aircraft.

James Jedlicka (Thermal Protection Branch) presented a lecture-demonstration to the Los Gatos High School Science Club on May 22. The program was on solar energy.

Charles "Chuck" Kubokawa (Man-Machine Integration Branch) traveled to Sonoma on May 15 to address the Environmental Studies graduate class seminar at Sonoma State College. He talked about NASA's involvement in community and regional planning.

Paul Sebesta (Life Sciences) talked to the junior-senior English class at San Mateo High School on May 15. The class had just finished a unit on science fiction, and Paul discussed how the science fiction of the past has become reality, and how today's science fiction MAY become reality in the future.

Tom Tomberlin (Procurement Division) talked to the members of the Military Order of World Wars on May 16, at the group's evening meeting at the Moffett Naval Officers Club. Tom updated the group on the Skylab program.

Join the new Ames "bus-pool"

A large number of Ames employees began riding to work in the new Ames "bus-pool" which originates in Cupertino at 7:20 a.m. and mainly serves the 8 to 4:30 p.m. shift at the Center.

The bus operates much like a car pool picking up passengers at six points near residential areas and then proceeding directly to Ames. There is still room for more interested employees in the bus-pool. The current schedule is listed below. This is a pilot program and therefore subject to change (upon notification) according to the wishes of the majority of the riders.

Bus tickets may be purchased in books of 22 round trips for $22. A book of trips is good for 6 weeks, which is 30 working days. A book of trips may be purchased at any time during the month.

PICK-UP POINTS: START 7:20 a.m.

1. Westgate Shopping Center (Saratoga Ave. and Prospect)
2. Prospect and Provincetown
3. Prospect and Saratoga-Sunnyvale Rd.
4. Rainbow and Stelling
5. McClellan and Stelling
6. Stevens Creek and Mary

Closed door into Ames; three stops at the Center

Leave Ames (tentatively) 4:40 p.m.

If interested and wish more information concerning the bus pool (and purchase of tickets), please call Don Frolich at ext. 6026.

Conserve energy, join the new personalized Ames bus-pool!

WANT ADS

Transportation

1964 Dodge 1/2 ton Pickup. 4 speed, air, with extra gas tanks and camper shell, $800. 354-2769

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1970 Dodge Challenger R/T: 4 spd Hurst, 383 Magnum, recent valve job, all new tires, shocks, rebuilt transmission. Excellent condition. Best offer. Call after 1:00 p.m., 961-3385.

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1964 Bronze Corvette Fastback, 327 Hi-Performance engine, belted wide oval tires, Mags, AM-FM stereo. Worth $2,400, selling for $2,100. Leslie, 964-7614 eve.

FOR RENT – Cabin, South Lake Tahoe. Call E. A. Harris, 948-6200.

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FOR RENT – So. Shore Lake Tahoe. 3 bedroom home. Sleeps 10. Fireplace and deck. Walk to beach. $150 per wk. Call 252-4749.

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Tahoe Keys Townhouse. Now available for summer rental. Completely furnished. 2 bedroom, 2 bath. Private boat dock. Tenants may use all recreational facilities. $175 per week. S. Benbow, X5639 or 969-1494.

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FOR RENT: 2-story vacation house, Tahoe Keys, waterfront, private boat dock, exc. view. Near casinos. 736-4328

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FOR SALE: 3 BDRM., 2 bath, fam. rm. w/frplc, AEK, assumable or make offer. $28,900. San Jose. 251-5856

Miscellaneous

VIVITAR 35mm wide angle lens for Pentax. f/3.5 - preset. $10. 326-5621

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Garden Building, 9' x 6', green and white, Sears' best, used only 3 months. $75, includes anchor kit. 356-2039

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Sail Boat: 8 foot El Toro with dacron sail. Not registered. $135. 354-2769

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SCM portable typewriter, exc. cond., $50. Deluxe Relaxacizor, used very little, $75. Call Mary, X6512; evenings 248-6281.

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WANTED – Lightweight canoe, well used and low priced. C. Jackson. 248-5546.

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WANTED: Bicycle parts – wheels with alloy rims or just rims for clincher tires. can pay or trade alloy sew up rims. Tim 948-5312.

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FREE KITTENS: 4 half Burmese, 4 half Siamese. Call 968-1247.

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RIDE NEEDED: Vicinity of San Thomas or Winchester and Stevens Creek. Hours 8–4:30. M. L. Roy X6001.

Winner of '74 Galileo Memorial Scholarship named

Gordon Stitt, senior at Aragon High School in San Mateo, has been selected as the winner of the 1974 AIAA/ARC $500 Galileo Memorial Scholarship and was slated to receive his award at the May 17 Section meeting. Gordon will major in physics at Harvey Mudd College and ultimately plans to earn a doctorate.

