

The Astrogram

VOLUME XX NUMBER 11

April 6, 1978

12th Aerospace mechanisms symposium

Aerospace and aircraft design engineers throughout Europe and the United States will assemble for the 12th Aerospace Mechanisms Symposium (AMS) on 27 and 28 April 1978 at Ames Research Center. The symposium is cosponsored by NASA, California Institute of Technology, and Lockheed Missiles & Space Company, Inc.

The symposium is devoted primarily to the discussion of problems related to the design, development, and use of aerospace and aircraft mechanisms. It is the only known symposium in the world that is devoted exclusively to design problems, including lunar hardware, gravity gradient attitude control hardware and stabilization dampers, docking mechanisms, spin up and despin mechanisms, scanning instrumentation control packages, timing devices, aerodynamic mechanisms, separation mechanisms, electro mechanical hardware, instrumentation components, eject mechanisms, aerospace bearings, lubricants and suspensions, extendible booms, and telescope platforms.

Twenty-four (24) technical papers will be presented. Special emphasis has been given to the Space Shuttle, SEASAT, PIONEER-VENUS mechanisms, and to a special application of aerospace technology applied to the solution of mechanism problems other than aerospace. Papers on anomalies occurring during design and development of mechanisms have been encouraged.

The banquet speaker will be Dr. P. B. S. Lissaman, one of the principal designers of the GOSSAMER CONDOR man-powered aircraft. The GOSSAMER CONDOR, an ultralight human-powered aircraft, was successfully flown over a predetermined course at the Shafter, California, airport
(Continued on Page 3)

Tilt rotor research aircraft arrives at Ames

A new aircraft combining features of both airplanes and helicopters arrived at Ames 2 weeks ago.

The XV-15 Tilt Rotor Research Aircraft has wing-tip-mounted turbine engines which turn 7.6-m (25-ft) prop rotors. The engine-prop rotor assembly can be tilted up for helicopter-type vertical takeoff and landing or oriented forward in the normal manner for conventional flight as an airplane.

Two research aircraft are being built under a joint program by Ames and the U.S. Army's Research and Technology Laboratories (AVRADCOM) by Bell Helicopter Textron, Fort Worth, Texas. Here at ARC the Tilt Rotor Research Project Office is in the V/STOL Technology Division, headed by Wallace Deckert. The project manager is Lt. Col. Jim Brown.

The first XV-15 to arrive at Ames has been modified for remote control operation and will undergo 6 weeks of testing in the Ames 40-by 80-Foot Wind Tunnel. Flight testing of the number two aircraft at the Bell facilities in Fort Worth will begin following the wind-tunnel tests.

Both aircraft will eventually be based at Ames for comprehensive evaluation of the tilt rotor concept

Dr. Janos Lanyi wins 1978 H. Julian Allen award

The H. Julian Allen Award for 1978 for the best scientific paper published by an Ames employee has been won by Dr. Janos K. Lanyi of the Extraterrestrial Biology Division in the Directorate of Life Sciences. Dr. Lanyi shares the award with Dr. Russell E. MacDonald, who collaborated in the research project and co-authored the paper. Dr. MacDonald is Associate Professor of Molecular and Cell Biology at Cornell University. The title of the winning paper is, "Existence of Electrogenic Hydrogen Ion/Sodium Ion Antiport in *Halobacterium halobium* Cell Envelope Vesicles."

Halobacterium halobium is a microorganism which contains a unique pigment, bacteriorhodopsin, in the membrane surrounding the cell. When the cells are exposed to light the pigment is energized, and protons are driven outward across the cell membrane. This creates a gradient for protons, which is coupled to a gradient for sodium ions, which can be used in turn to drive other molecules into the cell from the surrounding fluid. Dr. Lanyi showed that sodium ions and amino acids, essential for cellular metabolism, are actively taken into the cell in this fashion. This is a major new discovery in the difficult field of cellular membrane transport. It was made possible by the sophisticated laboratory techniques developed by Dr. Lanyi for preparing and characterizing isolated cell membranes, in the form of vesicles, which then greatly simplified the biochemical analyses of the transport mechanism he and Dr. MacDonald subsequently carried out.

The research findings represent a significant milestone in the series of studies being carried out by Dr. Lanyi and his colleagues on the Origin of Life. The comparatively simple transport mechanisms described in the paper could represent a model of



the way in which some of the earliest cells on Earth, perhaps some three billion years ago, used light energy directly for the establishment of a controlled internal environment. The internal biochemical stability so achieved is one of the hallmarks of all living systems. Dr. Lanyi's discovery is doubly exciting because the microorganism he used is related to a class of bacteria, the Archeobacteria, now thought to have evolved early in the history of life on the Earth.

In recognition of the quality of his research, Dr. Lanyi was awarded the NASA Medal for Exceptional Scientific Achievement in December, 1977.

The H. Julian Award will be presented to the co-authors in a ceremony in the Main Auditorium at 1:30 p.m., on Monday, April 10, 1978. Immediately after the ceremony, Dr. Lanyi will give a seminar on the research described in the paper. All Ames employees and visiting scientists are invited to attend.

"Ours is a partnership"

The Second Annual Secretaries Week Breakfast will be held Wednesday, April 26, at the Moffett Field Officers Club. The buffet breakfast will begin at 7:30 a.m., and the cost will be \$3.50 per person, and tickets may be purchased from Bea Morales (call her at 5853 if you have not seen the announcement about the breakfast). Everyone is invited!

"Ours is a Partnership" will be the theme for the two speakers — giving a secretarial viewpoint will be Edie Watson, former secretary to the Center Director for many years, and sharing the management viewpoint will be Marcie Smith, Director of the Institute for Advanced Computation here at Ames. Vera Buescher, Breakfast Coordinator, will host the program.

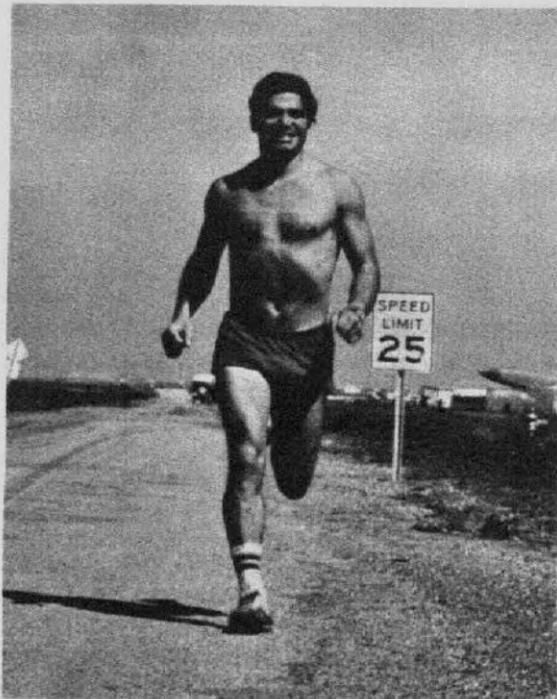
Secretarial Awards will be presented again this year, and nominations for the award should be submitted to Marcia Kadota (if you have not seen the memorandum about the awards, call her at 5622 to get the information). (Continued on Page 3)

John Bouldt runs for charity in March of Dimes Walkathon

John Bouldt, an Ames wind tunnel mechanic in the Large Scale Aerodynamics Branch, ran 30 kilometers (18-5/8 miles) in the Santa Clara County March of Dimes Walkathon on Saturday, March 11. He was sponsored by nearly 340 individuals — the majority being Ames employees and contractors. Bouldt earned over \$1155.00 for the fund-raising organization.

The course set by the March of Dimes began at Stevens Creek Town and Country Shopping Center and ended at the Santa Clara County Fairgrounds. Bouldt's time was 2 hours and 16 minutes, "because I was in no hurry," he stated in a recent interview.

The whole idea of running for the March of Dimes began last year when Bouldt's 10-year old daughter was planning to walk in the 1977 March of Dimes Marathon. Bouldt told his volunteer-oriented daughter that if she completed the walk he would run the course the next year. She did and he was committed to his promise.



Bouldt claims to be a "moody" runner; his weekly running total varies anywhere from 20 to 40 miles. He has been running 4-1/2 years. He started running because he suddenly quit smoking one day after listening to his lungs with a stethoscope in his doctor's office. Bouldt was horrified at the sounds he heard in his chest — wheezing, gasping, and general clamour — all reflecting "poor health" and weak lungs.

An added incentive to stop his smoking habit was Bouldt's tremendous interest in participant sports such as skin and free diving, snow and water skiing, bicycling and motorcycling. He had always enjoyed these activities and found that by substituting running for smoking his body was responding more favorably to his favorite sports.

A final footnote to Bouldt's running interest should be the fact that Bouldt is married to a French woman who is a glorious cook and John claims that since he loves to eat the end result could be very hazardous to his health if he neglected to run. "And," he adds, "I know that with all things considered, particularly my wife's cuisine, I'll be running for the rest of my life."

The March of Dimes will soon be presenting the individual who earned the most money for the Walkathon with a round trip air fare for two to a city of the couple's choice, donated by Air California.

John states that, "If by some chance I do win, as a gesture of my appreciation to all my sponsors, I will have a drawing for these airline tickets."

Ames Equal Opportunity Council

The Equal Opportunity Council, chaired by John W. Boyd, has been in existence for 1-1/2 years and has served as the principal planning and recommending body to the Center Director, Deputy Director, and the Chief of the Equal Opportunity Programs Office in developing plans, policy, and goals that will result in a complete Equal Opportunity Program for all Center employees. The Council members are currently reviewing training opportunities, means for achieving better communication, and the Cen-

ter's Equal Opportunity Program Objectives. These objectives are:

1. To bring women and minorities into the work force at the supervisory/midmanagement levels.
2. To upgrade women and minorities already in the work force, who are concentrated in lower grade levels.
3. To increase female and minority representation in all areas of the Center's work force, particularly science, engineering, and wage schedules.



Ames Equal Opportunity Council Members: Back row from left to right: C. A. Syvertson, John Boyd, Lewis Turner, Hank Asch, Ruben Ramos, and George Lee. Front row from left to right: Willie White, Ralph Shawlee, Janet Glaab, Vance Oyama, and Sue Norman. Missing members: Marcie Smith, Bob Hinds, and Lester Briggs.

Basketball champions



The NASA Ames Research Center industrial league basketball team won the City of Sunnyvale Class "C" championship in a thrilling playoff game March 13 at Peterson High School. In a seesaw battle that saw the lead change hands on numerous occasions, the NASA team emerged victorious at the buzzer by a single point over a strong Victoria Station team. The victory was rewarded by a large team trophy to be placed in the Ames cafeteria trophy case in addition to individual player trophies.

The NASA team members consist of: front row, l. to r., Dan Kojiro, Paul Kutler; back row, l. to r., Jim Myers, Denny Chausee, Roger Hedlund, Tom Almojuela; not pictured, Ernie Jennings, Mladen Chargin.

Math scholarship information

Application forms for the Franklyn B. Fuller Memorial Scholarship are now available here in the Office of Training and Special Program Branch. The scholarship is a small grant for a student who will be a mathematics major at San Jose State University in Fall 1978-79. (Deadline for submission of the application is May 1, 1978.)

As many of us already know, Frank was a highly regarded research scientist at Ames from 1947 to 1970 when he retired to join the faculty at S.J.S.U. and became the Chairman of the mathematics department.

The scholarship fund was established to honor his memory after he died of cancer in May 1977. Anyone who desires to make additional contributions to the fund should send checks to:

FRANKLYN B. FULLER MEMORIAL SCHOLARSHIP

Bill Fox
Financial Aids Office
San Jose State University
San Jose, CA 95192

Symposium *(Continued from Page 1)*

in August 1977 and qualified for the \$87,000 prize offered by the British industrialist Henry Kremer. The aircraft has since been placed in the Aerospace Museum in Washington, D.C. Dr. Lissaman's speech is entitled, "Less is Best - The GOSSAMER CONDOR as an Example of Minimum Design."

The symposium will be chaired by Dr. C. W. Coale, Lockheed, assisted by Dr. E. E. Sechler, Executive AMS Chairman, California Institute of Technology; Mr. A. L. Rinaldo, AMS Operations Chairman, Lockheed; and Mr. Angelo Giovannetti, Host Chairman and Presiding Master of Ceremonies, NASA-Ames Research Center.

A generous amount of time is being allowed for participants and attendees to become acquainted and exchange viewpoints. On Wednesday evening, April 26, registration will take place at the Cabana Hyatt Hotel, Palo Alto, California, between 7:30 and 9:30 p.m.

Questions may be addressed to any of the above personnel, or to:

Mr. David F. Englebert
NASA-Ames Research Center
Moffett Field, California 94035
(415) 965-5193

"Ours is a partnership"

(Continued from Page 1)

Sue Norman, Chairman of the Womens' Advisory Group which is hosting the breakfast, is especially pleased that the program features local Ames talent, and she encourages secretaries, management, and everyone who interfaces with secretaries to join in honoring this vital part of the partnership. Another successful event is being planned - so get your tickets early because only a limited number will be available.

As part of Secretaries Week, posters will be displayed around the Center depicting the relationship between supervisors and secretaries. The theme is "The Importance of Communications in the Manager/Secretary Partnership." Any suggestions for posters would be appreciated. Please forward your ideas to Jeanne Merriam, Mail Stop 201-7, ext. 5602.

"Thank you"

To the many friends who attended our retirement luncheon March 10, at the Menu Tree. We appreciated it very much.

Vaughn Baughman
Jack Rietman
Ira Kilpatrick

NASA SPECIAL PUBLICATIONS

National
Aeronautics and
Space
Administration

The following NASA Special Publications are now on display in the Ames Main Library and the ARA Store. Following your review of these new releases, if you would like a retention copy for your files, return a completed NASA Special Publication Request Form, ARC 303, for each publication you desire to the Main Library, M/S 202-3, and a copy will be mailed to you. Please allow 2 weeks for processing and distribution of your request. Because the number of copies of NASA Special Publications available to the Center is limited, requests will be processed as they are received until the supply is exhausted and distribution will be limited to Ames Research Center Civil Service employees.

NASA SP-417 A GEOLOGICAL BASIS FOR THE EXPLORATION OF THE PLANETS

Edited by Ronald Greeley, University of Santa Clara and NASA Ames Research Center, and Michael H. Carr, U.S. Geological Survey

The geologic aspects of solar-system exploration are described in terms of (1) the relation of geologic data to space science, and (2) the approaches generally used in planetary geology. A collection of articles by authors from various disciplines, the contents reflect a reexamination - in view of major advances in space science - of specific objectives and methods described in a 1970 NASA publication, "A Strategy for the Geologic Exploration of the Planets." Subjects include stratigraphy and structural geology, geochemistry, geophysics, geodesy and cartography, and Earth-based studies. Coverage is restricted to experiments and observations made through unmanned missions. Planetary atmospheres are not covered except as geologic processes relate to their evolution and as they affect certain surface processes.

NASA CP-2014 ESSAYS ON THE HISTORY OF ROCKETRY AND ASTRONAUTICS: PROCEEDINGS OF THE THIRD THROUGH THE SIXTH HISTORY SYMPOSIA OF THE INTERNATIONAL ACADEMY OF ASTRONAUTICS, Volumes I and II

Edited by R. Cargill Hall

Thirty-nine papers presented at the Third (1969) through Sixth (1972) History Symposia of the International Academy of Astronautics are compiled in two volumes of symposia proceedings. These symposia, and one held in 1967, were sponsored to direct attention to the historical significance of progress in rocketry and astronautics. Central theme of the papers: new contributions - within the 20-year period preceding each symposium - to the historical literature on rocketry and astronautical developments. Volume I contains eight papers on early solid propellant rocketry and nine papers on rocketry and astronautics - concepts, theories, and analyses after 1880. Volume II presents 13 papers on the development of liquid- and solid-propellant rockets, 1880-1945, and 9 papers on rocketry and astronautics after 1945.

NASA SP-419 SETI - The Search for Extraterrestrial Intelligence

Edited by Philip Morrison, Massachusetts Institute of Technology, and John Billingham and John Wolfe, NASA Ames Research Center

The findings of a series of six workshops, devoted to a comprehensive consideration of the possibility of the existence of extraterrestrial intelligent life and of ways in which such life forms could be detected, are presented. The Science Workshops, part of a feasibility study on the search for extraterrestrial intelligence (SETI) conducted by Ames Research Center, were concerned with the systematic examination of the basic purposes, criteria, concepts, and techniques relevant to the detection of other intelligent life forms, and the various ramifications of such an undertaking in terms of its implications for mankind. Four major conclusions - that a SETI program is timely and feasible, that only modest resources would be required, that any required systems can be built, and that the United States can take the lead in this essentially international effort - are discussed. Six of the most significant elements of the Workshop debates and fifteen complementary articles, all by individual authors, are also presented.

NASA SP-7044 SECONDARY AEROSPACE BATTERIES AND BATTERY MATERIALS

P. McDermott, G. Halpert, S. Ekpanyaskun, and P. Nche
Prepared by Goddard Space Flight Center

An annotated bibliography of 332 journal articles published between 1969 and 1974 is presented in this survey of literature related to secondary aerospace battery materials and associated physical and electrochemical processes. Numbers listed in an index of systems and components (e.g., nickel-cadmium systems) and in an index of techniques and processes (e.g., analytical, thermal) are cross-referenced to an alphabetical list of 13 principal electrochemical journals; four general foreign categories, and books and dissertations. Citations and abstracts of the articles are then presented in a separate section in which the articles published in each journal are listed chronologically. An author index is included. A previous volume (SP-7027) covers the period 1923-1968.

NASA SP-422 CALCULATION METHODS FOR COMPRESSIBLE TURBULENT BOUNDARY LAYERS - 1976

Dennis M. Bushnell, Aubrey M. Cary, Jr., and Julius E. Harris, Langley Research Center

A review of the hierarchy of calculation procedures, applicable to problems associated with nonreacting compressible two- and three-dimensional turbulent boundary layers, is presented. The procedures - developed over several years - range from basic, simple methods to complex numerical approaches that require the use of the largest digital computers. The review, which serves as both a reference and introduction to the various procedures, includes a summary of integral, transformation, and correlation methods as well as finite-difference solutions. Alternative numerical solution procedures are also examined. In addition, solution procedures (finite-difference, finite-element, and weighted-residual methods) are listed and the principal characteristics of each are summarized. An extensive bibliography is also provided.