Over 60 applications were received for the scholarship, and five finalists were invited for interviews at Ames Research Center in April. The other four finalists, who received a certificate and a $50 Savings Bond were:

Steven Kazerski, Homestead High School, Cupertino

David Schapiro, Fremont High School, Sunnyvale

Michael Shin, McAteer High School, San Francisco

Kathryn Yamada, Monta Vista High School, Cupertino

"Big Brothers" seek volunteers

Big Brothers of Santa Clara County will hold a meeting at 12:00 noon on Wednesday, June 12 to describe their program for assisting fatherless boys. The meeting, scheduled for 30 minutes, will be held in the Life Science Conference Room in the basement of building 239. All interested persons are invited.

Big Brothers is a nonprofit agency with the purpose of providing fatherless boys with the guidance and friendship of an adult male. All men in the program are volunteers, willing to spend 3 or 4 hours a week to help a boy. Men and boys are matched on a one to one basis under the supervision of a trained social worker.

After the meeting a representative of Big Brothers will answer questions, and there will be an opportunity to talk with men currently active as Big Brothers. Applications for interested volunteers will be available. Men are especially needed to serve as Big Brothers but there is also a need for volunteers, women as volunteers, women as well as men, willing to help in other capacities.

* * * * *

One can acquire everything in solitude –except character.

De Stendhal

Thank You

I would like to thank my many friends at Ames for the beautiful gifts and great luncheon. I am so flattered that so many people cared.

Sincerely,
Jo Hartje

CONSERVE FUEL

JOIN A

CAR POOL

GOLF

Winners of best ball twosome at Pajaro Valley Golf Course, May 11:

First Flight: lst-F. Lazzeroni and P. Barisich; 2nd-O. Sapp and L. Walsh; and 3rd-J. Lee and J. Nelan.

Second Flight: lst-R. Eddy and S. Hing; 2nd-R. Carlson and C. Turnbill; and 3rd-L. McCulley and H. Mathews.

Third Flight: lst-C. White and N. Krouse; 2nd-E. Menefee and B. Page; and 3rd-E. Magee and R. Forest.

Fourth Flight: lst-B. Gray; 2nd-P. Strawbridge and T. Nelan; and 3rd-M. Kelley and R. Barrow.

Next Tournament: De Laveaga Golf Course, Santa Cruz, on June 8.

the astrogram

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June 20, 1974

National Aeronautics and Space Administration • Ames Research Center, Moffett Field, California

990 joins weather study

The Ames Galileo II aircraft has joined an intensive international effort to understand the tropical atmosphere and its effect on global weather patterns during the summer months.

The four-engine jet transport, which has been extensively modified to carry a variety of scientific payloads, left Ames on Monday, June 17, for Dakar, Senegal, Africa. Galileo II and twelve other aircraft, together with 38 ships, some 60 ocean buoys, six types of satellites and nearly a thousand land stations, will gather data on weather and ocean phenomena from the top of the atmosphere to about 5,000 feet below the sea surface. The area to be investigated includes some 20 million square miles in a broad swath of the tropics extending from the eastern Pacific Ocean across Latin America, the Atlantic Ocean, Africa, and to the western Indian Ocean.

The data gathering portion of the study will last from mid-June through September 23. Earl B. Petersen of the Airborne Science Office is Aircraft Program Manager and Mission Director and heads up some 40 scientists and technicians aboard Galileo II.

The tropics receive half of the sunshine that strikes the earth and fuels the atmosphere's circulation. Much of this solar heat is first stored in the tropical oceans and then is transferred from sea to air, carried upward in tropical cloud systems, and transported from the tropics by high-level winds. Although these processes ultimately affect atmospheric

(Continued on Page 2)

Russian scientists visit Ames

Seven Soviet life scientists recently visited Ames for a one-day discussion and tour of Ames' life sciences research facility. The group was greeted and escorted by Ames' Dr. David L. Winter who has just been named NASA's Director for Life Sciences.

All of the Russian visitors were physicians and scientists who work in related space and aeronautics life sciences. They originally came to the United States to attend an Aerospace Medical meeting in Washington, D.C. Their visit to Ames was primarily scheduled to discuss the work Ames is doing and the work they are doing in biology experiments and in space research. According to Dr. Winter, common problems experienced in research were brought out in the discussion session.

(Continued on Page 2)

High altitude photography aids California farmer

Ames researchers have shown that it is cheaper to search for some kinds of weeds from 65,000 feet in the air than from the ground.

A case in point is the "Dudaim melon," considered one of the worst weeds in California. Dudaim melon is an annual, inedible variety of cantaloupe introduced into the Imperial Valley from India in 1953. Its potential to cause severe economic loss in cotton, alfalfa, sugar beet, and asparagus fields branded it for eradication by the California Department of Food and Agriculture, and the Imperial County Department of Agriculture.

In asparagus, Dudaim melon plants quickly grow to the tops of the 6-8 foot high ferns to spread out to a 30-35 foot diameter. The weed effectively smothers the asparagus to decrease yield by 60 percent, with a reported loss to growers of up to three million dollars annually.

Dudaim melon infestation in crops, especially asparagus, is difficult to detect from the ground because of limited visibility in the high growing asparagus and the uncomfortable ground conditions of the Imperial Valley summers, i.e., high heat, high humidity, and prevalence of rattlesnakes.

In one 80-acre field, for example, photo interpretation of infrared photos from a NASA Earth Resources Aircraft flight revealed a probable Dudaim melon infestation that had not been detected after 100 man hours of ground survey in that field.

The test showed that the image of the Dudaim melon plant viewed under magnification was readily identifiable, even to untrained photo interpreters, and stood out clearly and distinctly from the images of asparagus and other weed species. Photographed in infrared, the asparagus fields show up purple. The melon plant shows as a bright crimson spot on the purple background.

Photographs made from Ames' Earth Resources Survey Aircraft flying at 65,000 feet are helping California farmers identify infestations of Dudaim melons in asparagus and other Imperial Valley crops. Weeds show up as bright crimson spots against the asparagus fields which photograph purple on infrared film. Robert Ekstrand, Operations Supervisor in the Ames Earth Resources Data Facility, studies a 9 by 18-inch transparency of the Imperial Valley.

The Department of Food and Agriculture estimated that a ground inspection survey of 4,000 acres of asparagus at the same level of detail from the ground as provided by the high-altitude photography would cost $60,000 (20,000 man hours at $3 per hour). Such complete surveys from the ground are economically impossible. Even random surveys of the 64,000 acre Dudaim melon eradication project area would cost at least $125,000 annually.

Estimated costs for the flight were $2,860 for aircraft flight time, and $650 for film and photographic processing. Based on the above actual costs, it is estimated that to completely survey the 64,000 acres by high-altitude photography would cost less than $10,000.

Ames hosts land use seminar

The use of data gathered by satellites and high-flying aircraft, usually in the form of photographs, to assist in land use planning was the subject of a seminar at Ames last Thursday and Friday.

Approximately 50 state and local government resource managers attended and participated in the two-day series of discussions.

Recent years have seen great strides in the art of "remote sensing"; the gathering of ground-level data from aircraft or spacecraft. The launching of the Earth Resources Technology Satellite in July, 1972, provided the first repetitive imaging of the earth surface for application to earth resources disciplines, including land use planning.

Seminar participants heard presentations on the use of remote sensing data in dealing with problems of land use, on state-of-the-art techniques in the interpretation of remotely-sensed data and on the integration of such data with information from other more conventional sources.

Specific examples of the use of remotely-sensed land use information and its effect on the decision-making process was also presented.

Dr. Alan J. Stratton of the Space Applications Branch at Ames was Chairman for the seminar.

Disney researcher exchanges ideas

"Simulation" is defined by "The Random House Dictionary" as "1. the act or process of pretending; feigning; 2. an assumption or imitation of a particular appearance or form; counterfeit; sham."

The science of simulation can be successfully developed and applied to particular programs by both the researcher and the artist. Ames uses simulation in a variety of ways with numerous flight research projects and with life science programs.

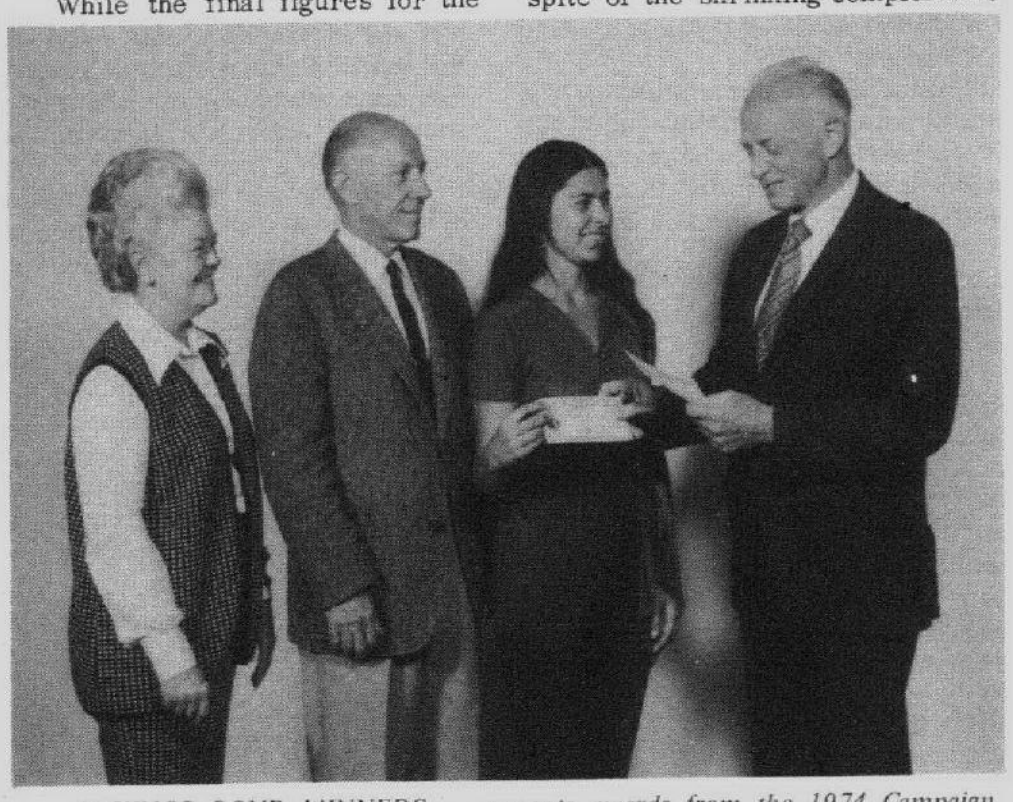
Therefore, when Dr. Richard F. Haines of Ames' Man-Machine Integration Branch met Eustace Lycett, Director of Technical Research for Walt Disney Productions, at a technical meeting in Southern California last month, the two gentlemen had a common basis for conversation. That common basis was the art and application of simulation.