Ames Promotion Plan vacancies

Notice No.	Title	Grade	Org.	Area of Consideration	Closing Date
78-66	Administrative Specialist (STEP) (closing date extended)	GS-5/7	AT	Centerwide	4-19-78
78-81	Computer Aid/Technician	GS-4/5	FAX	Centerwide	4-28-78
78-82	Supervisory Electronics Engineer	GS-13/14	RKD	Centerwide & Outside	4-24-78
78-83	Contract Specialist	GS-5/7	ASR	Centerwide & Outside	4-14-78
78-84	Contract Specialist	GS-5/7	ASF	Centerwide & Outside	4-14-78
78-85	Supervisory Mathematician	GS-12/13	RKG	Centerwide & Outside	4-24-78

TO APPLY: Complete ARC 59 and submit to Mail Stop 241-6.

MERIT PROMOTION PLAN SELECTIONS

Notice No.	Title	Org.	Name
78-43	Aerospace Engineer	LB	Robert Mah
78-51	Aircraft Worker	FOS	John Denman
78-51	Aircraft Worker	FOS	Steven Timmons
78-51	Research Aircraft Mechanic	FOS	Lester Collins
78-57	Research Aircraft Mechanic	FOS	Dalton Mountz
78-58	Supervisory Physicist	STS	Ellis Whiting
78-63	Electronics Technician	FOS	John Wilson
78-75	Secretary (Typing)	STS	Mary Ann Hubbard

Want ads Transportation

1972 Porsche 914 - silver and black, 5-speed, fuel injection, stereo. Exc. cond., \$4,500. Call Nancy after 5:00 at 257-8229.

For Sale: Owner must sell 1977 Oldsmobile Cutlass Supreme, white exterior, red interior. Immaculate condition. 13,000 miles. Air conditioning, stereo cassette, cruise control, power steering, power tilt steering, 4-door, vinyl top. \$5,600 or best offer. If interested, phone 255-2818.

For Sale: '71 Pinto, 4 cylinders, stick shift, 108,000 miles, good mpg, one owner, asking \$495. Call 657-4247 after 6 p.m. or weekends.

VW 1972 411 wagon. AT, A/C, AM/8-track, roof rack, fuel inj., 75K miles, runs fine. 948-6106, eves.

For Sale: 1973 Yamaha TX500 C.C., 4-stroke DOHC twin cylinder street bike. 14,056 miles. Stock. 45 mpg. \$800. Butch, ext. 6321.

For Sale: 1974 Datsun Pickup, 27,000 miles, AM-FM-8-Track stereo, Mags, Tires, \$2,800. Call 296-5171.

1975 Toyota Corolla, 4 dr, \$2500/offer. Exc. Cond., Sharone, 969-1978/328-8990.

1974 VW Bug, exc. cond., new tires, \$2400. 965-5046 or 584-7024.

For Sale: 1973 Datsun 240Z auto, AM/FM, air cond., exc. cond., \$3800. Call after 5 p.m., 257-5381.

For Sale: 1974 Honda 125 Elsinor dirt bike. \$400. Bill Angwin, 377-9687 after 5 p.m.

1973 Ford Custom Van, big tires, mags, long wheel base, V8, stick, power steering, power brakes, factory air conditioning, AM/FM 8-track stereo, 3 captain's chairs, and totally carpeted (walls, ceiling). Also dinette/bed. \$4975. Call after 5 p.m. 446-2685.

Housing

For Rent: Beach House at Pajaro Dunes (near Watsonville). Completely furnished, including linens; cleaning included in the rent; beautiful views of Monterey Bay, 100 feet from the beach; tennis courts. Reserve now for spring and summer. Call John Lundell, 252-7260.

Miscellaneous

Trade: Party with 2-bedroom, 1 1/2 bath townhouse at Sunset Oaks in Sunnyvale wants to trade for 3-bedroom home in Sunnyvale-to-Palo Alto area. 735-9163 (after 4:30).

For Sale: Bausch & Lomb Balomatic slide projector, model 755, 2 1/4 square and 35 mm, including large assortment of slide trays, holders, glass, etc. Screen optionally included. Call Vera, 5760.

For Sale: Hobby horse, tricycle, zoom zoom, car baby carrier, wagon. Call 736-6947 after 7:00.

Set of 4 shock absorbers. Monro-Matic, heavy duty, #1171. Almost new, used only two weeks on a 1970 Cadillac. All 4 for \$10.00. Bud Hult, 356-2693.

Rug, 9x12 ft, oval, braided. Light green color, very good condition, \$10. Bud Hult, 356-2693.

Wanted: 16-inch child's bike, child's artist easel. 733-5737.

Crib with good mattress. Bumpers. Wood. \$60. 733-5737.

Fishing Machine: Starcraft Mariner 21 ft, Johnson 65 hp OB, trailer, like new, many extras, including: full safety equipment, grand tackle, trolling motor, spare tanks, etc. Well maintained. \$3,350. 969-0962.

For Sale: Kitchen dinette set, four chairs. Used only three months, excellent condition, \$60. Twin size box spring and mattress set. Also used only three months, exc. cond., \$50. Call evenings, Mary, 736-2693.

For Sale: Baby furniture set, crib, one 5-drawer chest, one 3-drawer changing table with pad and 8 crib sheets. Good condition. \$100 or best offer. Call 739-2489.

For Sale: GE electric drop-in range, 4 yrs old. Good condition, bronze, \$85. 378-3143.

FREE: Parakeet. Call after 6:00 p.m., 274-7294.

For Sale: 6' brown vinyl sofa with reversible cushions. \$200. Call after 6 p.m., 274-7294.

For Sale: Sundings cross-country skis, 215 cm, metal edges. Silvertta bindings, seal skins, waxes, etc. \$49/offer. 738-2948.

Projector, 3 1/2"x4" Beseler, in metal case. \$55. Call 493-1665 after 6 p.m.

80 mm Schneider Companion enlarging lens. \$65 (\$119 and up new). Call 493-1665 after 6 p.m.

Bicycle, lady's 3-speed with 2 rear saddle baskets (of aluminum), rear view mirror, etc., in very good condition. Call 493-1665 after 6 p.m.

Spinet piano, Whitney model, by Kimball. Walnut color. In very good condition. Call only if interested in a good piano, 493-1665 after 6 p.m.

10-speed boy's bike, good cond., \$70. White shoe skates with case, \$30. Call after 5 p.m., 257-5381.

Luggage Carrier for your car, molded plastic, keeps out rain, 16.8 cu.ft., size 51x31x21 in. \$50. Call Herb Pankratz, 243-2813.

For Sale: Excellent camping or utility trailer. Removable top, spare tire, side cabinets, steel frame, full size tires, \$200. Bill Angwin, 377-9687, after 5 p.m.

The Astrogram

Admin. Mgt. Building, Phone 965-5422

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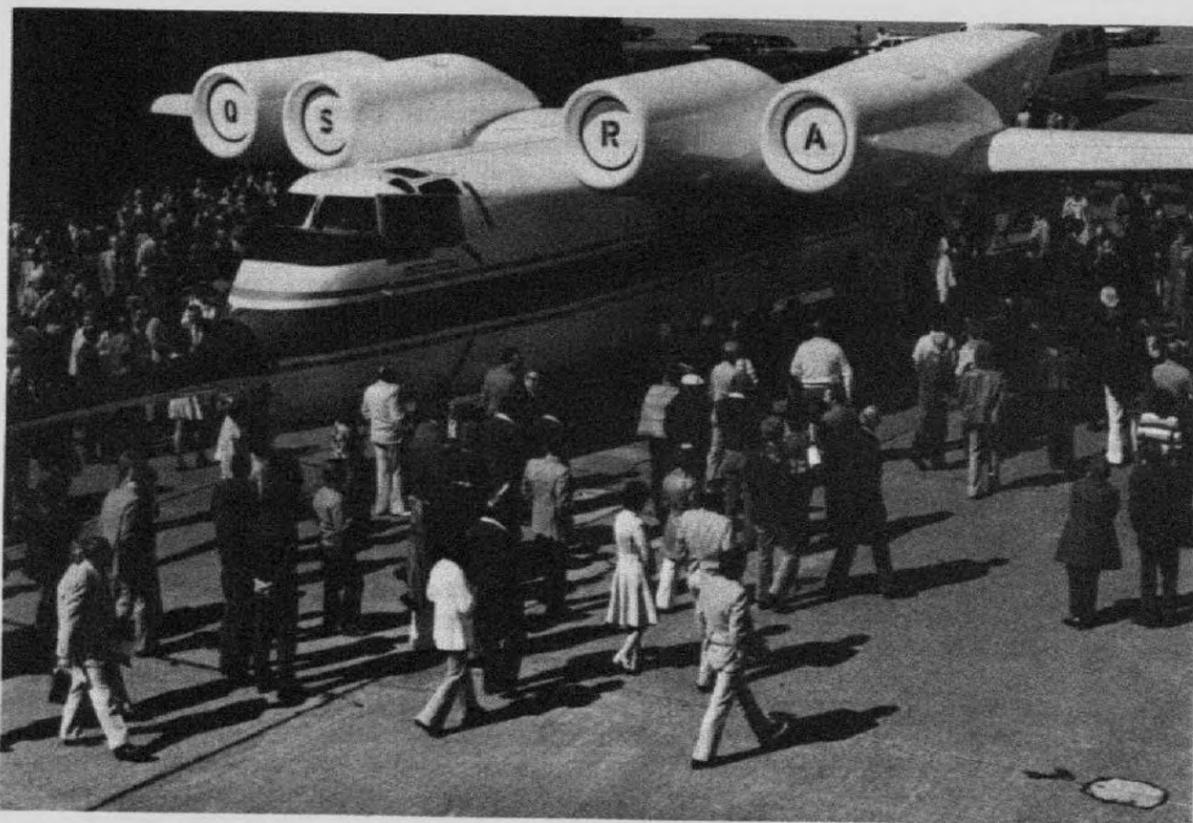
QSRA rollout ceremony recently held at Boeing

The rollout ceremony for the QSRA (Quiet Short-Haul Research Aircraft), held at the Boeing Plant in Seattle on March 31, 1978, was attended by a large and appreciative audience. Most of the personnel at Boeing who had had a hand in its construction were in attendance, as were representatives of NASA-Ames, NASA Headquarters, and Boeing Management. In addition, a small contingent from Ames, Lewis, and Dryden who were at Boeing participating in the QSRA Engineering Safety Review were also present.

Short presentations were made by T. A. Wilson, Chairman of the Board of the Boeing Company and Dr. J. J. Kramer, Associate Administrator for Aeronautics and Space Technology NASA, while the keynote address was given by Dr. A. M. Lovelace, Deputy Administrator of NASA. John Steiner, Vice-President, Corporate Products Development of the Boeing Company, was Master of Ceremonies.

First flight of the QSRA is scheduled for early July after thorough checkout and qualifications of aircraft systems. It will be ferried to Ames in September after a short flight test program at Boeing. An intensive flight test program is planned here at Ames and at Crows Landing to fulfill its intended role as a research facility.

The accompanying photographs show the QSRA as it left Ames last year as a C-8A Buffalo for its face-lift at Boeing and as it appeared at the rollout. The four large nacelles house Lycoming YF-102 turbofan engines salvaged from the Northrop A-9



The QSRA after the rollout ceremony in Seattle.

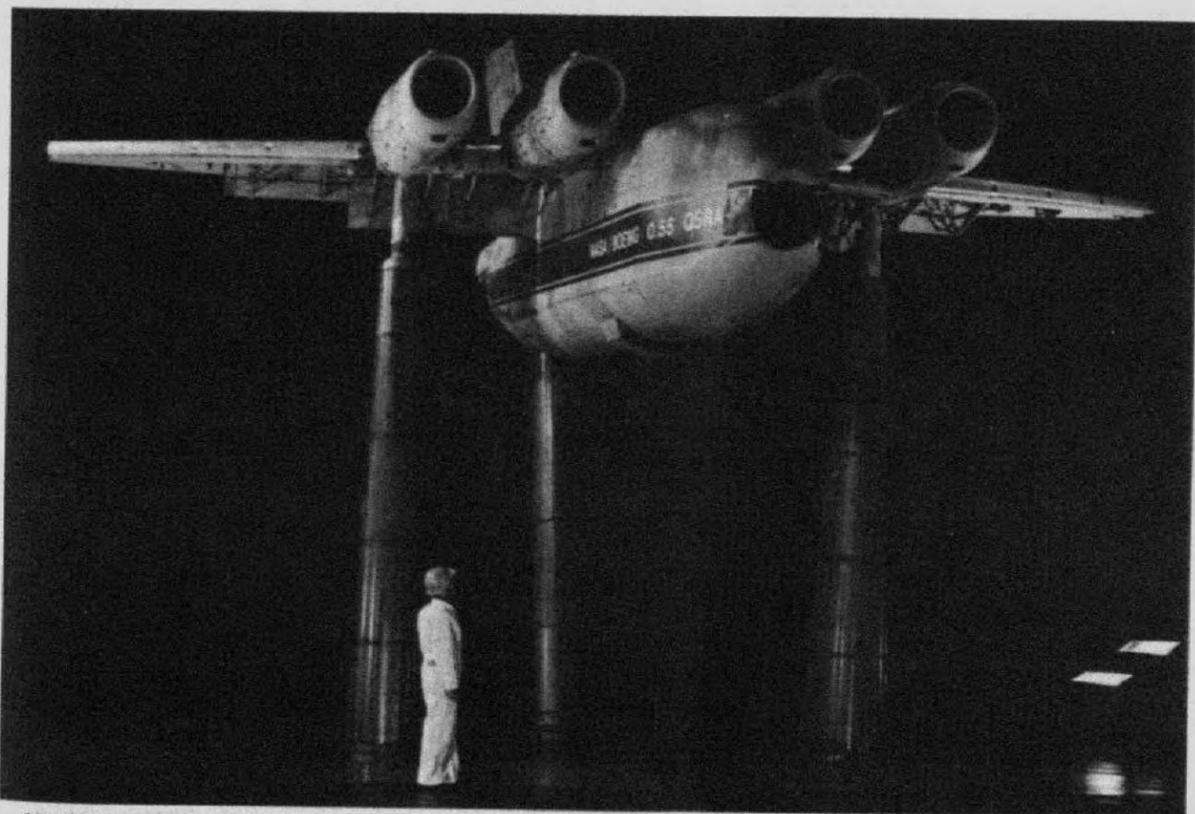
prototype aircraft which were transferred to NASA after the completion of the Air Force Flyoff Competition.

The nacelles are especially configured for the upper surface blowing application and contain sound absorbing material that will make the QSRA the quietest four-engine jet aircraft yet built.

The QSRA utilizes one concept of powered lift, USB, or Upper Surface Blowing. In this case, the exhaust gases from the engines are blown back over the wing. With the flaps deflected, the flow clings to the upper surface of the wing changing the direction of the jet stream. This intense flow over the wing induces the outside air to follow, thereby greatly enhancing the lifting capability of the wing.

The increasing importance of noise control, the reduction in available land for airport expansion near population centers, and the projected steady increases in air traffic calls for nonstandard solutions in the development of new commercial aircraft rather than refinements of existing design. The QSRA program is designed to provide our aircraft industry with the data base necessary for the design of powered-lift vehicles. It has been designed as a research vehicle with excess capability in a number of areas. Its thrust-to-weight ratio is higher than most, for instance, in order to define that which is optimum.

The QSRA is no stranger to Ames. It has already appeared here as an exceptionally well-built model which was tested in the Ames 40-by 80-Foot Wind Tunnel and in the cab configuration and mathematical model used on the FSAA in simulation tests just concluded. The start of flight tests will close the loop on one of the unique capabilities of Ames; the ability to verify in flight that which has been tested in its wind tunnel and studied on its simulators.



Model of the QSRA configuration in the Ames 40-by 80-Foot Wind Tunnel. Model was built here at Ames to 0.55 scale.

Shuttle being tested at Marshall

America's spaceship of the future, the Space Shuttle, has arrived in Alabama to be assembled for the first time as a complete vehicle for ground vibration tests at Marshall Space Flight Center.

In a huge facility originally constructed for testing the Saturn V Moon rocket, engineers will evaluate the structural dynamics and their effect on the control system of the Shuttle.

The component parts needed to make the Shuttle complete — the orbiter, external tank and solid rocket boosters — will be transported from California, Louisiana, Utah, and other locations. Testing is expected to begin in early spring and continue for several months.

The tests are called MVGVT, an acronym which stands for Mated Vertical Ground Vibration Tests. The term vibration may be misleading. This is not a shaking test to learn how strong the vehicle is. Engineers at the Marshall Center will "float" the Shuttle in the center's tall test tower and apply vibrations to its exterior with exciters powered by amplifiers similar to those found on home stereo sets. Sensors placed along the skin at other locations record the characteristics of the vibrations as they pass from one area to another.

Information from these tests will allow the center to verify the system design and mathematical models that predict how the Shuttle's control system will react to the much more severe vibrations expected during launch and flight into orbit.

The ground vibration tests will continue through most of the year with pauses only to change the test configuration of the Space Shuttle vehicle.

The first test article configuration will include the orbiter and external tank to simulate the high altitude portion of a Shuttle mission after the solid rocket boosters have separated. The liquid oxygen tank of the external tank will be filled with smaller and smaller quantities of deionized water to simulate use of propellant by the main engines. The liquid hydrogen tank will be pressurized but empty.

For the second test configuration, solid rocket boosters filled with inert propellants will be stacked in the stand along with the orbiter and tank. This configuration simulates liftoff conditions. This will be the first stacking of all Space Shuttle components as they will appear for launch. Following this test series, all components will again be removed from the stand.

The third test configuration will be the same as the second except that the solid rocket boosters will be empty, simulating the portion of a Shuttle mission just prior to booster separation. Following this final test series, Shuttle components will be removed from the stand and prepared for return to points of origin.

Shuttle elements for the test will arrive during the next several months. The orbiter is the portion of the Shuttle which carries the crew and payload to Earth orbit and has performed to near perfection in flight tests in California. The same Boeing 747 aircraft which carried the orbiter aloft for the flight tests ferried it piggyback to the Marshall Center.