(Continued on Page 2)

1974 Bond Drive highest in four years

The 1974 Savings Bond Drive officially ended on May 31. As Manager of the Drive, and on behalf of Dr. Mark, Al Hertzog wishes to express his appreciation for the effort and enthusiasm exhibited by so many of the coordinators and canvassers throughout the campaign.

While the final figures for the campaign are not available yet, the campaign was relatively successful this year, with the number of new bond buyers (approximately 120) considerably in excess of any year in recent history. The total number of Ames personnel participating now exceeds 1,000 (approximately 60%) for the first time since 1970, in spite of the shrinking complement.



SAVINGS BOND WINNERS . . . accepts awards from the 1974 Campaign Chairman, Al Hertzog. The two "most successful canvassers" are (left to right) Marian Cooper and Dr. G. Allan Smith. The "most valuable player" award went to Judy Molica. Hertzog presented a $50 bond to Dr. Smith and a $25 bond to Mrs. Cooper. Mrs. Molica accepted a $25 bond.

Russian visitors (Continued from Page 1)

Four Ames presentations were on the agenda for the day. They included: Dr. Keith Kvenvolden, Chief of Chemical Evolution Branch, "Studies on the Origin of Life"; Dr. Jiro Oyama, Research Scientist in the Environmental Physiology Branch, "Effects of Hypergravity on Organisms"; Dr. Webb Haymaker, Senior Scientist in Neurosciences Branch, "Biocore"; and Dr. Jaime Miquel, Research Scientist of the Neurosciences Branch, "Radiation Biology."

RUSSIAN VISITORS POSE . . . for a photo in front of the Ames Life Sciences building. They are (front row, left to right): Professor V. A. Popov; Professor V. A. Smirnov; Professor Paul Siminov; Dr. David L. Winter, NASA Director of Life Sciences; (back row): Dr. John Billingham, Chief of Ames Biotechnology Division; Professor Igor Shinkarenko; Professor V. I. Myasnikov; Professor S. B. Gulaziziv; and Professor Jean Illyian.

Disney researcher

(Continued from Page 1)

After discussing how they each applied simulation to their respective areas of work, Dr. Haines extended an invitation to Lycett to visit Ames. Lycett was anxious to see the facility's many simulators. He planned a trip to the Bay Area on June 5.

Once at Ames, Lycett was escorted around the Center by Dr. Haines. They toured the Flight Simulator for Advanced Aircraft (FSAA), the Ames hangar and the Life Sciences building. Lycett found all the simulators quite interesting and was especially intrigued by the FSAA and the landing simulators in the Man-Machine Integration Branch.

Seeing the successful simulation efforts of the NASA Center spurred Lycett to reveal some of his creative and ingenious artistic simulation achievements with Walt Disney Productions. He told of the way in which optical illusions can be easily and inexpensively achieved in simulations for Disney exhibits such as the famous Haunted House.

According to Dr. Haines, the talented research director emphasized the fact that Disney Productions is always in the market for new ideas for future attractions. New exhibits are continually on the drawing board and in the hands of the company's cost analysts.

Disney World in Florida is currently planning the opening of a new ride called "Flight to the Moon" which will simulate the sensations of weightlessness as well as "G" forces which the astronauts experience on take off. The ride will be only 70 seconds long!

This account inspired Dr. Haines who informally suggested to Lycett that a High Altitude Flight (via NASA Ames Earth Resource Survey Aircraft cameras) be simulated and exhibited as a Disney attraction in a dome planetarium for the public to experience. Film could be used from an actual flight at 65,000 ft. In fact, Dr. Haines pointed out that even film of a solar eclipse from the Ames Galileo II could be used in such an attraction.

Lycett, a mechanical engineer, has been with Walt Disney Productions since its origin many years ago. He and Dr. Haines agreed that the world of entertainment and the world of research can (and do) intertwine.

6.4% retiree annuity forecast

Annuities of Federal Civil Service retirees will increase 6.4% on July 1, 1974. This was triggered by a 5.4% increase in the Consumer Price Index (CPI) between October, 1973 and April, 1974. The law requires another 1%.

The April Index figure now becomes the base against which the next cost-of-living increase will be measured. Thus, when the CPI reaches or exceeds 148.4 for three consecutive months, another increase in those annuities will occur.

Employees planning to retire before July 1 may get the advantage of two cost-of-living increases. The law now allows a retiring employee the value of the annuity on date of separation or at the last prior cost-of-living increase in annuities.

Those retiring before July 1 might also consider separation no later than June 18, the last work day before the end of the month. That would qualify them also for 1/15 of a month's annuity for June.

Voluntary early out retirement applies to Lewis and Marshall Centers only.

For additional information contact Records and Reports Branch, ext. 5610.

990 joins study

(Continued from Page 1)

circulation and weather all over the earth, they are inadequately understood.

Meteorologists have achieved sufficient understanding of the atmosphere, based largely on observations in middle latitudes, to develop mathematical models or sets of equations expressing the physical laws governing its behavior. Programmed for computers, these models – together with the latest set of simultaneous weather observations – are used to produce computerized weather forecasts for several days in the future. But in order to develop improved models that predict weather a week or more in advance with reasonable accuracy, greater knowledge of the special characteristics of tropical weather systems and their global effects is needed.

The project is called the Atlantic Tropical Experiment, part of the Global Atmospheric Research Program of the World Meteorological Organization – a specialized agency of the United Nations – and the International Council of Scientific Unions. The study, which has been more than four years in the planning, will directly involve some 4,000 people from 66 nations.

A variety of scientific instruments are being installed on Galileo II and will be used during the mission. The aircraft's primary responsibilities include: probe the outflow layer of the tropical weather systems above the 28,000 foot altitude level, obtain short-wave and long-wave radiation measurements, and obtain cloud photography. Additionally Galileo II will serve as aircraft command post for multi-aircraft missions and make advance weather reconnaissance flights.

Headquarters for the effort has been established at Dakar, the westernmost point of the African continent.

The 13 aircraft from five nations will gather atmospheric and ocean measurements, principally in the area of the concentrated ship array, at various altitudes from 300 to more than 30,000 feet.

U.S. and USSR spacecraft, including the newly-launched Synchronous Meteorological Satellite (SMS–A), will scan the entire experimental area night and day, furnishing information on clouds and winds, temperature and moisture in the atmosphere, and sea-surface temperatures.

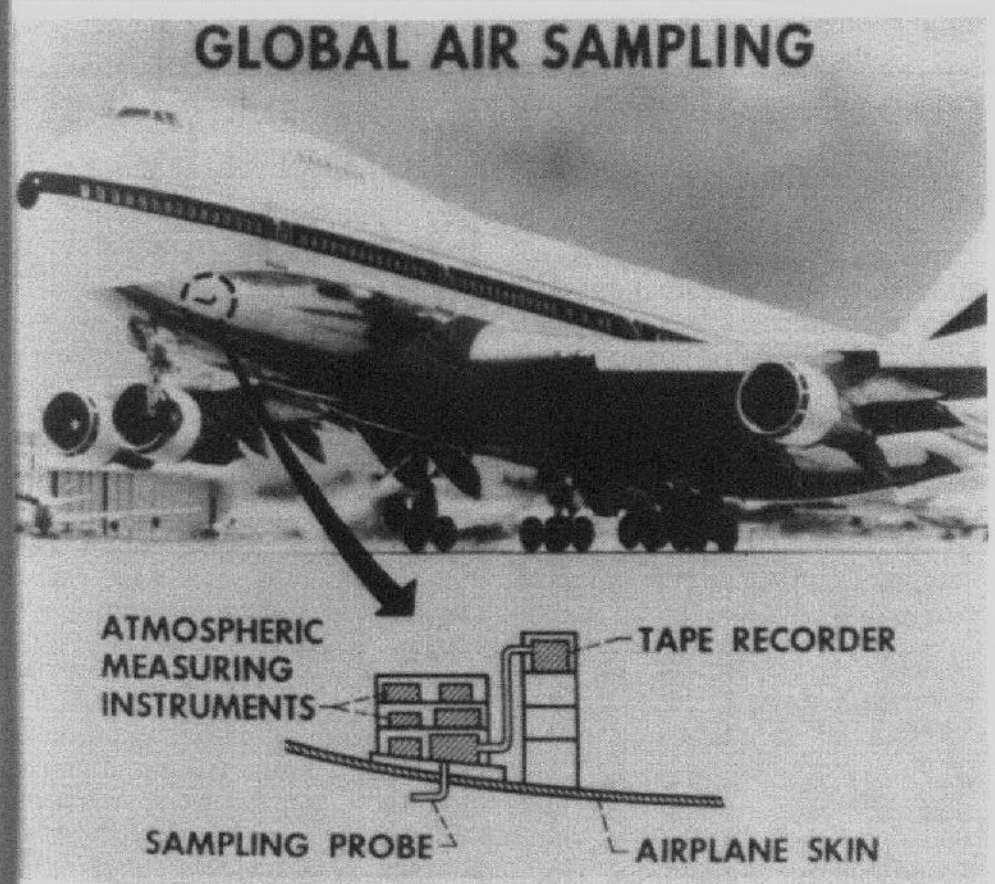
The National Oceanic and Atmospheric Administration of the U.S. Department of Commerce is coordinating and directing U.S. participation on the project.