Arriving in segments by rail from Utah, the West Coast and other locations, the solid rocket boosters will be assembled at Marshall. The booster segments are expected to arrive at the center during the May-July time period. The largest Shuttle element, the external tank, assembled at New Orleans, arrived by barge on the Tennessee River early in March.

For flight, the boosters, external tank and orbiter will be joined to form one unit. The boosters are attached to the sides of the tank and the orbiter is fastened on top of the tank between the boosters. The boosters provide thrusting power during the first two minutes of flight. The main engines, pulling propellants from the external tank, burn for about the first eight minutes of flight.

The reusable Space Shuttle will become America's workhorse for future space missions. Its payload bay measures 4.57 m (15 ft) in diameter and 18.28 m (60 ft) in length and can accommodate payloads up to 29,484 kg (65,000 lb) in low Earth orbit. The Shuttle will be able to take a variety of satellites to orbit, retrieve satellites and return them to the ground, or to repair satellites already in orbit.

The Shuttle will also be the carrier vehicle for Spacelab, which consists of a shirtsleeve laboratory module for scientists to conduct orbital experiments in addition to pallets for experiment hardware which needs to be exposed to the space environment. Spacelab flights are scheduled to begin in 1980.

Johnson Space Center has responsibility for the orbiter and the integration of all elements into the final vehicle.

The Marshall Center has the responsibility for design and development of the main engines, the external tank and the solid rocket boosters and some major testing of the vehicle and its components.

Kennedy Space Center and Vandenberg Air Force Base have been selected as the Shuttle launch and landing areas.

Credit Union

We have achieved another record dividend paid to our members. Your Board of Directors has again declared a 6½% per annum dividend for the quarter ending 31 March 1978.

This dividend, over \$208,000, is more than double the amount paid in the same period of 1976. It is a sure indication of a steady and healthy growth and represents our continuing effort to provide the best possible service to our members.

Credit unions have achieved a phenomenal growth over the past decade and are fast approaching \$50 billion dollars in assets. Your credit union has kept pace with this national trend. Support your Credit Union — it's working.

Second Meritorious Civilian Service Award to Dr. Carlson



Dr. Richard M. Carlson, Director of the U.S. Army Research and Technology Laboratories, AVRADCOM, received his second award for meritorious performance of duties for his outstanding achievements while serving as Director of the Laboratories. The citation, signed by Secretary of the Army Clifford L. Alexander, Jr., noted that "Dr. Carlson's contributions to the Army's aviation research and development program and guidance and leadership to on-going important technology programs have contributed to Army's effective relationship with the National Aeronautics and Space Administration."

The Meritorious Service Award is the U.S. Army's second highest award for civilians.

De Havilland C-8A aircraft



De Havilland C-8A aircraft just before departure for Seattle. (One of five prototype aircraft built for the U.S. Army. The Augmentor Wing Buffalo is another. This particular aircraft was used extensively by NOAA (National Oceanic and Atmospheric Agency) before transfer to Ames.

SAFETY CORNER:

"Turista" reprint from "Travel Medicine"

Along with lost luggage and stolen travelers checks, diarrhea ranks at the top of the list of travel disasters. Almost anyone who has ventured beyond Europe or the North American continent has been laid low at least once or twice by a bad case of *turista*, variously known as Cairo Crud, Montezuma's Revenge, Poona Pooh's, or Delhi Belly. And no matter how resistant you may be to various home-grown viral and bacterial ills, you may still be prey to the malevolent organisms that lurk in the water pipes of your hotel in Singapore, Bogota, or Alexandria.

For years people didn't talk much about traveler's diarrhea; they merely endured it. No special studies were launched. With little information available, non-physician travelers relied on home remedies; physicians on medical guesswork. Today, however, that picture is changing. Recent studies in Mexico, South America, and East Africa have made it clear that the common scourge of travelers is none other than *Escherichia coli*, that well known inhabitant of the intestinal tract. And the reason people get *turista* is that they drink water which has been contaminated by fecal material.

There is much disagreement today concerning the best symptomatic treatment for the afflicted traveler. Some physicians stand by Lomotil, others by paregoric or Pepto-Bismol. Still others argue the merits of prophylaxis. Some experts even urge the traveler to a country of questionable sanitation to treat himself with antibiotics first, others maintain that this serves little purpose.

Whatever the answers, the question is one which has plagued travelers from every part of the world for centuries. The affliction comes in many forms. Sometimes it strikes mildly, causing the victim to make a few extra trips to the bathroom that day. Other times it hits with the force of gale winds to knock the traveler off his feet for a week or so. Often the onset is abrupt and includes abdominal cramps, fever, nausea, and vomiting that keep the victim from moving more than three feet from a bathroom. Some travelers who have suffered severe bouts have reported that they simply locked themselves in the bathroom, for fear that the facilities would be unavailable in a crisis.

Of course, a mild case of traveler's diarrhea may have nothing to do with *E. coli*. Dr. Kevin M. Cahill, Director of the Tropical Disease Center at Lenox Hill Hospital in New York City, says that a slight increase in the number of bowel movements is to be expected when on the road. "Changes in atmospheric pressure for the airborne traveler, exposure to new diets, and almost universal tendency to overindulge in rich foods and alcohol on a plane or boat, the reaction to new virus strains in water, disruption of one's normal 24-hour cycle, the normal tension associated with travel or separation from the security of one's home, and many, many other relatively minor causes may all lead to an alteration in bowel habits," Dr. Cahill emphasizes.

There is nothing in the Constitution, he points out, that says one defecation per day is the ideal. Three or four may be just as good, and if the traveler doesn't feel ill and is able to get about, then this increase in bowel movements should not cause distress.

"I've been a little reluctant to recommend anything prophylactically, because if everyone who travels to Mexico every year, for example, starts taking antibiotics, it's likely that the bacteria are going to get resistant quite quickly," says Dr. Gorbach. "So that's the bind you're in with recommending widespread prophylaxis."

The word *turista* usually conjures up images of Mexico, with its tacos, chili peppers, and spicy entrees, which often flutter uncertainly in the uninitiated American stomach before heading for diges-

tion. About a third of all visitors to that country will suffer from diarrhea, according to tropical disease experts, and another 18 percent will be struck once home.

But Mexico's reputation as the citadel of *turista* is somewhat undeserved, and is based largely on the fact that two-and-a-half million Americans visit that country each year, returning to report their unhappy experiences." Also, the reason we're so aware of the connection between Mexico and diarrhea is that several studies have been done there — the country has been very cooperative," Dr. Gorbach points out. "But the truth is that you are just as likely to get *turista* in any tropical or subtropical country where sanitation standards are lower than those at home."

In fact, traveler's diarrhea can hit anywhere — even in cool, clean northern countries — if sanitary conditions are less than ideal. There's very little chance that a visitor at a deluxe resort hotel in Scandinavia will ever suffer intestinal problems caused by *E. coli*, but if he is a student staying in low-cost, crowded accommodations, he may indeed pick up the bug. In one group of students visiting Scandinavia, 35 percent suffered episodes of diarrhea. (The figure was 67 percent for a group of students staying in similar quarters in a Mediterranean country.)

How can the cautious traveler protect himself against invading organisms? Primarily, he should avoid the water, even if it means brushing his teeth with scotch (as one traveling physician reports that he does regularly). Drink tea, coffee, beer, or wine. Don't take ice in your drinks. Eat only cooked dishes if possible, since water used to wash fruits and vegetables can be contaminated. Bottled water is a good idea, but recently there have been reports of major diarrheal outbreaks in Mexico and Portugal where bottled water was implicated.

But the kind of diarrheal attack that lays you low in your hotel bed (while the sun is shining outside and other vacationers are frolicking on the beach) is not due to travel anxiety, nor to too much chili powder. It is due simply to the *E. coli* that are infecting the water supply. This fact was first suggested in a report two years ago in the *New England Journal of Medicine* by Dr. Sherwood Gorbach, Director of the Department of Infectious Diseases at Tufts-New England Medical Center in Boston, and Dr. B. H. Kean, Director of the Tropical Medicine Unit at New York Hospital-Cornell Medical Center in New York City. Their study has now been confirmed by several other investigations that have also pointed to a strain of *E. coli* as the perpetrator of the misery.

The breakthroughs in *turista* research are due partly to investigations by specialists in cholera, a disease which shares some characteristics with *turista*: explosive diarrhea with recovery following rapid replacement of liquids and salts. Using cholera as a model, researchers have developed a picture of how *turista* strikes: an organism enters the intestinal tract and multiplies over several days until it reaches a "critical mass." At that point is suddenly releases a toxin, which causes the cells to push out five to ten times as much salt and water as normal.

The study by Drs. Gorbach and Kean included 133 American students attending summer sessions at the University of the Americas in Cholula, Mexico. Thirty-six suffered from *turista*, and analysis of their stools revealed that toxin-producing strains of *E. coli* were present in 72 percent of the cases. None of the students had harbored the *E. coli* strains upon arrival in Mexico.

According to Dr. Kean, results of the study provided (for the first time) a good theoretical basis for using antibiotics in small amounts to prevent *turista*. This was proved in a later study in which one group of subjects was given sulfathaladine prophylactically and a second group was not. The incidence of *turista* in the first group was seven percent; in the second group, 35 percent.

According to Dr. Kean, "If you take this drug twice a day from the day before leaving home until returning, it seems to prevent the growth of new *E. coli* bacteria to the point of producing a toxin. And when taken for no longer than ten days, there seem to be no serious side effects."

Dr. Kean and other investigators stress, however, that taking antibiotics prophylactically is no guarantee of success, and there are risks. The Food and Drug Administration advises that Entero-Vioform, sometimes prescribed prophylactically, may cause side effects.

Minority firm wins NASA contract

An East Bay minority firm has been awarded a government contract which over a three-year period can amount to over two million dollars.

The contract, negotiated for NAS by the Department of Commerce's Small Business Administration under a special provision to encourage minority business, is with Smith Engineering and Contract Services of Oakland.

Work under the contract is to provide facility and equipment maintenance services for Ames. The basic contract is for one year with two annual options. The agreement also provides for additional option periods which may be negotiated when the first three-year period expires.

Value of the contract over the basic year and two option years would be \$2,289,000.

Music-Go-Round

If you're looking for a used violin or harmonium, a Chinese dinner for six cooked to perfection in your home, the opportunity to play tennis with Michael Tree of the Guarneri String Quartet or conduct the Leland Stanford Junior Marching Band at a football halftime show, you can buy it at the Music-Go-Round.

That special sale of used performing arts instruments and artifacts and unique special services will be held from noon to 4 p.m. Sunday, April 30, in the Stanford Barn, Welch and Quarry Roads, Palo Alto.

Butterfield & Butterfield is providing the auctioneer. Sales begin at 2 p.m. Admission is \$3 and includes entertainment, food, beverages, and your door prize ticket. Tickets are available at Tresidder Ticket Office, Stanford (497-4317), or at the door on April 30.

For further information and a catalog of the items to be auctioned, call 497-2551.

The Music-Go-Round is an auction with musical entertainment, cosponsored by the Lively Arts and Music Guild at Stanford. Proceeds will benefit the performing arts and music scholarship programs.

Product display van

The Sunnyvale Valve and Fitting Company will bring its Product Display Van to Ames beginning Tuesday, April 25th. The Van will display various types of Swagelok fittings which are recommended by the Ames High-Pressure Safety Committee. The Van will also display valves and fittings which can be used in high-vacuum technology and life sciences experiments. The Van will be on display at the following locations and times:

Date	Location	Time
Tues. April 25	Bldg. 245 (front)	9:00-11:00
Tues. April 25	Bldg. 244 (back)	11:00- 1:30
Tues. April 25	Bldg. 226 (front)	2:00- 3:00
Wed. April 26	Bldg. 213 (front)	9:00- 3:00
Thur. April 27	Bldg. 230 (front)	9:30- 2:30
Thur. April 27	Bldg. 236 (front)	2:30- 3:00

Further information may be obtained by calling the Training Office, Extension 5622.

Ames Promotion Plan vacancies

Notice No.	Title	Grade	Org.	Area of Consideration	Closing Date
78-26	Aerospace Engineer	GS-12/13	FSV	Centerwide and Outside	Cancelled
78-86	Administrative Specialist (STEP)	GS-5/7	SEM	Centerwide	5-8-78
78-87	Accounting Technician	GS-4/5	AFG	Centerwide and Outside	4-28-78
78-88	Aerospace Engineering Technician	GS-5	SSA	Centerwide and Outside	5-8-78
78-89	Physical Science Technician	GS-5	SSA	Centerwide and Outside	5-8-78
78-90	Modelmaker Foreman	WS-14	RSS	Centerwide and Army	5-5-78

TO APPLY: Complete ARC 59 and submit to Mail Stop 241-6.

MERIT PROMOTION PLAN SELECTIONS

Notice No.	Title	Org.	Name
78-19	Aerospace Engineer	FHI	Robert Warner (outside applicant)
78-47	Electronics Technician	FOS	Robert L. Feucht (outside applicant)
78-64	Secretary (Typing)	FO	Angela Walkup
78-65	Secretary (Typing)	RKP	Karen Inches
78-74	Personnel Clerk (Typing)	APX	Christina Dolnack
78-79	Accounting Technician	AFC	Nancy Grube

Alaska's Inside Passage

See highlights of scenic Alaska. Special seven-day cruise for Ames Jetsetters. September 16 through September 23, 1978, on S.S. VEENDAM. Spacious, cheerful, comfortable, no tipping.

Visit the S.S. VEENDAM Thursday, May 18, 1978, in San Francisco. Bus leaving from and returning to Ames. Party on board. Price \$2.00 per person. Free to those who have placed a deposit for Alaskan Cruise in September.

Space limited - sign up for bus trip at ARA store before May 5, 1978.

Scuba and Skin diving, anyone?

Well, it's really here - Ames Scuba Club is having an ocean dive - joint venture with Skip Gross Ski Club - at Salt Point on Sunday, April 30, 1978. A "B-B-Q" Aba dinner will be provided for by all of the skin divers bringing in abalones and etc. I hear it's a wild and fun bunch of people and you will have a great time - bring family.

Contact Skip Gross at ext. 6525 for more details and schedule.

Come and join the "Ames Scubies" every first Wednesday of each month at the meeting-dining room in the Cafeteria. Membership is open to all Ames and contract employees, family included. We have excellent dive equipment for loan/check-out to certified divers belonging to the Club.

Want ads Transportation

HOW ABOUT 100 mi per GALLON? Honda C70, like new, 200 mi; locked box takes large grocery bag. Perfect for commute, shopping, school and fun! Will bring to work if you are interested; \$275. Sal. 259-4618 eves.

For Sale: 1967 Chrysler Newport, 4-dr, 47,000 mi., \$750/offer. 324-2043.

'62 Ford Falcon, 4-door, extras. \$250. Call 241-5190.

'55 Bentley, R-type, James Young aluminum body; color - light over dark silver, RHD, original leather, very good condition. (408)734-3845.

Wanted - 6-cylinder car with automatic transmission, power steering, and air conditioning. Call 226-1514.

Housing

Willow Glen special: Beautiful year-old, 4-br, 2-ba home. Family room, formal dining room, 2050 sq ft. Many extras. 30 min from Moffett. Call 408-266-3515/Sandy Urdahl.

Vacation Rental: Puerto Vallarta, Mexico. New condominium in private, secured development. Sleeps 4. Fully furnished. Private residential beach area, 2 swimming pools. Call 245-1447 after 4:00 p.m. for details.

ROMANTIC SECLUSION IN HAWAII - Beach front condominium apartment on the beautiful island of Kauai. Located between the Wailua Golf Course and Lydgate Park with tennis, golf, sun, and snorkling at your doorstep. Completely furnished, sleeps four very comfortably. \$44/day. Reserve now for Spring and Summer. Call John or Geri Arvesen at 736-8793.

House for sale: North Valley area, 3-bedroom, 2-bath, 1526 sq ft, \$72,500. Call 272-0287.

Miscellaneous

Found: Pocket calculator lost about 3 wks ago in/around Bldg. 236 parking lot. Contact: Linda at ext. 6390.

Bedroom set: twin beds, dresser, mirror, night stand. Contemporary, butterscotch color. \$220. 325-1230 after 5 p.m.

Wanted: Coop student needs a one-room apartment or share apartment with my own room. Also interested in studio apartment. Interested if apartment under \$150 per month, and studio under \$115 per month. Share apartment with my own room under \$100 per month. Contact at ext. 5323 or 5624.

For sale: Complete, ready-to-assemble, foldable Kayak kits. New. Good price. Call 356-3829.

Garelli MOPED, 50 cc, oil injector, 1700 mi. Exc. cond. Danny, 292-8946.

For sale: Photo Print Dryer - new, never been used, \$20. Electric smoke detector, new, never been used, \$20. Stereo with turntable, 2 speakers, AM-FM radio and 8-track cassette, needs some work on cassette unit, \$50. Call 266-6507 after 6:00 or weekends.

For sale: 14'x11' red-orange carpeting, \$50. 4-burner stainless steel Thermador cooktop, \$25. Child's play table, \$5. 4'x6' brown and beige area rug, \$10. Sliding glass door, 6'x6', \$50. Call 493-6934 after 3:30 p.m. Will consider reasonable offer on any item.

For sale: TI SR56 pocket calculator. 1 yr old, \$55. Call 657-4247 after 6 p.m. and weekends.

Kenmore gas range, \$65. GE refrigerator. Call 241-5190.

For sale: Ethan Allen sofa (mint condition) down filled cushions, gold and lt/green brocade. New selling at \$1400/1600, asking \$600. Jacuzzi, portable whirlpool, like new, original cost over \$300, asking \$100. Call 246-9796 after 5:30.

Announcement: Would all individuals who have purchased MI AE LIPE PAINTINGS and left them on display please pick them up. Life Sciences Library, 239-13.

For sale: power mower, 20" rotary with grass catcher, \$60, 326-7925.

The Astrogram

Admin. Mgt. Building, Phone 965-5422

The Astrogram is an official publication of the Ames Research Center, National Aeronautics and Space Administration, Moffett Field, California, and is published bi-weekly in the interest of Ames employees.

Editor Meredith Moore
Associate Editor Marcia Kadota
Reporters NASA Employees

Deadline for contributions: Thursday between publication dates

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Ames Research Center
Moffett Field, California 94035

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The Astrogram

VOLUME XX NUMBER 13

May 4, 1978

New SSA provision

The working married woman, who plans to combine her benefits as a spouse under her husband's Social Security retirement with her own retirement benefits from federal, state, or local government, has probably had her future retirement cut about in half—if her work is not covered by Social Security.