AMRDL Director feted by educational association

At the May meeting of the Palo Alto Charter Chapter of the American Business Women's Association (ABWA), Mr. Paul F. Yaggy, Director, U.S. Army Air Mobility R&D Laboratory, was the surprised recipient of the Chapter's 1974 "Boss of the Year" award.

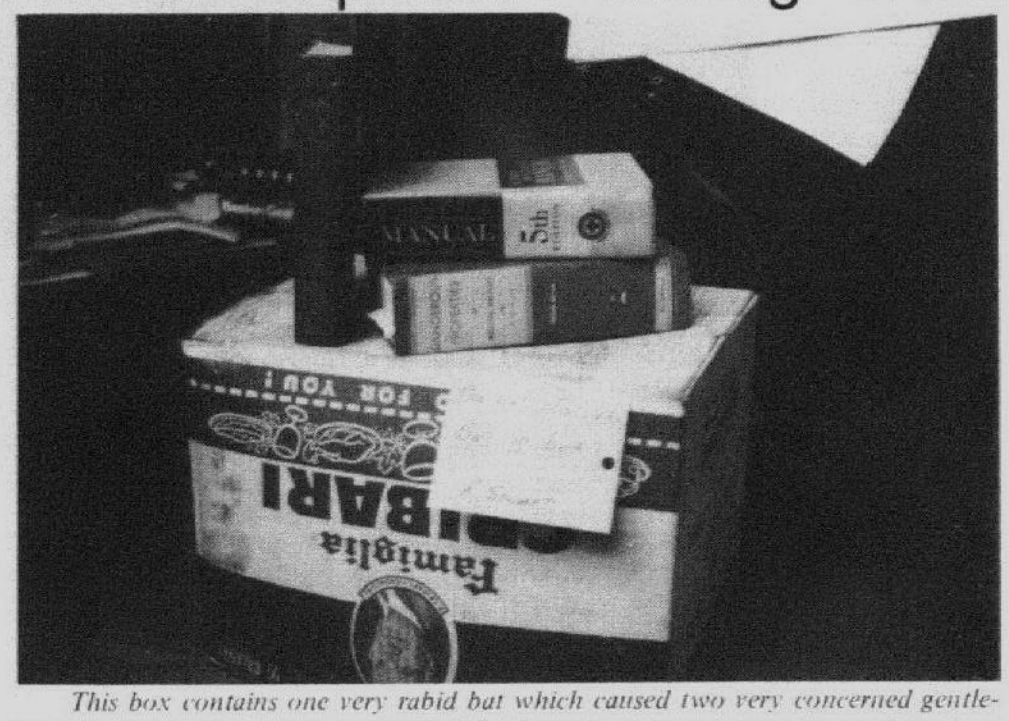
ABWA, which is non-union, non-political, and non-sectarian, is an educational association with its major aims and purposes devoted to improving employer-employee relations, to keeping business women up to date on business techniques, and to the advancement of women in business through more efficient service to business. Through its award of local scholarships for reputable women students and business women desiring to better themselves through education, the Association acknowledges its awareness of education's importance in improving the status of women in the business world.

The selection of "Boss of the Year" is made by a peer group of people from area educational institutions and businesses, and is based on both the nominee's professional stature and stature as an individual.



EFFECTS OF JET EXHAUSTS CHECKED: Pollution sampling devices installed in a Boeing 747 jet aircraft under a NASA $1.1 million contract are surveying dust particles and gases in the upper atmosphere at altitudes between 20,000 and 40,000 feet. Sensors in NASA's Global Air Sampling Program (GASP) are being flown on regular United Air Lines commercial flights to determine the effects of airplane exhausts in the upper atmosphere.

Ask for help when "boxing" a bat



This box contains one very rabid bat which caused two very concerned gentlemen (namely John Habermeyer and Bob Stuart) much anxiety and more than three wind tunnel mechanics a lot of dodging and ducking!

During the past year or so the Ames Safety Office has located and captured a small number of bats at the Center with the aid of employee tips. All employees are urged to continue reporting any bats sighted in the immediate Ames vicinity and are especially encouraged not to touch or capture the animals without professional assistance.

Ames is not singled out as the only refuge of the nocturnal mammals. The creatures have been spotted throughout the Santa Clara Valley from time to time during this past year.

Remember! Report any bats on sight and don't take things into your own hands! Leave the capture to the experts who have been properly trained.

US/USSR joint symposium

Scientists from the United States and the Soviet Union, participating in a joint symposium on the Bering Sea, have found that satellite data can be used for the accurate assessment of sea surface and related atmospheric conditions.

The symposium was held in May in Leningrad to report final results from the joint U.S./USSR Bering Sea Experiment on Microwave Sensing of Atmospheric and Oceanographic Characteristics.

Research aircraft provided by NASA and the Soviet Academy of Sciences obtained data for the study during February and March, working with a U.S. ice breaker and a Soviet oceanographic research ship to study Bering Sea ice cover, surface state, and zones of precipitation.

Two research groups independently surveyed the sea surface under identical atmospheric conditions using microwave radiometry techniques, with comparison data provided by the research ships sailing below.

The findings of the two teams were in general agreement, permitting a high degree of confidence in the data collected and in the subsequent interpretation.