Under a little-noticed section of the Social Security Financing Amendments, signed into law by the President on December 20 (PL 95-216), an individual retiring after 1982 will be forced to deduct her government (federal, state, or local) retirement benefit from any Social Security benefit he is entitled to collect as a dependent or survivor.

If, in addition to your Social Security as a wife, husband, widow, or widower, you receive a pension based on your work in public employment, not covered by Social Security, your benefit as a dependent or survivor will be reduced by the amount of that pension.

Since the average monthly Social Security benefit for wives (or husbands) is \$122 and the average benefit for widows (or widowers) is \$233, even a small Civil Service or Public Service retirement check will completely wipe out any Social Security benefit an individual may expect to receive as a spouse. The median Federal retirement benefit is \$593 and the median state or local government retirement is \$327. However, the median benefit would be much lower for women (one-third less than men) because women workers are concentrated in the lower grades or lowest paying jobs, or have only been in the labor force for part of their working lives. Those most immediately hurt by this legislation will be the hundreds of thousands of women who have worked part of their lives as wives and mothers, and part of their lives in government. These women are entitled to "partial" retirements as government employees, and up to now have believed

AIAA/ARC Galileo Award winners

The San Francisco Section of the American Institute of Aeronautics and Astronautics is sponsoring the 1978 Galileo Memorial Scholarship awards ceremony in the Ames cafeteria on Friday evening, May 12. The program will begin with a no-host social hour at 6:00 p.m., dinner at 7:00 p.m. and the presentation of the awards at 8:00 p.m. by Director, C. A. Syvertson. The featured speaker will be Isaac T. Gillam, Acting Director of Hugh L. Dryden Flight Research Center.

The six scholarship finalists to be honored are Ri-Jen Chou of Homestead High School, Paul J. Frieberg of Cubberley Senior High School, Judy J. Jenvey of Mountain View High School, Sharon A. Seyman of Willow Glen High School, Steven J. Snider of Aragon High School, and Bradley N. Teague of Bellarmine College Prep. School.

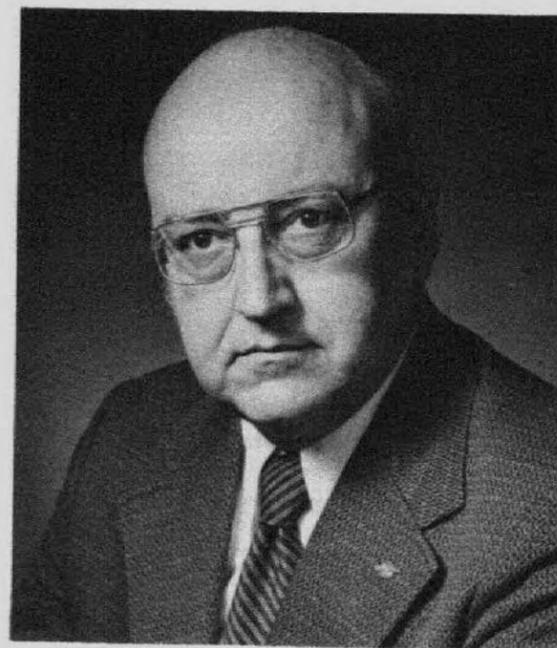
For dinner reservations, call Agnes Stewart at ext. 5155, on or before May 10. The cost of the London broil-sirloin steak dinner will be \$8.50, including tax and tip.

C. A. Syvertson named ARC Director

A large group of Ames employees anxiously gathered in the Auditorium last Wednesday morning, April 26, to hear Dr. Robert A. Frosch, NASA Administrator, announce that he was pleased to name Ames' own C. A. Syvertson to the position of Director, effective April 30, 1978. The announcement was enthusiastically accepted by the crowd and there was a very long applause of concurrence.

"Sy," as many people refer to the ARC Deputy Director of the past nine years, spoke to the audience and made it perfectly clear that he wished to accept the Directorship position. He went on to state that, "A few weeks ago I met with Dr. Lovelace in Seattle at the QSRA rollout. We were naturally discussing the search for a new Ames Director. Al made a comment I would like to pass along. He volunteered that in the months since Hans departed, the Ames staff had continued to perform like the true professionals they were. I would like to repeat that thought. I, for one, appreciate the support I have received. Everyone here has continued to do a first-class job. And we have made some excellent progress. Pioneer Venus is ready for the first launch. The Tilt Rotor is here and ready for the 40 X 80 tests. The QSRA is in ground test and moving along well under estimated cost. Our commitments to Shuttle testing are being met in the tunnels, arc jets, and simulators. The helicopter transfer and staffing are on schedule. The second Cosmos life sciences flight went very well. The 40 X 80 modification, IRAS, IRIS, ASRS, and the Jupiter probe for the Galileo Project have all made good progress. Perhaps more important than all of the foregoing is the renewed vigor of our more fundamental work in programs like the Aeronautics R&T base. Here I refer not only to CFD, but to Aeronautical Human Factors, Planetary Biology, laser velocimeter, and the virtual across the board improvements being implemented in our tools of research—new wind-tunnel data systems, new simulation motion systems and computers, new arc jets, and others too numerous to mention. It is a healthy trend foretelling a productive future.

"Last, but not least, our people have been recognized for their professional excellence. Janos Lanyi's excellent work received the H. Julian Allen Award, and he had tough competition. Paul Kutler got the AIAA Lawrence Sperry Award, Jim Pollack the Arthur S. Fleming Award, Harv Lomax was elected an AIAA fellow to name just a few. Loren Bright received the NASA Outstanding Leadership Medal; Jack Boyd and Mark Kelly, the Exceptional Service Medal; Janos Lanyi, the Exceptional Scientific Achievement Medal; Lester Briggs, the Equal Employment Opportunity Medal; and Hans Mark was presented at Headquarters with the Distinguished Service Medal. NASA Group Achievement Awards were won by the Assess II Mission Team, the Aviation Safety Reporting System Project Team, the F-14 Flight Control System Survey Team, and the Spacelab Mission Development III Project Support Team and the Technical Support Team. And the Center as a whole received the Christopher



Columbus Gold Medal for Exploration from the City of Genoa.

"I am sure there is room to do better, but we do have a good foundation. Next week, as soon as I get past a few immediate hurdles, I plan to speak to the entire staff on my views of our present status and future promise. Until then I can't resist mentioning a little really good news—somewhat akin to a new regime pardoning all the political prisoners. Specifically, next week I plan to announce the beginning of a new round of Personnel Boards so the Center can effectively reward some of the people responsible for Ames' recent successes.

"Finally, I appreciate the confidence Dr. Frosch and Dr. Lovelace have shown in me, and I'd like to say once more, I appreciate your support."

Syvertson has been Acting Director at Ames since the resignation of Dr. Hans Mark in August 1977 to become Undersecretary of the Air Force.

In 1948, Syvertson began his career with NASA's predecessor agency, the National Advisory Committee for Aeronautics, as a research scientist and assistant branch chief at Ames.

He became Chief of the 3.5-foot Hypersonic Wind Tunnel Branch in 1959 and from 1963 to 1966, he was Director of the Mission Analysis Division. In 1966, he was named Director of Aeronautics at Ames, the position he held until being appointed Deputy Director of the center in February 1969.

Syvertson served a year-long detail in 1970-71 with the Department of Transportation in Washington, where he was Executive Director of the Joint DOT-NASA Civil Aviation Research and Development (CARD) Policy Study, for which he received the NASA Exceptional Service Medal in 1971. Earlier awards include the Lawrence Sperry Award from the American Institute of Aeronautics and Astronautics and the Space Act Invention Award (shared with three others). He was named a Fellow of the American Institute of Aeronautics and Astronautics in 1976.

New welding certification program at ARC



A cooperative effort between the Reliability and Quality Assurance Office and the Metals Fabrication Branch resulted in a certification program for welders at ARC. This program provides a formal means of assuring a continuation of the high level of competence and performance in the welding process at Ames. This is particularly important in the pressure vessel, structural, and aircraft areas when viewed from a safety aspect. It is anticipated that these requirements will also be used for Supplier welders doing work on the Center.

Pictured above are three Ames supervisors with the first three individuals who have completed the new welding certification program at Ames. They are, left to right, Fred De Muth, RQ; Henry Montoya, Terry Medeiros, RSS; Russell Shipp, RSS; Phil Ugale; and Ed Vernon, RSS.

ARA ACTIVITIES

Congratulations go to the following new Board members who won in the recent election: Carol Anderson (FLI), Fred Baker (FSV), Bonnie Dalton (LB), and Joe Rokovich (ASP). To those people on the ballot who received almost as many votes as the winners but not quite, thank you for your interest and it is hoped you will decide to run again in the next election. Those people were: E. Tischler, M. Aoyagi, A. Borger, E. Castle, S. Dickinson, L. Hall, K. Hillje, T. Mahurin, M. Shiles, and J. Torres. The members remaining on the Board from last year are: Armando Lopez, Judy Long, Stan Benbow, Ray Sargis, Betty Hemphill, Robert Pittman, Paulette Burgess, and Rod Bailey.

Newly elected officers on the Board are: President, Judy Long; Vice President, Stan Benbow; Secretary, Rod Bailey; and Treasurer, Paulette Burgess. It is hoped that everyone at Ames will do his most to support the new Board to make this an outstanding year for the ARA.

Special price day at Marriott's Great America! Navy Day at Great America will be on June 3, 1978 and all Ames Personnel are invited to take advantage of it. The price per ticket is \$5.95 and will be good for the one day only from 4 p.m. to midnight. The park will close its gates at 8 p.m. for all people without these tickets. The tickets are available at the ARA store.

Also, there are Great America tickets for sale at the ARA store for \$6.50 each instead of the regular price of \$8.95. The tickets are good for any day from now through July 14 and again from Labor Day to the end of Great America 1978 season.

Business cards are available to the Ames employees and are on display on the main bulletin board in the cafeteria. Instructions on how to order them are also there.

Labor-Management relations

Each Federal employee has the right, freely and without fear of penalty or reprisal, to form, join, and assist a labor organization or to refrain from any such activity, and each employee shall be protected in the exercise of this right. The right to assist a labor organization extends to participation in the management of the organization and acting for the organization in the capacity of an organization representative.

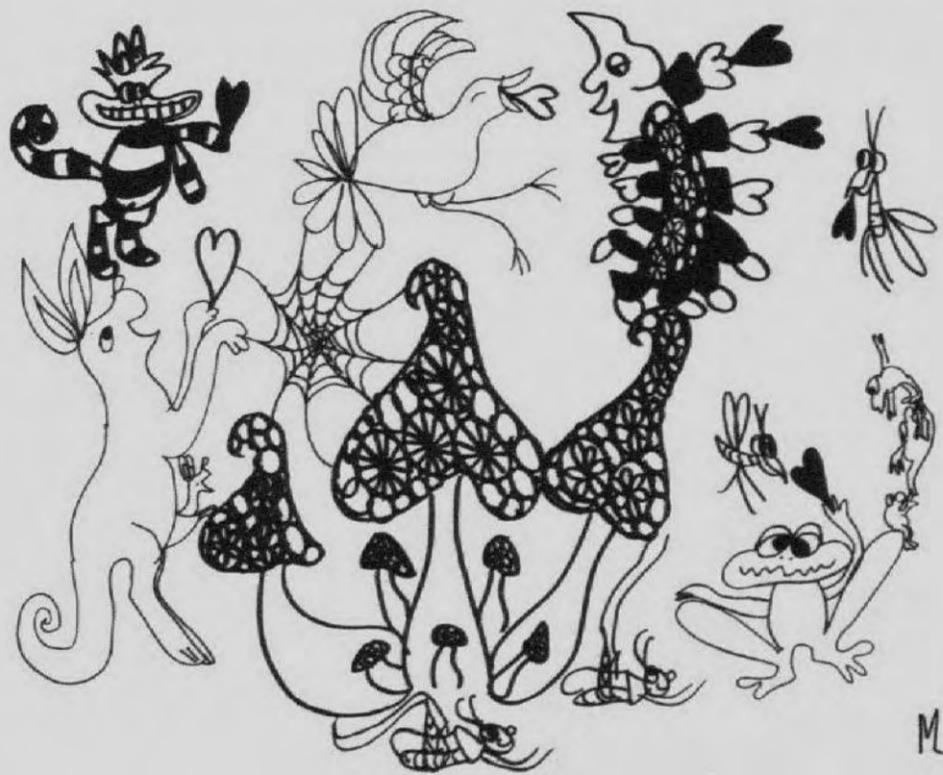
Employees who are supervisors or other management officials may belong to a labor organization, but they may not represent the organization or participate in the management of it. Supervisors or managers are not included in a unit for which a labor organization holds exclusive recognition. At Ames, Local 997, National Federation of Federal Employees (NFFE), is the exclusive bargaining agent for:

- All Wage Grade employees, less supervisors, and less those Wage Grade employees in the Model Development Branch;
- All General Schedule clerical and technical employees in NASA occupational codes 300 and 500, excluding management officials, supervisors, professional employees, and those employees engaged in Federal personnel work in other than a purely clerical capacity.

The employees in the NFFE bargaining unit are covered by a written agreement. A copy may be obtained from the Personnel Office.

The Pattern Maker's Association is the bargaining agent for the nonsupervisory wage grade employees in the Model Development Branch.

Mi Ae Lipe Art Exhibit closing



The Mi Ae Lipe Art Exhibit at the Life Sciences Library will be closing at the end of May.

Mi Ae, who is the adopted Korean daughter of Nancy and Dewey Lipe, opened her exhibit in December when she was seven years old. Since then she has had her eighth birthday and she has continued sending drawings, each more imaginative and appealing than the last.

Mi Ae's countless endearing creatures - flying horses, unicorns, frogs, shrews, kittens, dragons, grasshoppers, iguanas, ladybugs, "mystic" trees, mushrooms, bees - have become a familiar and joyful sight in the Life Sciences Library. They will be truly missed by the many who not only purchased her drawings but also returned again and again just to admire her new ones.

The Library will be receiving a few new Mi Ae drawings each week, generally on Thursdays, until the exhibit closes in May. If possible, the Library hopes to have another exhibit by Mi Ae in October.

All individuals who purchased drawings and left them on exhibit for others to enjoy are requested to pick them up as soon as possible.

The illustration with this article is Mi Ae's farewell gift to her admirers and to those who are unable to see her exhibit before it closes in May.

Secretaries Week Breakfast a huge success

Award winners

ANOTHER SUCCESS. The Second Annual Secretaries Week Breakfast, held Thursday Morning, April 27, was attended by 225 Ames secretaries and managers and was an opportunity for Ames employees to give a hearty welcome to our new Center Director, Mr. C. A. Syvertson.

The four Secretarial Award Winners were: Faye L. Gray, Secretary to the Chief, Space Science Division; Liz Marquardt, Secretary to the Chief of the Personnel Division; Leslie A. Mittag, Secretary to the Chief, Computation Division; and Rita Waterfall, Secretary to the Director of Life Sciences. Mr. Syvertson presented the awards and described the award process.

"Hans made his own coffee," reported Edie Watson, the Secretarial Speaker, as she gave highlights of her years as a secretary at Ames and food for thought for secretaries and managers. "Few Managers or Secretaries have ESP," reported Marcie Smith, the Management Speaker, as she gave tips to both secretaries and management on how to run the partnership. Both speakers presented outstanding talks and left the audience with the feeling that an effective partnership is worth working for.

The Breakfast Planning Committee received high praise for a very successful breakfast and, of course, the awards were the highlight of the morning. Dean Kersten gave the welcome on behalf of the Women's Advisory Group, Bea Morales shared thoughts from secretaries, and Vera Buescher hosted the breakfast. This second success makes us all look forward to next year.



The award winners are pictured above, left to right, with their bosses: Dale Compton, Faye Gray, Bob Pike, Liz Marquardt, Harold Klein, Rita Waterfall, Dave Fisher, Leslie Mittag, and Center Director, C. A. Syvertson.

Planning Committee



This year's Breakfast Planning committee included, front row, left to right, Annette Laboy, Linda Nunamaker, Dean Kersten, Bea Morales, and May Rosen; back row, Vera Buescher, Priscilla Gominak, Jeanne Merriam, Janet Glaab, Lesley Whitaker, and Willie White.



Marcie Smith



Edie Watson

Want ads (Continued from Page 4)

Antique Clock, table top, Westminster, good condition, \$175. Call 296-8594 after 5 p.m.

Gemini House - Consignment - Resale Boutique. Good values, brand names, ladies wear and household items. 2373 Pruneridge near Saratoga Ave., open Tues.-Sat., 10:30-5 p.m. Phone 241-1007.

Boys Sting-Ray Bike, like new, \$35. Call 378-5741.

Room air conditioner for sale. Call 494-3311.

Car Pool - near Middlefield & Loma Verde in Palo Alto (flexible hours). Call J. Stevenson at X5720 or 494-3311.

FOR SALE: Kenmore Sewing Machine (Model 158.220). Used very little. Walnut cabinet. \$100 or best offer. Call Mike Wash, 259-7607.

Ames Promotion Plan vacancies

Notice No.	Title	Grade	Org.	Area of Consideration	Closing Date
78-91	Secretary (Steno)	GS-4/5	LMS	Centerwide and Outside	5-5-78
78-92	Secretary (Typing)	GS-4/5	RKD	Centerwide and Outside	5-26-78
78-93	Secretary (Typing)	GS-4/5	RKG	Centerwide and Outside	5-26-78
78-94	Progressman (Modelmaker, 2 positions)	WD-8	RSP	Centerwide and Army	5-19-78
78-95	Electrical Engineer	GS-11/12	RFS	Centerwide and Outside	5-26-78
78-96	Structural/Civil Engineer (2 positions)	GS-11/12	RFR	Centerwide and Outside	5-26-78
78-97	Mechanical Engineer	GS-11/12	RFE	Centerwide and Outside	5-26-78
78-98	Structural Engineer (AST Experimental Facilities & Equipment)	GS-12/13	RFR	Centerwide and Outside	5-26-78
78-99	N/C Programmer	WG-11/12	RSM	Centerwide and Army	5-19-78
78-100	Personnel Clerk (Typing) or Personnel Assistant (Typing)	GS-5 or GS-6	APX	Centerwide	5-19-78
78-101	Accounting Technician	GS-4/5/6	AFC	Centerwide and Outside	5-19-78
78-102	Clerk-Typist or Procurement Clerk (Typing)	GS-3/4 or GS-4/5	AFP	Centerwide and Outside	5-19-78
78-103	ASY Technical Mgt.-Staff Assistant (Temporary NTE 1 year)	GS-12/13	F	Centerwide	5-22-78
78-104	Administrative Support Clerk	GS-5/6	D	Centerwide	5-26-78

TO APPLY: Complete ARC 59 and submit to Mail Stop 241-6.