The study offered convincing proof that scientists can use microwave measurements from satellites to assess sea ice distribution, motion, and stress, and that multi-spectral observations can permit scientists to determine the content of liquid water and water vapor in the atmosphere above the sea surface.

New earth resources ground station

A ground station designed to receive data directly from NASA experimental earth resources satellites will be built at Fucino, Italy, under an agreement announced this month.

According to the Memorandum of Understanding between NASA and Telespazio, the Italian organization will build the ground station at Fucino, 55 miles southeast of Rome, and link it to the growing network of earth resources data facilities.

The new installation will complement existing U.S. ground stations at Fairbanks, Alaska; Goldstone, California; and at the Goddard Space Flight Center. Foreign stations are already in operation at Prince Albert, Canada, and Cuiaba, Brazil.

In exchange for rapid access to satellite-gathered information about conditions on the Earth's surface, Telespazio will make copies of the imagery and computer-compatible tapes they produce available to NASA.

The Italian station will be available to offer emergency support in the event of a satellite malfunction. If, for example, tape recorders aboard an earth resources satellite should fail, all the cooperating earth resources ground stations – including the new facility at Fucino – might be asked to grant special assistance and to provide additional copies of transmitted data.

Data relayed from ERTS–1 has already been distributed to some 300 investigators in the United States and 37 foreign countries.

Speakers Bureau

On May 10, Dr. Richard Haines (Man-Machine Integration Branch) presented a multi-slide show entitled "Color Design for Habitability" to the Upper Midwest Hospital Conference, held in St. Paul, Minnesota. He was assisted by Mike Prezekop (Graphics and Exhibits Branch). Dick's presentation tells how the proper use of color and illumination can influence the habitability of any structure. For this conference Dick emphasized hospital interior design. The presentation uses seven individual 35mm slide projectors, controlled by electronic dissolve units and tied by a radio signal which is initiated by the speaker from the lecturn. The audience sits before a 35-foot-wide screen, for the wide-angle viewing that helps enhance the visual effects sought. The Civic Auditorium in St. Paul seats 750 people, and Dick was told that over 300 additional interested viewers were turned away from the doors.

Paul Sebesta (Life Sciences Directorate Office) was a guest speaker for the Boys State early June convention held in Boise, Idaho. The Idaho organizers describe the program as: "A course in the duties and responsibilities of citizenship, sponsored by the Idaho Department of the American Legion." Every state holds similar programs, both Boys States and Girls States, for leadership and citizenship development. There were approximately 500 young men in the Idaho program this year; they will be high school seniors this fall. Paul himself was selected to participate in the Boys State program in Idaho, a few years ago. Paul states that the boys appeared very enthusiastic about his discussion of "where we are, and where we should be, and where we can go" in the general field of space and our environment.

Robert "Skip" Nunamaker (Deputy Manager, Pioneer Project) addressed the Project Management Institute at an evening meeting held in Millbrae on May 28. He discussed "Space Project Management" and reports that the group was very responsive and seemed very interested in how NASA manages its programs.

The copy for this column is turned in approximately a week-and-a-half before the ASTROGRAM reaches our desks at Ames, so as-yet-unhappened presentations are reported in the past tense. Sometimes the presentations just don't happen the way they are/were reported! As an example: Robert "Bob" Hogan substituted for Gil Schroeder at the scheduled June 4 meeting of the Redwood City Rotary Club, and discussed the Pioneer 10 and 11 missions. Thanks, Bob.

Dr. Sanford Kellman (Theoretical Studies Branch) recently talked to the third graders at Hillview School in Los Altos. Sanford presented "Introduction to Galaxies" to the students. He was assisted by four young people who were former junior high school astronomy students of Dr. Kellman.

On June 22 Barbara Busch (Educational Programs Office) addressed the Electrical Maintenance Engineers at their officer installation dinner, held in Fremont. Barbara discussed some of the spinoff benefits of the space program.

Biological Photography group visits Ames

Ames Research Center was visited by 28 members of the Biological Photographic Association, on the evening of May 31. The members were from the greater Peninsula area. Richard Clayton and Dino Ponseggi, of the Photographic Technology Branch, were hosts for the visit. The program began with an orientation session conducted by Mr. Clayton, to acquaint the visitors with the over-all mission of Ames. The group visited the ultra-structure laboratory of Dr. Delbert Philpott (Neurosciences Branch), and Dr. Philpott described the work which Ames is doing in the field of electron microscopy. He showed slides of the work done on the Apollo 17 mice studies, for examples. He also gave the group a demonstration of how the electron microscope works.

Dick Kreck was the spokesman for the group's visit to the U-2 Data Facility. He discussed the earth resources aircraft program and showed a number of photographic examples to illustrate. He also discussed the ERAP program.

The final visit was to the 6 X 6 Wind Tunnel, where Odell Cox was the host. Following a tour of the 6 X 6, Mr. Ponseggi told the visiting photographers how Schlieren photography is performed and used at Ames.

A thank you letter from the group's spokesman comments: "Mr. Ponseggi and Mr. Clayton made a most interesting and intelligent presentation of the ongoing work of NASA in photography. In the interests of moving ahead in the field of aeronautics and space science you have produced 28 more supporters for your effort."

Helicopter Society to meet

The American Helicopter Society's San Francisco Chapter will hold its 1974 Summer Meeting on June 22 at the Palo Alto Airport from 10 a.m. until 5 p.m.

Lunch will be at Mings at 12 noon ($5 per person).

Demonstration flights will take place in the afternoon.

Those interested should contact J. Biggers, ext. 5043, for further information.

WANT ADS

Transportation

FOR SALE: 64 Ford Fairlane, 2-dr. hdtp., 289 V-8 with 2 bl. carb., 4-spd. trans. $200 best offer. Call 263-4586 after 5:00 p.m. SOLD

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70 Ford LTD, exc. cond., low mileage, good economy engine. $1620. Phone 941-4148.

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63 Dodge Dart, needs short block, R&H, AT, $50. R. Dave McCann, 379-1178.

Housing

House for lease, West Menlo Park, 3 bdrm, 2 bath, family rm., fireplace, all major appliances incl., available 8-1-74, $380/mo. Call 854-2682.

Miscellaneous

Lake Tahoe property for sale. Located at Innisfree (North Shore), owner desires quick sale, call anytime 356-6690.

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'69 model "Golden Touch'n'Sew" Singer sewing machine, exc. cond. does "everything," $175, call 841-0197.

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Old wood stove, $50, call 227-5307

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FOR SALE: Guitar, Yamaha FG-75, steel strings, w/case, like new, $75, 738-4629

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FOR SALE: One corner table, one telephone desk, one sofa, one brand new bed on rollers (bolster included). 961-1174 evenings.

FOR SALE: 4-speed reel-to-reel stereo tape recorder & speakers, needs some work, $80. SCM portable manual typewriter, $50, 493-3816 eves.

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FOR SALE: Men's 3-speed Huffy bike, $15. Remington cordless electric shaver, $25. Also misc. clothes & books. 493-3816 eves.

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3/4-size violin with case $65. Larry Meritt 378-4160.

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Single aluminum garage door and hardware, $50. Larry Meritt 378-4160.

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Smith Corona portable elite typewriter with case. Very good cond. $50. Call 321-1858 after 5 p.m.

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Portable bed with mattress. Small size. Little used. $10. Call 321-1858 after 5 p.m.

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FOR SALE: 2½-acre lot on Highway 88 at 4000-ft elevation. Has access road, pad suitable for building, and electricity. Near Silver Basin and Kirkwood Meadows ski areas. $9850 or assume loan. 968-4155 or 984-6952 evenings.

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Camper shell, like new, paneled with lite. Cab-high, fits 64-72" W, 74-82" L. $245. 965-4165.

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HEATHKIT V-7A V.T.V.M. in working condition with documentation $10. C. Jackson 248-5546.

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Bowen GH6 propane water heater for camper. 6.2 gal. Uses engine heat while driving. Like new. $30, 248-5546.

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WANTED: Used LIGHTWEIGHT canoe. C. Jackson 248-5546.

SOFTBALL

The Ames Fast-Pitch Softball Team lost a hard-fought pitchers duel with Satan's 10 recently by a score of 2 to 1. The defense was errorless, but only two Ames batters, George Alger and Paul Soderman, got base hits. A week later, NASA bounced back to down Gino's Pizza 8 to 3 (box score follows). Ames has a season record of two wins and one loss.

NASA Ames – 8
Gino's Pizza – 3

PLAYER		AB	R	H	RBI
P. Soderman	LF	3	1	0	0
B. Ganzler	SF	3	0	1	1
M. Green	1B	2	1	1	1
J. Myers	SS	3	2	1	1
G. Alger	CF	3	2	2	2
D. Ackard	3B	0	0	0	0
B. Corbett	P	3	0	0	0
L. Olson	2B	2	0	0	0
B. Bell	C	1	1	0	1
B. Laurie	RF	0	1	0	0
B. Randle	SF	1	0	0	1
D. Johnson	1B	1	0	0	0
T. Debber	RF	2	0	0	0
TOTALS		24	8	5	7

Photography Club banquet

The NASA Ames Photography Club invites all interested Ames employees and contractors to the second annual "Year-End Banquet" to be held at the Golden Pavilion Restaurant in Los Altos on Thursday evening, June 27, 1974. The evening's festivities include a social period (6 p.m.), an exotic Golden Pavilion 8-course Chinese dinner (7 p.m.), and a photo competition and critique (8:30 p.m.) where the year's most outstanding photographic work is in contest. Finally, the newly elected officers, listed below, will be installed. President – Steve Deiwert; Program Chairman – Milt Ratcliff; Competition Chairman – Vernon Yearwood-Drayton; Secretary – Nancy Krouse; and Treasurer – Roy Presley.

Reservations should be made by *phoning Mary Van Horn, 6328, before Monday noon, June 24.* Checks, $7.50 which includes tax and tip, are to be made out to Guy Wong and mailed to him at stop (213-8).