MERIT PROMOTION PLAN SELECTIONS

Notice No.	Title	Org.	Name
78-20	Aerospace Engineer	FHI	CANCELLED
78-21	Aerospace Engineer (2 positions)	FHI	CANCELLED
78-76	Voucher Examiner	AFG	Laura Nicholas (Outside Candidate)
78-72	Supervisory Electronic Technician	RSE	Donald Olson

Want ads Transportation

1962 Mercury Monterey, all power, excellent interior, needs rear fender work, \$300. Call after 5:00 p.m., (415)969-0462.

1977 FORD E-150 Window Van, Midas Conversion, 351 V8, air, plus an option list too long to print, 14K miles, excellent condition. Best offer, 736-7759.

1965 Ford Country Squire Wagon, auto. trans., power steering, power brakes, air conditioning, roof rack, good condition - lots of miles left. \$495/offer. Call 274-2306.

FOR SALE - 1969 Buick LeSabre, 4 dr, AT, PS, PB, vinyl roof, 87,000 mi. Has crumpled fender but runs good. \$600 or best offer. Call 226-1514 (evenings).

1973 I.H. Scout II, 4x4, super clean, low mileage, many extras, \$4150. Call 371-3084.

FOR SALE: 1970 Honda GL-350 motorcycle, 12K actual miles, excellent condition, \$375. Call 374-2369.

FOR SALE - 1967 Chevrolet 4-dr sedan, V8-283 AT, A/C, new tires. Recent valve job. Call 739-3858.

Housing

House for Sale - Quiet Santa Clara location. 4 bdrm, 2 bath, recently remodeled kitchen, tile counters & custom cabinets, wallpaper, water softener & other extras, \$95,000. Call 248-3900 after 5:00 p.m.

FOR RENT: Beach House at Pajaro Dunes (near Watsonville). Completely furnished, including linens; cleaning included in the rent; beautiful views of Monterey Bay, 100 feet from the beach; tennis courts. Reserve now for spring and summer. Call 252-7260.

Room for Rent - Nonsmoker. Eichler home in Sunnyvale near Fremont and Mary. \$145 per month. Call after 4:30 p.m., 738-0429.

North Valley: 4 bdrm, 2 bath, family room, dining room, fireplace, patio, 1600 sq. ft. Call evenings and weekends, 259-0592.

Sublease - Beautiful, completely furnished, air-conditioned 1-bdrm apt for 2-3 summer months. Pools, Jacuzzi, sauna, tennis. Near Rt. 85 and El Camino, rent \$340/month. Phone 968-0951 after 6 p.m.

FOR SALE: Bike rack, used once, \$15; 4 qt. Rival Crock Pot, used once, \$10; 4 qt. Electric Ice Cream Maker, used twice, \$7.50. Call (415)967-2970.

Try an energy-saving vacation! Rent our modern, luxury condominium at Santa Cruz Beach and Yacht Harbor. Furnished, 2 bdrm, 2 bath, AEK, 2 private view decks, sleeps 6. Available by the week, 6/18 to 9/9. Call 245-3243.

Beautiful 1977 Lancer Mobile Home - 24x64', just minutes from Ames. Fox Hollow Park, 2 bdrm, 2 bath, family room, bar, garden, tub, all amenities, like new. Must be seen to appreciate. Call 734-0734.

Miscellaneous

Horse for sale. Quarter and Arab. mix, 6-yr old mare, dark bay, beautiful, intelligent and spirited, see to appreciate. \$700 - tack included. Call 243-3716 after 6 p.m. and weekends.

FOR SALE: Dark-green recliner, excellent condition, \$70/offer; Barzilay 5-shelf adjustable stereo cabinet, \$75/offer. Call 321-2789.

FOR SALE: American Eskimo (Spitz) male puppy, 10 weeks old, papered, shots, \$125 or best offer. Call 964-6944 evenings.

WANTED - Person or Persons interested in 300-mile group kayak river trip in June. Contact Jerry Mitvalsky or Art Okuno. Class I-II water; kayaks only please!

Dining Set, Pecan table with 3 leaves, 6 padded chairs, gold, \$400. Call 262-7981 after 5:00 p.m.

FOR SALE: Silver set by Gorham (La Scala), 12 place settings, and 8 serving pieces. \$1200 or best offer. Phone 227-9674.

FOR SALE: Frigidaire top-of-the-line washing machine and gas dryer, good condition. \$125 each. Call 245-3294.

Old English Sheepdog, FREE, affectionate female, loves to play, 3 years old, to a good home which will provide care, 343-9730.

FOR SALE: 1-pair fender mount mirrors for car, \$8; 1 used Hayden Trans Oil Cooler, oil cooler measures 24" long x 6" high x 1.5" thick. It is a three-tube single row cooler, good condition. \$20 or best offer, call 252-4753 after 5 p.m. (Continued on Page 3)

The Astrogram

Admin. Mgt. Building, Phone 965-5422

The Astrogram is an official publication of the Ames Research Center, National Aeronautics and Space Administration, Moffett Field, California, and is published bi-weekly in the interest of Ames employees.

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Associate Editor Marcia Kadota
Reporters NASA Employees

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The Astrogram

VOLUME XX NUMBER 14

May 18, 1978

Tilt-rotor research aircraft arrives at Ames

An innovative research aircraft which combines advantages of both helicopters and airplanes has begun six-weeks of intensive testing in the huge 40 by 80-foot (12 by 24 meters) wind tunnel here at Ames.

The unique aircraft, built under a joint research program of NASA-Ames and the U.S. Army's Research and Technology Laboratories (AVRADCOM), has a 7.5-meter-diameter (25-foot) helicopter-type rotor at each wing tip. With rotors oriented up and blades in the horizontal plane, the aircraft operates as a helicopter and can make vertical landings and takeoffs as well as hover. With rotors rotated forward the blades function as airplane propellers, and the aircraft flies like an airplane.

Designated the XV-15 Tilt Rotor Research Aircraft (TRRA), the aircraft is designed for better hover and climb performance than present helicopters and, with an expected cruising speed of about 300 knots (345 MPH), it will be faster than many present turboprop aircraft. Moreover, steady-state flight will be possible at any point during transition between helicopter and airplane modes. STOL (Short TakeOff and Landing) aircraft-type landings

and takeoffs are possible at intermediate rotor tilt angles of between 60 and 75 degrees.

The two research aircraft were built by Bell Helicopter Textron, Fort Worth, Texas, under contract with NASA and the Army. TRRA Number One, after initial flight testing in the helicopter mode, was fitted with remote controls and instrumentation in preparation for full-scale wind tunnel testing at Ames. The aircraft will be "flown" in the wind tunnel for verification of predicted flight characteristics including transitions between the helicopter and aircraft flight modes.

Actual flight testing of the entire flight envelope will commence with the Number Two aircraft and Bell pilots in Texas after wind tunnel test results are evaluated. NASA/Army flight research will follow at Ames.

The Tilt Rotor Research Aircraft weighs 5,750 kilograms (13,000 pounds), is 12.6 meters (42 feet) long and has a 9.6 meter (32 feet) forward-swept wing. Nacelles at the end of each wing house the Lycoming 1,500 horsepower LTC1K-4K free turbine engines and Bell transmissions which drive the proprotors. Each nacelle-engine-rotor combination rotates through 95 degrees to provide its unique helicopter/aircraft capabilities.



The new Tilt Rotor Research Aircraft is shown being towed out of the Model Construction Facility, following assembly and checkout, on its way to the 40 by 80 for six weeks of wind-tunnel testing. The aircraft, built by Bell Helicopter Textron under a NASA/Army joint program, is expected to begin flight testing at Ames in Jan. 1979. It is designed for flight speeds in excess of 300 knots and yet will be able to land and takeoff vertically, like a helicopter.

New dental plan

A meeting will be held on May 24 and 26 to inform Ames employees of a new dental plan which includes a "dentist of your choice" option. This is a private plan and if you are interested in hearing more about the plan please come to the meeting at 12 noon in Building 241, room 147, on either of the dates cited.

Home Life rep at Ames June 14

Norm Check, Home Life representative, will be at Ames, on Wednesday, June 14, noon, in Building 241, Room 147, to answer any questions that Ames policy holders may have concerning their insurance.

CSC studying health benefit insurance carriers

The Civil Service Commission is conducting a study of insurance carriers that provide employees with group hospitalization coverage. Questionnaires are being sent to some NASA employees who subscribe to Federal Health Benefits Plans. If you are selected to participate in the study, the Commission wants you to know that you are free to complete the questionnaire on a voluntary and confidential basis. The survey is not intended to be used to follow-up on individual problems (forms will be completed confidentially), but is designed to determine the overall effectiveness of the insurance carriers.

If you are asked to complete a questionnaire, your responses may be of great help in keeping the health benefit premiums as low as possible.

New Credit Union building

Moffett Credit Union recently announced plans for a new office building to be constructed at the corner of Edquiba Rd. and McCord Ave. on Moffett Field. The 5000 square foot office building will more than double the size of the present office and provide an abundance of parking space.

Work on the new site will begin in June according to Ed Seward, Chairman of the Building Committee, and will be completed the latter part of August or the first of September, 1978. The design of the new building is under the direction of Milton W. Chamber, A.I.A., and will be constructed by Fred Emmert and Associates of Belmont.

Mr. Seward cited the rapid growth of the Credit Union in recent years as having brought about the need for a larger facility. The Credit Union provides financial services to over 10,000 members. Federal employees, military and civilian, both active and retired, are eligible to join Moffett Credit Union.

Engineering exam deadline

Engineers seeking registration as Professional Engineers are advised of the July 10 deadline for returning applications to take the P.E. exams. The Engineer-In-Training application deadline is August 14.

If you have questions about the exam — how to qualify or prepare for it — you are invited to a no-cost, no-obligation question and answer hour to be held at 7 p.m. on July 6 in the SBA Building at Menlo College in Menlo Park. The session is presented by the Professional Engineering Registration Program, which will again offer E-I-T and P.E. review courses beginning in July. The courses are sponsored by the Peninsula Chapter of the California Society of Professional Engineers and include an E-I-T review and P.E. exam reviews for Mechanical, Electrical, Chemical, and Industrial Engineering.

To obtain more information about the courses or to reserve a place at the introductory meeting, call (415) 593-9731 or write: Professional Engineering Registration Program, P.O. Box 911, San Carlos, CA 94070.

New SSA provision

The working married woman, who plans to combine her benefits as a spouse under her husband's Social Security retirement with her own retirement benefits from federal, state, or local government, has probably had her future retirement cut about in half — if her work is not covered by Social Security.

Under a little-noticed section of the Social Security Financing Amendments, signed into law by the President on December 20 (PL 95-216), an individual retiring after 1982 will be forced to deduct his government (federal, state, or local) retirement benefit from any Social Security benefit he is entitled to collect as a dependent or survivor.

If, in addition to your Social Security as a wife, husband, widow, or widower, you receive a pension based on your work in public employment, not covered by Social Security, your benefit as a dependent or survivor will be reduced by the amount of that pension.

Since the average monthly Social Security benefit for wives (or husbands) is \$122 and the average benefit for widows (or widowers) is \$233, even a small Civil Service or Public Service retirement check will completely wipe out any Social Security benefit an individual may expect to receive as a spouse. The median Federal retirement benefit is \$593 and the median state or local government retirement is \$327. However, the median benefit would be much lower for women (one-third less than men) because women workers are concentrated in the lower grades or lowest paying jobs, or have only been in the labor force for part of their working lives. Those most immediately hurt by this legislation will be the hundreds of thousands of women who have worked part of their lives as wives and mothers, and part of their lives in government. These women are entitled to "partial" retirements as government employees, and up to now have believed that they would also be entitled to some benefits as wives or widows of workers covered by Social Security. The combination of those two retirements would help them to survive as senior citizens. Unless the Social Security legislation is corrected within the next five years, however, they will have to deduct one retirement from the other. In effect, the Congress and the President have decided that these women have no "vested" right to benefits as wives and mothers, in spite of the fact that their husbands have paid Social Security taxes for many years.

Although the Congress seems to be saying that these women are still entitled to the benefits "earned" while working for the government, those benefits are greatly reduced in value if receiving them means cutting out planned-for Social Security "spouse" benefits.

EXCEPTION: Under an exception in the law, your governmental pension will not affect your dependent's or survivor's benefit if you become eligible for that pension before December 1982, and, if at the time you apply or become entitled to your Social Security benefit as a dependent or survivor, you could have qualified for that benefit if the law as in effect in January 1977 had remained in effect. (At that time, men had to prove they were dependent upon their wives for their support to be eligible for benefits as a dependent or survivor.) Your governmental pension, however, will not affect any social security benefit based on your own work covered by Social Security.

The only solution is to protest to Congressional representatives before the legislation goes into effect in 1982. Let your representatives know how you feel NOW!

AIAA/ARC Galileo Scholarship finalists



Finalists for the 1978 AIAA/ARC Galileo Memorial Scholarship are shown with members of the Selection Committee during their visit to ARC on May 1, 1978. (Left to right, front to back) Judy Jenvey, Mountain View High; Sharon Seyman, Willow Glen High; Steven Snider, Aragon High; Bradley Teague, Bellarmine College Prep; Ri-Jen Chou, Homestead High; Richard Dick, General Manager of ARO's Ames Division; Dr. Lewis Hughes, Chief of the Health and Safety Office; and Earl Petersen of the Medium Altitude Missions Branch. Not shown is Paul Freiberg of Cubberley Senior High. Ri-Jen Chou was selected winner of the \$750 scholarship, and the other finalists received \$100 Savings Bonds.

Space technology answer to boy's dream

A boy's dream of freedom and a father's determination to provide his son with the benefits of modern technology have finally crystallized this month.

Jimmy Gerlach, a 12-year old boy from Pennsylvania, is getting a liquid-cooling garment, a vitally important gift that will give him mobility he has never known. Now, thanks to this spinoff from the NASA space program, Jimmy will be able to venture out into the world and participate in activities healthy children take for granted.

Scientists at NASA-Ames Research Center have designed and fabricated a garment for Jimmy which is a direct spinoff from the liquid-profused garments worn under the astronauts' space suits. The personal cooling systems developed for NASA astronauts uses the most advanced method known for reducing heat storage in the body.

This is important for Jimmy because he suffers from a rare and serious congenital disease called Ichthyosiform Erythroderma which causes "scaling" of the outer layer of skin. This prevents normal heat loss mechanisms and, as a result, forces Jimmy to spend much of his life in air-cooled environments.

Robert Gerlach, Jimmy's father, began to consider the possibility of adapting the astronauts liquid-cooled garment to aid in the treatment of his son's skin condition last year while visiting the Aerospace Museum in Washington, D.C. Since that time, he has pursued every avenue available in his quest to provide this technology for his son. He appealed to Congressman Robert Walker, 10th District, PA, who joined in the venture and soon NASA-Ames Research Center was contacted to share the life-saving device. The Technology Utilization Office at the Center initiated the preliminary arrangements and soon a team of researchers, Mr. Bruce Webbon and Mrs. Patricia Kirk, led by Dr. Bill A. Williams of the Advanced Life Support Project Office, began work on a customized garment for the boy.

Through their efforts, a totally portable system, made up of three components — a cooling unit, rechargeable battery, and liquid-cooling jacket — is now available for Jimmy. The cooling unit contains

a cooling fluid reservoir, pump/motor, temperature control valve, cooling cartridge, and insulating foam. Replacing the refreezable cooling cartridge is accomplished easily by opening the cooling unit case. The battery is a 12-V d.c. rechargeable battery (a recharger is supplied with the unit). An extra feature includes a connection which makes it possible to charge the system by plugging directly into a vehicle power supply. Jimmy looks forward to this feature because it will mean that he can now comfortably enjoy the family's frequent fishing trips. The jacket is a conformed liquid-cooling heat exchanger customized to fit Jimmy thanks to the expert "seamstering" of Patricia Kirk. Cool liquid circulated through a network of ultrathin, flexible cooling panels located along the chest, back, and arms transfers the body heat to the cooling unit.

When Jimmy visited Ames on March 13, 1978 for a final fitting and testing of the garment, he was asked by Dr. Williams how he preferred to carry the cooling unit. He said he would like to carry it in a backpack so that he could ride his bicycle and join in other outdoor activities. Everyone agreed and after a quick trip downtown, an ordinary backpack was converted to hold the various components and tubings necessary to operate the system.

So far tests indicate treatment to be both immediate and beneficial. Jimmy is more comfortable during mild exercise in a hot environment, and he is able to perform much better than without cooling. As an added bonus and to ensure continuous treatment, a pumping and cooling unit, electrically powered to furnish cool water, is also being loaned to the Gerlach's. This unit will maintain Jimmy's suit at a comfortable temperature during the night.

As project manager, Dr. Williams has directed the development of liquid-profused technology for both the astronaut program and various medical applications. Work was coordinated between the NASA-Ames Research Center and Dr. O. Fred Miller, Director of the Department of Dermatology, at the Geisinger Medical Center, Danville, PA.

Ames' Technology Utilization Office served as the viable link between the producers of technology and the specific needs of a child.

SAFETY CORNER: Exercise and your heart

If you run 10 miles a week, take a long, brisk walk every night after dinner, or treat yourself to a regular swim at the Y, you probably feel pretty good. And when you read about how exercise can lower cholesterol and improve the blood supply to the heart — you've got to feel even better.

But if you're like most people who take their health and exercise seriously, you can't help asking yourself the \$64,000 question: Does regular, vigorous exercise really give protection against heart attack?

The answer, according to a just-released study that took 10 years and involved 17,000 men, is a resounding "Yes!"

That was the big news at November's meeting of the American Heart Association — a scientific demonstration of what many of us have long suspected. Not only is this study encouraging, it provides a clear set of guidelines to just how much and what kind of exercise you need.

It's the total amount of energy expended that counts, says Dr. Ralph S. Paffenbarger, Jr., professor of epidemiology at Stanford University School of Medicine, and senior author of the report. As the level of activity went up among the men he studied (Harvard alumni, aged 35 to 74), the incidence of heart attack went down.

Those who spent less than 2,000 calories a week in exercise were 64 percent more likely to suffer heart attack than those who spent more. If all the men had maintained that high level of exercise, Dr. Paffenbarger estimates, 166 of the 572 heart attacks suffered by the group would never have happened.

The Ames Health Unit is beginning a program of physical fitness evaluation which will be a part of the annual medical examination. The Harvard questionnaire on exercise habits will be used to assess fitness, and comparison of exercise habits will be made with such medical tests as blood pressure, cholesterol, electrocardiogram, and especially the stress electrocardiogram. The Ames Health Unit staff will be assisted in this program by Elizabeth Holly of the University of California School of Public Health.

"Thank you" notes

To all my friends at Ames,

To all of you who made my retirement luncheon a most memorable occasion, may I take this opportunity to say thank-you. The footed silver tray has been a long wished-for dream come true and will be cherished for many years. The travel clock will be used in my many travels, and of course my "plank" will occupy a special place of honor in my home. The long association that I have had with many of you will not be soon forgotten and I will cherish that friendship.

Katheleen (Kay) Thurman

I would like to extend my sincere thanks to all of my friends at Ames who helped me through this time of sorrow. My mother and I deeply appreciate your kindness.

Sincerely,
Carol Anderson

I would like to thank all my friends for the very nice retirement luncheon and also for the nice presents I received. I am enjoying them very much. Thanks.

John C. Gerdtz

Thank you all very much for your donations to the fund and your support, it is helping immensely.

Thanks,
Ron & Joan Lamica

To all my friends at Ames,

I would like to thank everyone at Ames for making possible the great retirement luncheon, and also for the gift certificate which I have used to purchase the router I was looking for. I have many future projects in mind for its use. Special thanks also to Dick Harmon and EISB Branch.

We are enjoying retirement here in Oregon more and more each day and look forward to seeing any of you who get up this way.

Sincerely,
Franklin E. Thompson

5th annual fly-in

The summer meeting of the San Francisco Bay Area Chapter of the American Helicopter Society Inc. will be held Saturday, May 20, 1977, San Jose Flea Market on Berryessa Road between Highway 101 and King Road, from 10:00 a.m. to 3:00 p.m.

Featured events will be:

- Helicopter Displays (Military and Civil)
- R. C. Model Demonstrations
- Displays and Demonstrations
- Family Fun for All Ages
- Door and Game Prizes
- All American Lunch — Food and Drinks
All you can eat — 12:00 Noon to 1:30 p.m.

Want ads

Miscellaneous

(Continued from Page 4)

For Sale: Approximately 80 sheets of 8 and 10 ft by 2 ft corrugated iron roofing, \$1.50 per sheet. All or part. Call 961-2093.

Pool ladder and HPE pump and filter for 18 ft Doughboy Pool. All \$50. 378-5741.

Cartrivision Color Video Recorder, B&W video camera, interface, tapes. All \$350. 378-5741.

Storage shed: 6 ft, 8 in deep; 7 ft, 5 in wide, wood floor. \$90, 296-8594.

Coleman, 3 burner, gasoline camp stove. Exc. cond., very good buy at only \$20. Ted Weber, 356-7388.

Would like to form a carpool from East Palo Alto area, would exchange driving one week, persons with small automobiles, cost per week would be \$3.50 to \$4.00. My working hours are from 7:30 a.m. to 4:00 p.m. Diane V. Erving, ext. 5034.

For Sale: Hammond Organ. Like new/hardly used. \$995. Call 249-2346 after 5:30.

Lost Parcel: A package addressed to CLINICAL SERVICES MANAGEMENT, AMES RESEARCH CENTER, MAIL STOP 215-8, received from R. E. Brown, Inc., on 4/5/78 and delivered on/about 4/7/78 is missing. The shipping carton is about 12"x24". Anyone seeing or finding such a package is asked to contact Bob Badore, Warehouse Section, Ext. 5677.

Wanted to Buy: A girl's white French Provincial bedroom suite in good condition. Call 272-1406.

Experienced seamstress will make women's and girl's dresses, blouses, pants, aprons, etc. Delivery to Moffett Field. Call Phyllis, 272-1406.

For Sale: Violin, German made, full size, like new, 2 yrs old, good tone quality, with bow and case. \$120 or best offer. Call 967-0896 after 5 p.m.

80 gal. salt water aquarium with wooden stand. Complete set-up, ready to go. \$200. Call 732-0638.

Roommate wanted to share 3-bdrm house in Palo Alto. Rent \$150 per month and 1/3 of utilities. Phone 493-1883.

Ames Director welcomes Explorer scouts



Ames Research Center Director Clarence A. Syvertson welcomes Explorer Scouts Joseph Perl, 17 (at left), and Peter Holland, 18, during a recent visit by 75 Explorer Scouts to the Center.

The group visited Ames, Moffett Field Naval Air Station and Lockheed Missiles and Space Company during a two-day Explorer Aviation/Aerospace Seminar sponsored by the Stanford Area Boy Scout Council, Palo Alto.

Ames Promotion Plan vacancies

Notice No.	Title	Grade	Org.	Area of Consideration	Closing Date
78-91	Secretary (Steno)	GS-4/5	LMS	Centerwide and Outside	6-2-78 (extended)
78-104	Administrative Support Clerk (2 positions)	GS-5/6	D	Centerwide and Army	5-26-78
78-106	Purchasing Agent	GS-5/6/7	ASP	Centerwide and Outside	6-2-78
78-107	Electronics Technician	GS-9/10	FOS	Centerwide and Outside	6-6-78
78-108	Supervisory Aerospace Engineer (Temp. NTE 1 year)	GS-14/15	FAE	Centerwide	6-6-78
78-109	AST, Manned Systems Engineering	GS-12/13	LM	NASA-wide and Outside	6-14-78
78-110	Contract Specialist	GS-11/12	ASF	Centerwide and Outside	6-9-78
78-111	Stores Receiving & Shipping Attendant Foreman	WS-6	AAS	Centerwide	6-2-78
78-112	AST, Manned Systems Engineering	GS-12/13	LM	NASA-wide and Outside	6-14-78
78-113	Assistant Chief	GS-14/15	LB	NASA-wide and Outside	6-15-78

TO APPLY: Complete ARC 59 and submit to Mail Stop 241-6.

MERIT PROMOTION PLAN SELECTIONS

Notice No.	Title	Org.	Name
78-23	Aerospace Engineer	FHI	Alfred Gaehler
78-56	Administrative Specialist	FA	Linda Cox
78-77	Systems Accountant	AFB	Mae Wierenga
78-80	Personnel Clerk (Typing)	APM	Judy Fury (outside candidate)
78-78	Procurement Clerk (Typing)	ASA	Vivian Thompson (outside candidate)

Want ads Transportation

'70 Cadillac Coupe De Ville, 4-door, brown w/white vinyl top, air conditioning, etc., 76K miles, excellent condition, \$1,900 or best offer. Call 257-3310.

'65 Buick Gran Sport convertible, 8-cyl, new paint job - yellow with new black top, new tires, 96K miles, very good condition. Best offer, 257-3310.

For Sale: 1969 Buick LeSabre, 4-dr, AT, PS, PB, vinyl roof. 87,000 mi. Has crumpled fender. Runs good. \$600 or best offer. Call Ed, 226-1514 evenings.

For Sale: 1960 Kharman Ghia VW, 44,000 miles, dark blue, good condition. Best offer. Call 867-3794.

For Sale: 1969 Chevelle. 350 engine, automatic transmission, power steering, radio, radial tires. Runs good. \$1050. Call Dave, 732-5463 after 5 p.m.

'76 Ford Ranchero GT, PB, PS, AT, AC, trailer towing pkg, Brougham interior, AM-FM stereo, and much more. Must sell. 368-5826, evenings.

For Sale: 1967 Chevrolet Impala, 4-dr, hardtop, air conditioning, PS and PB, radio, 396 engine, very good condition. \$850 or make offer. 252-4753 after 4:30 p.m.

1973 SAAB 99E. Fuel injection, 32,000 miles. Stick shift, radials, radio. \$2400. 967-1799 or 969-6933.

Housing

For Rent: Luxury condominium in Santa Clara. 2-bdrm, 2-bth, fitted carpets, drapes, AEK, washer, drier. Adults only. 253-1454.

House for Sale: Quiet Santa Clara location. 4-bdrm, 2-bth, recently remodeled kitchen, tile counters and custom cabinets, utility room, new w/w carpet, wall-paper, water softener and other extras. \$95,000. Call 248-3900 after 5 p.m.

For Rent: Spacious Townhouse, 4-bdrm, 2 1/2-bth, frplc, AEK with dishwasher, w/w cpts, pool, 2-car gar. Easy access to Central Exp. and 101, \$575. Eves. 328-7828.

Summer Rental: 2-bdrm condominium for \$350/mo, flexible between mid-June to mid-Sept. Near Hwy 85 and El Camino. High ceilings, patios, pool, furnished. Call Laura Card, 321-2141, ext. 251, days or 733-0593 eves.

For Rent: 4-bdrm, 2-bth, completely furnished home in Sunnyvale, June through Sept. \$500/mo. 732-2870.

Romantic Seclusion in Hawaii: Beach front condominium apartment on the beautiful island of Kauai. Located between the Wailua Golf Course and Lydgate Park with tennis, golf, sun and snorkling at your doorstep. Completely furnished, sleeps four very comfortably. \$44/day. Reserve now for Spring and Summer. Call John or Geri Arvesen at 736-8793.

House for rent in Sunnyvale, \$475/mo; large family room/fireplace; 3-bdrm, 2-bth; call Donna Betts, 739-2489.

Summer Rental: Spacious, modern 5-bdrm, 2 1/2-bth, completely furnished (including 2 cats) house with yard service, in Newark's prestigious Lake area, 15 mi. from Moffett Field. Available June 15-Aug 31, dates flexible on both ends. \$600/mo. Car use may be negotiated. Call Edith at 793-8970 eves.

Miscellaneous

Anyone interested in renting to or renting with a college coop student and/or college summer students should contact Meredith Moore, ext. 5624.

Visiting professor would like to rent home July-August. Dates flexible. Please phone collect (602)968-4685.

For Sale: Tire and rim 8:75-16.5 from a 3/4-ton Chev. truck, 8 lugs (never used) \$65 (make offer). 252-4753 after 4:30 p.m.

For Sale: Ethan Allen sofa (mint condition), down filled cushions, gold and lt. green brocade. New selling at \$1400/1600, asking \$400. Call 246-9796 after 5:30.

Stereo system: 1956 Fischer cabinetry, solid maple, Marantz 1070 amp, Teac A-400 cassette, Superscope 8-track, JBL speakers, \$1000/best offer. 965-4249.

Stratolounger: Full size reclining chair, rich looking velvety upholstery, very little used, like new, \$95 (costs \$179). Call 964-1725.

Wall lamp, very good cond., \$15; men's tote bag, like new, \$20; twin-size quilted bed cover, very little used, like new, light green and blue flower print. \$20. Call 964-1725.

Painting wanted: Interior and exterior painting done at very low prices. No job too small. Work guaranteed by exp. painter. Call for free estimates and ask for Jay. 732-8295.

For Sale: Diamond wedding set, \$410; diamond and sapphire ring, \$279 (both rings have lifetime guarantee and are o.k. for tradein at full asking price. Worth considerably more); Kirby Omega vacuum cleaner w/attachments, \$119; drum set, \$95. Call 656-7802 after 4 p.m.

(Continued on Page 3)

The Astrogram

Admin. Mgt. Building, Phone 965-5422

The Astrogram is an official publication of the Ames Research Center, National Aeronautics and Space Administration, Moffett Field, California, and is published bi-weekly in the interest of Ames employees.

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Associate Editor Marcia Kadota
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Moffett Field, California 94035

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The Astrogram

VOLUME XX NUMBER 15

May 24, 1978

Center Director's Message

Once again it is time for our annual Savings Bond Campaign, and I am taking this occasion to congratulate the Center employees for the good efforts shown in the past campaigns. For two years in succession, Ames has won the privilege of displaying the Minuteman Flag, an indication of at least 75% participation by Center personnel.

For this year's campaign I ask that each of you consider the merits of buying and retaining savings bonds; this request is two-fold because I would like to see Ames do well in this year's campaign, and I believe that individuals benefit through participation in the program. I started purchasing bonds more than 20 years ago, and they have been an important part of my family's financial planning.

Please give serious thought to the message of the Savings Bond Campaign this year - "The Bond Helps All - Country, Self, and Ames."

5
years.

That's the exact time it takes for a U. S. Savings Bond to mature.

Unfortunately, most people still think it takes 10 years. Or 7. Wrong. It's exactly 5 years.

Of course, if you want to keep your money earning, there's a 10-year extension privilege beyond maturity.

We'd appreciate it if you'd help us clear up the confusion. Next time somebody tells you it takes 10 years for a Savings Bond to mature, smile indulgently. And then show him this ad.

Now U. S. Bonds pay 6% interest when held to maturity of 5 years or 10 years. Lost, stolen or destroyed Bonds can be replaced if records are provided. When needed, Bonds can be cashed at your bank. Interest is not subject to state or local income taxes, and Federal tax may be deferred until redemption.



Minuteman flag for 75% participation



Savings Bond Chairman, Ken Nishioka looks on while Center Director, C. A. Syvertson, points to the place the third star will go if Ames reaches 75% participation.

THE BOND HELPS ALL - COUNTRY, SELF, AND AMES

This year's theme for the Ames Research Center's Savings Bond Campaign is, "The Bond Helps All - Country, Self, and Ames." The theme reflects the accepted concept that buying U.S. Savings Bonds will help keep our country strong and help the buyer build a nest egg for future personal needs. In addition, the theme reflects the fact that buying Savings Bonds can provide help to Ames. This benefit to Ames is an intangible factor - it does not come in the form of direct assistance to Ames in its primary endeavor of research and development, but

it does help in showing others that Ames personnel can pull together as a team for a worthwhile activity. This impression may well carry over to the decision making process for approving research programs. All those employed at Ames have the responsibility of helping to make this a better place to work. Buying U.S. Savings Bonds provides an opportunity to fulfill this obligation in some small way while at the same time helping both the country and yourself. Won't you do your part?

KEN NISHIOKA, BOND CHAIRMAN

Savings bonds of yesteryears



Savings Bonds have really changed their appearance during the last 36 years. Pictured above are 1942 and 1945 savings bonds that were purchased by Jack Osorno of the Ames Model and Instrument Machining Branch.

Ames employees tell why they save bonds

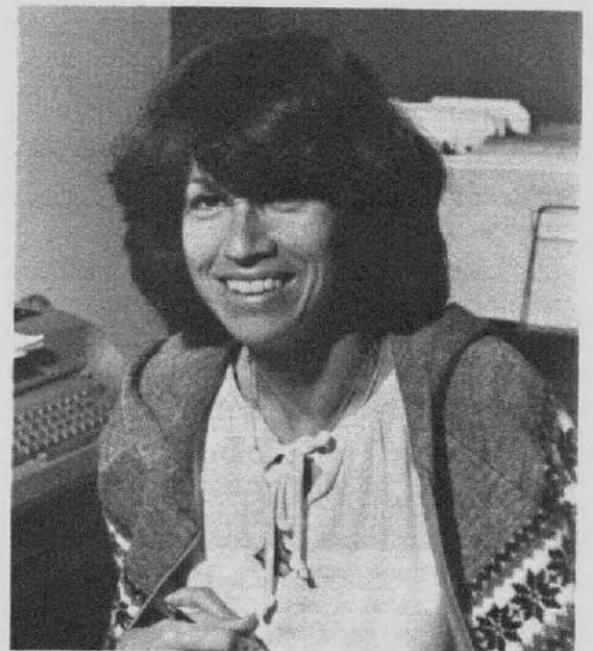
This year, a few of the Ames' shops as well as the Life Sciences building were visited by the 1978 Campaign Chairperson, the *Astrogram* editor, and photographer Dick Clayton for the purpose of spontaneously interviewing employees who currently buy bonds. The following photos and captions depict the result of those randomly selected individuals.



Pictured above are ARC employees of the model Shop, RSC. These individuals represent 100% participation in buying savings bonds. Left to right, by last name, are Elam, Daugherty, Thompson, Erickson, Fontes, Figone, Fitzgerald, Dinick, Thomas, Aubert, Hogan, and Leibfritz.



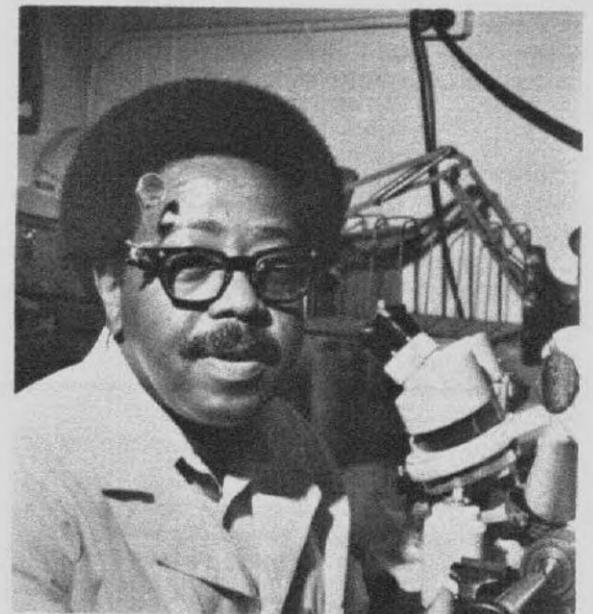
Jack Osorno, RSM, recalls, "To me it was a forced method of saving. I've always put my step increases into bonds. I've bought bonds for over 36 years."



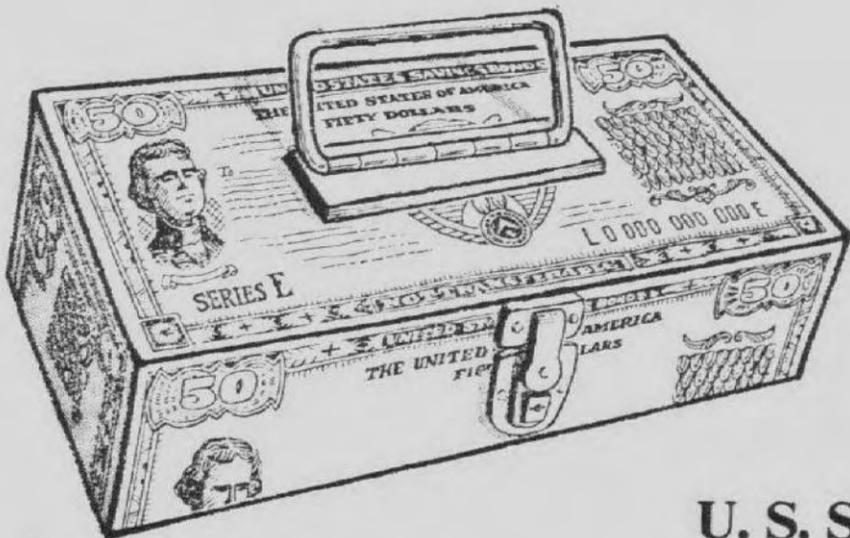
Phyllis Hayes, LM, claims, "I save bonds for my son's college education. I've been investing in bonds throughout my government career."



Frank Solis, Yosh Suzuki, and Aki Tamari, RSTS, all agree that, "Savings bonds are a good way to save without seeing the money. We've all three cashed our bonds through the years for various reasons . . . sometimes even for poker money . . . but we just enjoy knowing that the bonds are basically accumulating."



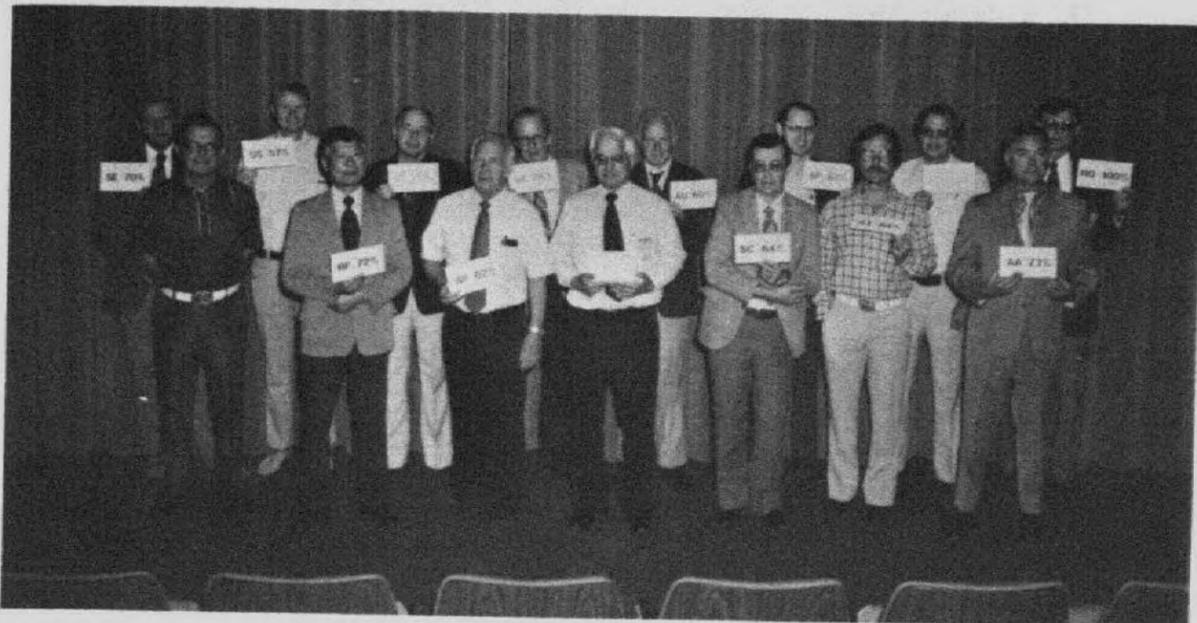
Lewis Turner, RSM, states, "The Savings Bonds I've invested in are just beginning to pay off now. I'll be using them for retirement. I've been taking them for every bit of 15 years . . . if not longer."



**Super-Safe
Savings
with
U. S. Savings Bonds**

Ames' Management support Bond Drive

Ames Division Chiefs and their representatives posed for a photo to identify participation within each of their organizations.



Front row: Dave Dennis, Shiz Doiguchi, Les Briggs, Ralph Shawlee, John Parker, Paul Bennett, Tom Hammond. Back row: Marty Knutson, Dale Compton, Byron Swenson, Bob Hofstetter, Al Hertzog, Q. Marion Hansen, Dave Fisher, Fred De Muth.



Don DeVincenzi, LX, saves bonds "because it's the easiest and most painless way to save." When asked what he thinks he might use them for, he casually said, "Oh, why I'm far too young to even begin to think about how I might spend this money!"



Front row: Phil Quattrone, Don DeVincenzi, Dick Johnson, Dave Feller, Wally Deckert, Georgia Benson, Fred Van Wert. Back row: John Zuk, Mike Wash, Cy Sewell, Jack McLaughlin, Charles Cue, George Mundwyler, C. A. Syvertson, Seth Anderson.

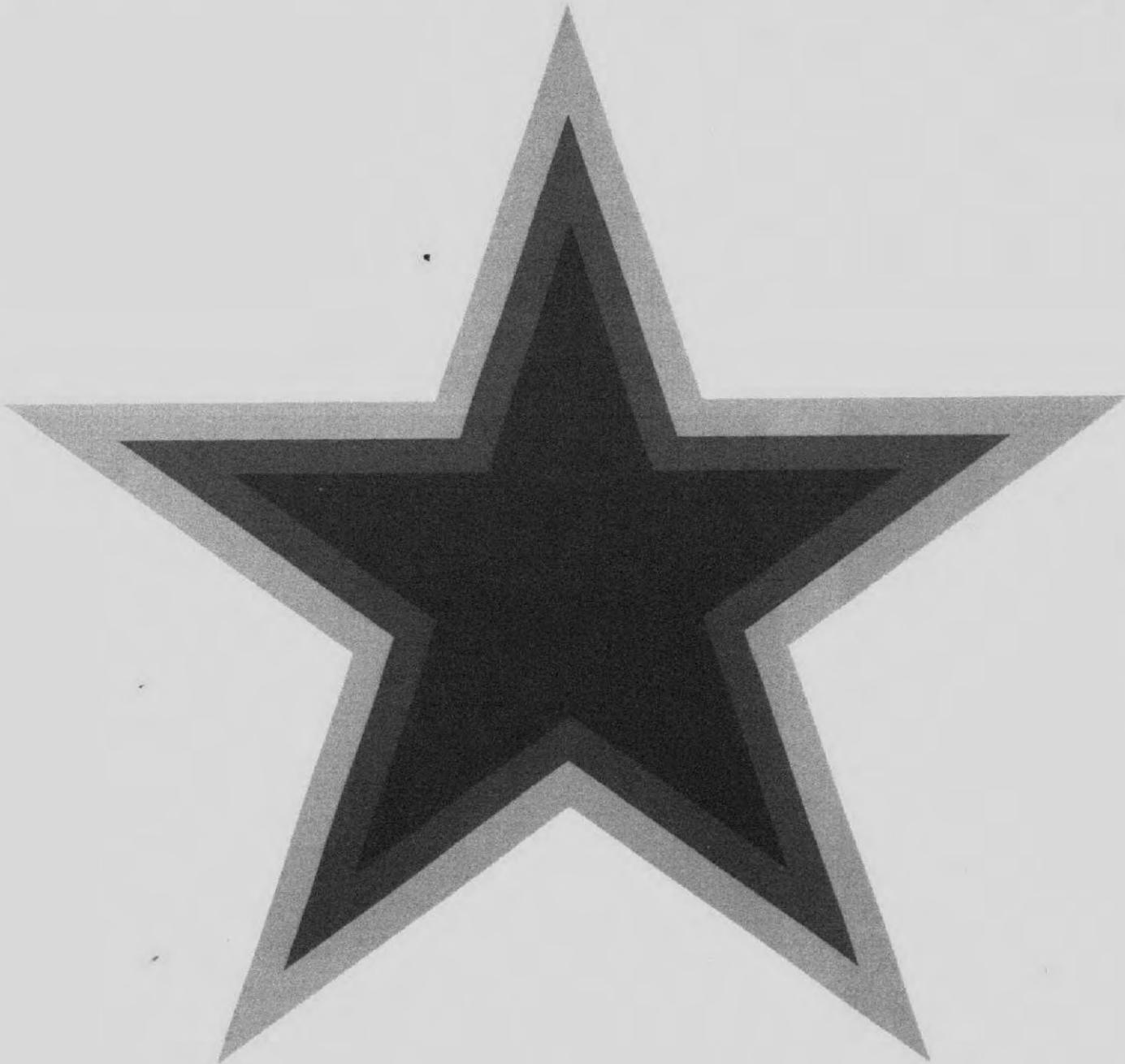


Front row left to right: J. Henry Glazer, Willie L. White, Jr., Tom Tomberlin, Darrell Brekke, Denise Lucy, Leonard Roberts, Bill Mead, John Dusterberry. Back row: Larry King, Louis Brennwald, Joseph Sharp, George Rathert, J. Lloyd Jones, David Reese, Lee Stollar, Morris Lile.

**A
getaway
plan
you can
get away
with.**

**Buy
U.S. Savings
Bonds**

the bond helps all



COUNTRY

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The Astrogram

VOLUME XX NUMBER 16

June 1, 1978

Solar-powered electric village

The first step toward construction of a totally solar electric village power system was taken recently. Representatives of the Papago Tribe of Arizona, the U.S. Health Service and Lewis Research Center announced the signing of a Memorandum of Understanding to provide the Papago Indian Village of Schuchuli, Ariz., with electric power from the Sun by September 1978.

"This is a first step toward meeting critical power needs for many isolated Indian villages throughout the United States," Cecil Williams, chairman of the Papago Tribal Council said.

Funded by the U.S. Department of Energy (DOE), the Schuchuli Photovoltaic Village Power Project is managed by the Lewis Center as part of DOE's National Photovoltaic Conversion Program.

"DOE's program," Paul Maycock, Acting Director of Photovoltaics, Department of Energy, said, "is aimed at developing solar cell power systems which can provide a significant amount of the nation's energy requirements by the year 2000. The Schuchuli project is one of several which we hope will stimulate new near-term markets for solar cell power through cooperative cost-shared experiments with potential users."

When completed, the new three-kilowatt solar electric power system will provide Schuchuli's residents with sufficient electricity to power a community refrigerator, freezer, washing machine, sewing machine, water pump, and lights for the village's 16 homes, church, and feast house.

People of Schuchuli presently rely on kerosene lamps for lighting. Laundry is washed by hand or taken 32 kilometers (20 miles) to the nearest commercial facility. Perishable foods and medicines cannot be stored. Water for domestic use and stock use is pumped by diesel engine which, because of cost of maintenance and fuel, is a drain on the financial resources of the people.

Introduction of solar electric power will change all this.

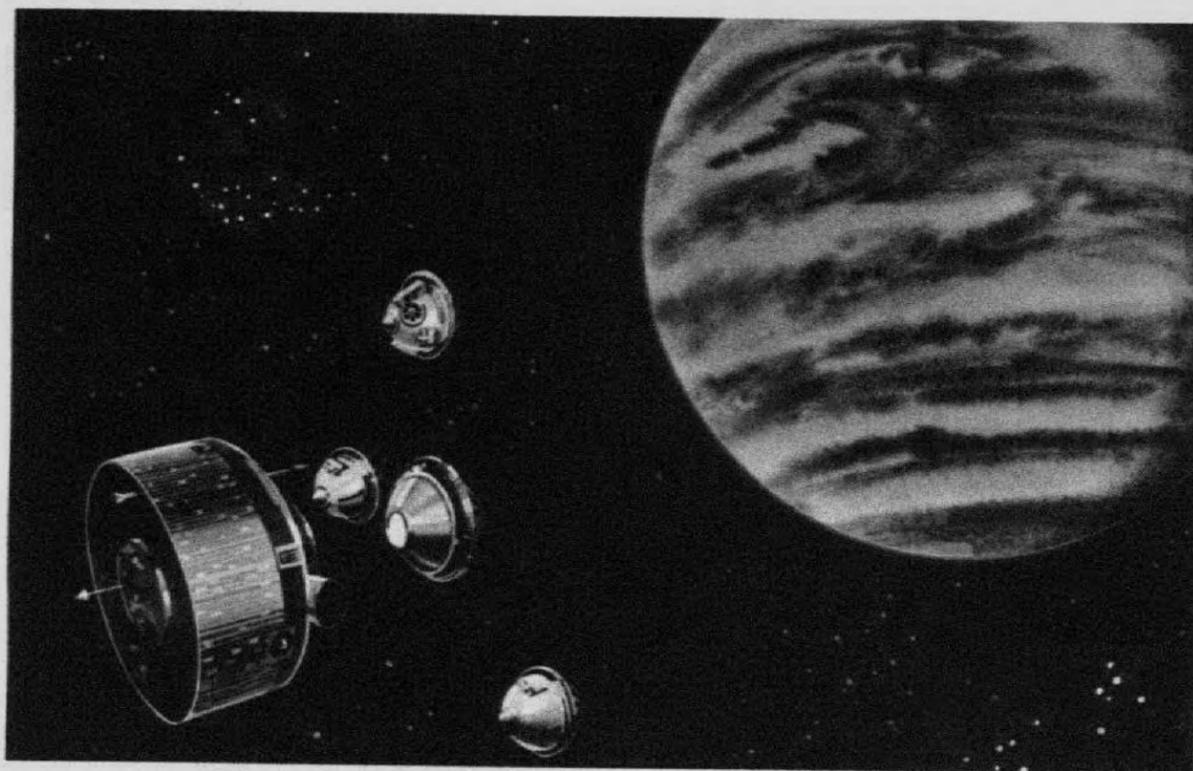
Under terms of the Schuchuli cooperative agreement, NASA will furnish all materials and technical assistance necessary for installation of the power system's equipment and supporting facilities.

The Papago Construction Co., an arm of the Papago Tribal Council, will erect the solar arrays and install all power system equipment.

Construction of the Schuchuli Photovoltaic Village Power Project will begin immediately, with completion slated for early September.

Located approximately 32 km (20 mi.) southeast of Ajo, Ariz., Schuchuli is situated amidst the Gun-sight Hills within the western edge of the three-million acre Papago Indian Reservation.

Pioneer Venus 1 operating well



Pioneer Venus 1 is right on course toward its orbit around Venus next December, with most engineering systems checked out and operating normally.

"Performance so far has been extremely good," said Marshall Johnson, Venus Orbiter Flight Director at Ames. "Of course, we have 300 million miles and six months to go," he added.

Since a near-perfect launch Saturday, May 20, from Cape Canaveral, Florida, controllers at Ames have deployed the craft's long, 14-foot magnetometer boom, "despun" the high-data-rate, four-foot-diameter dish antenna to center it continuously on the Earth. They have taken four pictures of a "crescent Earth," turned on five of the six interplanetary experiments, made a star map, and checked out spacecraft power, navigation, and propulsion systems. In all cases, systems are operating well.

Pioneer Venus 1 will be the first prolonged orbiter of the cloud-shrouded planet. When it reaches Venus this December, along with the five atmosphere entry craft of Pioneer Venus 2, it will be a major part of NASA's six-spacecraft effort to understand the weather of Venus.

These planet-wide measurements from inside and outside Venus' atmosphere by the Pioneer Venus orbiter and atmosphere probes should provide a profile of Venus' very simple weather machine. Scientists believe this information may help with understanding the forces that drive Earth's complex weather and climate.

Pioneer Venus 1 will return daily pictures of Venus' 4-day cloud circulation. It will make radar maps of the planet's surface in Venus' explored hemisphere. The Venus Orbiter will determine the bright planet's internal density distribution and

global shape. It will measure Venus' atmosphere at many levels.

Pioneer Venus 1 measured the Earth's protective magnetic envelope, the magnetosphere, as it passed outside of it, as well as solar wind Earth phenomena during the current turbulent sun period. Scientists report that the spacecraft's gamma ray burst detector may have seen a burst. These recently-discovered mysterious bursts, about 12 a year, have tremendous energies and come from somewhere in the cosmos.

Remaining immediate tasks are a first mid-course correction toward the weekend, followed by a second course correction in several weeks. Launch trajectory was so accurate that a second course correction may not be needed.

The electron temperature probe for solar wind measurements will be turned on in several days, and controllers will turn on and check out Venus orbit experiments.

The Pioneer Venus project is managed by Ames. The spacecraft was built by Hughes Aircraft Co. in El Segundo.

An update of the Pioneer Venus 1 spacecraft may be obtained by dialing 968-5500.

Credit Union

Due to significant fluctuations in the interest rates for mortgage loans and in the money market in general, the Credit Union will no longer publish its first trust deed loan rate. The rate for real estate loans is expected to vary as it does at other financial institutions. Members interested in this type loan may phone the Credit Union at 969-6222 for the current rate.

Shuttle experiments

NASA is inviting scientists to submit proposals for life science experiments to be carried aboard the Space Shuttle and Spacelab in the early 1980s.

The agency is seeking proposals for scientific investigations dealing with the physical effects of space flight on humans and other living systems, and the testing of equipment and procedures.

The Space Shuttle, scheduled to become operational in 1980, will be launched from the ground like a rocket, maneuver in Earth orbit like a spacecraft, and land like an airplane. Designed to carry heavy loads into Earth orbit, the Shuttle can be reused as many as 100 times. Spacelab, a scientific laboratory in space, will be carried inside the Shuttle.

The Shuttle era will provide the first opportunity to carry out a thorough experimental program in space under conditions approximating those of ground-based laboratories.

Life sciences opportunities are planned for the Shuttle and Spacelab during 1981, 1982, and 1983, possibly in conjunction with other scientific disciplines. Initial flights will last from 7 to 13 days. As experience with the Shuttle increases, flights may be extended.

The Shuttle and Spacelab also permit immediate followup of new findings — an important facet of any effective biological experimentation, according to Dr. David L. Winter, NASA Director of Life Sciences Programs.

Winter said that respondents to NASA's Announcement of Opportunity may propose investigations which meet one or more of the following life sciences objectives:

- To investigate and understand physiological, performance, and biochemical changes which have been observed in humans who have flown in space.
- To identify and investigate significant biological phenomena which may occur during or after exposure to the space environment.
- To test and demonstrate, under operational conditions, equipment and procedures which are needed by the NASA Life Sciences Program.

Those who wish to submit a proposal should send a Letter of Intent to Dr. Stanley Deutsch, Director, Life Sciences Payloads and Applications, Code SBE-3, NASA Headquarters, Washington, D.C. 20546. Deadline for proposals is June 30, 1978.

Astronauts selected

Four two-man crews have been selected to begin training for early orbital flights of the Space Shuttle. They are:

John W. Young, 47, commander; Robert L. Crippen, 40, pilot

Joe. H. Engle, 45, commander; Richard H. Truly, 40, pilot

Fred W. Haise, 45, commander; Jack R. Lousma, 42, pilot

Vance D. Brand, 46, commander; Charles G. Fullerton, 41, pilot

Young and Crippen will be the prime crew for the first orbital flight test (OFT-1) scheduled for launch from Kennedy Space Center in the spring of 1979.

Engle and Truly will be their backup crew.

Flight assignments for the others named today will be made at a later date.

NASA plans a series of six orbital flight tests, each of increasing complexity, to check out the nation's first reusable spacecraft. On the first four flights, the 75-ton orbiter will return from space to an unpowered landing on a dry lakebed at Dryden Flight Research Center. Thereafter, the spacecraft will return to a specially constructed runway at the Kennedy Center launch site.

Austrian-Bavarian dancing for Happy Hour



Dick and Joanne Kurkowski show a typical Austrian dance pose for other members of the Ensemble International dance group.

The Ensemble International, a performing folk dance group, was featured at the ARA's "Pre-Vacation Happy Hour" on Friday, June 2. The Ensemble International is a non-profit folk dance exhibition group co-sponsored by the City of Sunnyvale as a cultural and performing arts group. Since the group was formed in 1966, it has given over 500 performances for audiences up to 50,000, and varying in length from 3 minutes to 3 hours long. Booked far in advance, with up to 60 performances a year, the 16-member ensemble has performed at Candlestick Park, at Expo '74 in Spokane, Wash., and for the King of Sweden. It has produced full-length concerts with numerous costume changes, including concerts at the San Jose Center for the Performing Arts. A regular at San Jose Civic Light Opera's Oktoberfest, the ensemble has given as many as 12 performances during a weekend. At present their repertoire includes suites of dances from Hungary, Sweden, Norway, Ireland, Scotland, Russia, Poland, Germany-Austria-Bavaria, Croatia, and Switzerland.

Dick Kurkowski, of the Flight Systems Research Division, and his wife Joanne have danced with the ensemble for over two years. However, their dance experience goes back many years to high school days in Minnesota when they would perform with their respective parents in many ethnic folk dance groups in and around the St. Paul area. Joanne is not only a dancer, but also is an avid student of costumes and cultures of foreign countries. Dick had a dream come true last summer when they were able to take their first (and not last) European vacation. They initially stayed in Zurich, Switzerland with Swiss born friends who were former Sunnyvale neighbors. They then toured Switzerland, Austria, and Germany (and Lichtenstein, too) with the Directors of the Ensemble International, Ned and Marian Gault. Together they searched out Alpine dance and musical performing groups along with hours of costume research in museums. Some of the Alpine dances they saw are now part of their repertoire and was seen on Friday.

Televised Summer '78 courses

Course Number	Course Title	Start and End Dates	Day	Time
COLLEGE OF NOTRE DAME FOUNDATION PROGRAM (Management Development denoted by †)				
BA C131	Financial Analysis for Managers (†)	6/27-8/29	T	5-6:45 pm
ECON C102	Economics for Managers (†)	6/26-8/28	M	5-6:45 pm
MATH C104	Introduction to Computer Technology (†)	6/28-8/30	W	5-6:45 pm
SPECIAL & GENERAL INTEREST COURSES				
BA C135.02	Leadership Tools & Techniques	6/26-8/30	MW	12-1:00 pm
MATH C20A	Introduction to Calculus (*)	6/27-8/11	MWF	12-1:00 pm
MGT 111	Decision Planning with Simplified Calculator Techniques	6/27-7/18	TTh	5-6:45 pm
ET 100	Electronic Equipment & Documentation Basics	6/28-8/30	W	5-6:45 pm
ET 300	Integrated Circuits; Theory & Application	6/27-8/31	TTh	12-1:00 pm
ET 400A	How to Use Microprocessors in Hardware Design (*)	6/26-8/02	MW	12-1:00 pm
ET 800	Cooling of Electronic Equipment (*)	6/27-7/18	TTh	12-1:00 pm
PR 816	Personal Shorthand (*)	6/27-8/08	TTh	12-1:00 pm
PR 814	Effective Reading (*)	6/26-7/26	MW	12-1:00 pm
MGT 102	Time Management (*)	7/31-8/16	MW	12-1:00 pm
PR 824	Communicating Successfully (*)	6/30-7/21	F	12-1:00 pm

(*) Videotaped Program

Any students wishing to apply courses taken for credit through the College of Notre Dame via ACE towards the Business Administration major at the College of Notre Dame should check with the Dean of Continuing Education at CND before enrolling.

Golf

Report of Riverside Tournament, 4/29/78: For the winners of the April 29th golf tournament, rally, everything was perfect; but, for the non-winning types, they played on the fastest greens in the history of Santa Clara County. Some of the players were seen chasing local owls and hawks to get a tail feather with which to putt the ball. Anyhow, the winners were as follows:

First Flight: 1 - Frank Lazzeroni (Handicap Chairman, naturally!), 2 - Owen Koontz, 3 - Mike Orozco, 4 - Fred Johnson, 5 - Len McCalley.

Second Flight: 1 - Ed Tischler, 2 - Denny Chaussee, 3 - Claudia Eddy, 4 - Ruth Richardson, 5 - Ed Rozewicz.

Third Flight: 1 - Marion Macon, 2 - Mike Rozewicz, 3 - Richard Dowell, 4 - Dan Clasen, 5 - Bill Page.

Fourth Flight: 1 - Conrad McCloskey, 2 - John Pogue, 3 - Betty Quattrone, 4 - Charlene Banducci, 5 - Sal Tardio.

The Calero Tournament that was rained out twice has now been rescheduled for the third time for June 24th.

Co-chairmen Mike Orozco and Dean Jaynes reported that it was a small band of high-spirited Ames golfers that braved the warm weather and the unforgiving San Ramon National Golf Course, Saturday, May 20th.

The low scratch rounds for the day were turned in by the following: G. Lazzeroni, 78; P. Johnson, 79; and F. Lazzeroni, 79.

The winners of this Individual Low Net Tournament were:

First flight: 1 - M. Orozco, 2 - E. Tischler, 3 - G. Lazzeroni, 4 - V. Oyama, 5 - P. Johnson.

Second flight: 1 - I. Rathert, 2 - J. Pogue, 3 - C. McCloskey, 4 - M. Rozewicz, 5 - B. Page.

Blood Mobile visit

The American Red Cross Blood Mobile will visit Ames Research Center on June 21, 1978, between the hours of 8:30 a.m. and 1:30 p.m. in Bldg. 241, Rooms 147 and 149.

Attention: Scuba and skin divers

Reminder! We are having our monthly club meeting on Wednesday, June 7, 11:30-1:00 in the private dining room at the Ames Cafeteria. There will be a movie and hopefully some scheduled dives and events for the coming months.

Are you diving, need a buddy, loan equipment, etc.? Well, let's get together and do it! Contact Jim Laddner at ext. 5210 for dive equipment loan/check-out, and Skip Yem at ext. 6391 for membership and information.

Remember - Wednesday, June 7, at 11:30 to 1:00 at the Ames Cafeteria.

Calif. ins. rep.

California Casualty representative will be at Ames, Thursday, June 22, from 10:00 a.m. to 4:00 p.m., Bldg. 241, Room 145B.

European Health Spas

European Health Spas is offering all Ames employees and their spouses a special discount under their business of the month program. A 20% discount will be offered to all employees and a 50% discount to all spouses of employees who enroll. This discount is effective for all memberships purchased before June 15, 1978. The regular membership dues come to approximately \$20 a month.

NASA SPECIAL PUBLICATIONS

National
Aeronautics and
Space
Administration

The following NASA Special Publications are now on display in the Ames Main Library and the ARA Store. Following your review of these new releases, if you would like a retention copy for your files, return a completed NASA Special Publication Request Form, ARC 303, for each publication you desire to the Main Library, M/S 202-3, and a copy will be mailed to you. Please allow 2 weeks for processing and distribution of your request. Because the number of copies of NASA Special Publications available to the Center is limited, requests will be processed as they are received until the supply is exhausted and distribution will be limited to Ames Research Center Civil Service employees.

NASA SP-370 THE SOVIET-AMERICAN CONFERENCE ON COSMOCHEMISTRY OF THE MOON AND PLANETS, Parts I and II

Edited by John H. Pomery, NASA Headquarters and Norman J. Hubbard
NASA Johnson Space Center

Sixty-two papers presented at a joint U.S.A.-Soviet conference held in Moscow in 1974 are contained in this consolidated treatise on the state of our knowledge of planetology and cosmochemistry. Proposed by the Soviets in 1971 but delayed until the conclusion of the Apollo program, the conference had as its basic goal a comprehensive consideration of the origin of the planets of the solar system based on physical and chemical data gleaned from studies of the moon and planets. Conference papers are presented in two parts, each part published as a separate volume. Part I covers differentiation of lunar and planetary matter and lunar magnetism and gravity. Chronology of the moon, planets, and meteorites; the role of exogenic factors in the formation of the lunar surface; cosmochemical hypotheses of the origin and evolution of the moon and planets; and a section on new planetary data make up Part 2. Hardbound.

NASA SP-3087 TABLE AND CHARTS OF EQUILIBRIUM NORMAL-SHOCK PROPERTIES FOR PURE HYDROGEN WITH VELOCITIES TO 70 km/sec

Charles G. Miller III and Sue E. Wilder, Langley Research Center

Data applicable to studies of high-temperature gas behavior behind the normal portion of the bow shock about a probe entering the atmosphere of an outer planet are compiled. Equilibrium thermodynamic and flow data for moving, standing, and reflected normal-shock waves in pure hydrogen are presented in comprehensive tabular lists and graphs. (Modeled atmospheres of the outer planets include an abundance of hydrogen and significant amounts of helium. Similar data for hydrogen-helium mixtures is given in NASA SP-3085.) This revised version of the 1974 edition of NASA SP-3087 reflects corrections to some earlier input data; provides a more complete discussion of computation procedures and of the hydrogen model used; and compares equilibrium properties determined by several sources.

NASA SP-367 INTRODUCTION TO THE AERODYNAMICS OF FLIGHT

Theodore A. Talay, Langley Research Center

An introduction to basic aerodynamics is presented in a text suitable for a course at the apprentice or technician level. An outgrowth of the author's experience in teaching such a course at NASA Langley Research Center, the text is comprehensive in scope yet devoid of the details characteristic of similar courses at the college level. Subject matter includes the fundamentals of fluid flow; subsonic, transonic, and supersonic flow; hypersonic flight, lifting bodies, and the Space Shuttle; and aircraft performance, stability, and control. Emphasis is on presenting, developing, and illustrating fundamental concepts; mathematical details are minimized.

NASA SP-365 NATIONAL GEODETIC SATELLITE PROGRAM, Parts I and II

Compiled and edited for NASA by the American Geophysical Union

The final report of NASA's National Geodetic Satellite Program (NGSP) - started in 1965 and concluded in 1974 - is presented in this two-volume publication. Principal objectives of the NGSP included: accurate geodetic coordinates for NASA's PRIME MINITRACK and radar tracking systems; more accurate location designations for tracking stations and more accurate descriptions of Earth's gravity field; and performance evaluations of various satellite tracking instruments. Each of the major participating organizations - Department of Defense, NASA/Goddard Space Flight Center, National Geodetic Survey, Ohio State University, and Smithsonian Astrophysical Laboratory - prepared a chapter of the report. Additional chapters, needed to complete the programs or to provide support, were contributed by the Applied Physics Laboratory (John Hopkins University), Jet Propulsion Laboratory, NASA/Wallops Flight Center, and the University of California, Los Angeles.

NASA SP-7500(11) MANAGEMENT - A CONTINUING LITERATURE SURVEY

Prepared by NASA Scientific and Technical Information Facility

A bibliography of 346 documents on management-related subjects is presented in a compilation of publications originally announced in the 1976 issues of *Scientific and Technical Aerospace Reports (STAR)* or *International Aerospace Abstracts (IAA)*. References cover management as it relates to research and development, contracts, production, logistics, personnel, safety, reliability, and quality control. Publications on management philosophy and policy and on various other aspects of the management process are also listed. Abstracts are provided for most of the bibliographic entries. Subject, personal author, and corporate source indices are included, as well as publication availability information.

Air Circus '78

The Wavemasters and Civil Air Patrol of San Jose will present the "Air Circus '78" of Radio Controlled Model Aircraft on June 10 and 11 from 9 a.m. to 4 p.m. at Hill Country in Morgan Hill. This will be free to the public.

Activities will include aerobatics and dogfights, gliders and helicopters, rocket launching and hot air balloons, Civil Air Patrol emergency equipment and vehicles, clowns, prizes and mimes.

Directions to "Hill Country": Follow the signs East on Tennant Road from the 101 Bypass.

Ames Promotion Plan vacancies

Notice No.	Title	Grade	Org.	Area of Consideration	Closing Date
78-91	Secretary (Steno)	GS-4/5	LMS	Centerwide and outside	6-2-78
78-109	AST, Manned Systems Engineering	GS-12/13	LM	NASA-wide and outside	6-14-78
78-112	AST, Manned Systems Engineering	GS-12/13	LM	NASA-wide and outside	6-14-78
78-113	Supervisory Aerospace Engineer (Assistant Division Chief)	GS-14/15	LB	NASA-wide and outside	6-23-78
78-115	Aerospace Engineer	GS-12/13	LB	Centerwide	6-21-78
78-116	Contract Specialist	GS-11/12	ASL	Centerwide and outside	6-23-78
78-118	Travel Clerk	GS-4/5	AFP	Centerwide and outside	6-16-78
78-119	Aerospace Engineer	GS-12/13	FSV	Centerwide and outside	6-26-78

TO APPLY: Complete ARC 59 and submit to Mail Stop 241-6.

MERIT PROMOTION PLAN SELECTIONS

Notice No.	Title	Org.	Name
78-25	Aerospace Engineer	FSV	Cancelled
78-69	AST, Experimental Facilities and Equipment (Test Project Engineer)	FAX	Cancelled
78-70	AST, Experimental Facilities and Equipment (Instrumentation Engineer)	FAX	Cancelled
78-71	AST, Experimental Facilities and Equipment (Wind Tunnel Facilities Engineer)	FAX	Cancelled
78-81	Computer Aid	FAX	Margaret Kane
78-87	Accounting Technician	AFG	Nancy Lowe
78-88	Aerospace Engineering Technician	SSA	Emily Arcolino (outside)

Want ads Transportation

For sale: 1974 Jensen-Healey, 12,500 miles, excellent condition. \$6,000 or best offer. Call 327-2428 after 6 p.m.

For sale: 1967 Chrysler Newport, 4-dr, 47,000 mi., \$750/offer. 324-2043.

For sale: 1975 Honda 550 motorcycle, immaculate, 7500 actual miles, P.D. handlebars, tune-up equipment, helmet, other extras. Must see to appreciate. \$1175. Call 325-8077 after 6 p.m. (weekdays).

For sale: 1970 Honda CL-350 motorcycle, 12K actual miles, excellent condition, \$375. Call 374-2369.

For sale: 1966 white Pontiac GP, \$500. One owner; good interior, radio, tires. Reller, 967-7459.

Housing

For rent: Lake Santa Clara, adjacent to Great America, luxury 4-br, 2½ ba. townhouse, family room, fireplace, AC, wet bar, elec. gar. door opener, AEK, 6 mos. new., 1800+ sq. ft. No pets. \$495/mo. Eves., 969-0944.

House for sale: Spacious Eichler in Palo Alto, top condition, 4 br, 2 ba, large LR, FR, AEK, 2-car garage, copper radiant heating, many extras, ideal location, \$128,000. Call: 964-1725 for appointment.

House for lease: Sunnyvale, 3 bdrm, 2 ba, double garage, fireplace, carpets, range, refgr, dishwasher. Four miles to Ames. Available June 19, 1978. Call 736-1475 eves. and weekends.

For rent: 1 bdrm/1 bth condo; June 15 to Sept 30, in Cupertino. 2 pools, 2 tennis courts, sauna, and club house. Phone 257-3807, after 4 p.m.

Bowling

The Thursday Night Bowling League, *Ames Mixed Fives*, Moonlite Bowl, announce the following winners of the 1977-78 Season:

First Place Team: Edward Tischler, Jean Murphy, Robert Mason, Jana Coleman, and Robert Murphy.

Second Place Team: Jeanne Clemson, Howard Clark, Robert Zeisser, Janet Konrath, and Guy Whetham.

High Scratch Trophies: High series — Albert Petretti, 668; Kathy Cossey, 577. High game — Frank Lazzeroni, 258; Vincent DiGiorgio, 258; Jeanne Clemson, 224.

High Handicap Trophies: High series — Donald Kassner, 732; Carolyn LaFollette, 717. High game — David Sharpe, 297; Jana Coleman, 270; Margery Petroff, 270.

New officers for the 1978-79 season: Pres., Wayne Harry; Vice Pres., Vince DiGiorgio; Secretary, Marge Petroff; Treasurer, Carolyn LaFollette.

"Thank you"

A very special "Thank You" to those NASA personnel for their quick response in solving our problem.

Smith Engineering Employ

Miscellaneous

For sale: 23" Zenith color TV, \$250/offer. Call 374-9293.

For sale: Tappan dishwasher, gold, \$50. 374-9259.

For sale: Two twin quilt bedspreads, like new (one gold/brown print, one blue/brown print), each \$15. Call 374-9293.

For sale: ¼ share in a 25' fiberglass sailboat fully equipped for ocean and bay sailing. Call Bill Borucki at 245-2881 after 7 p.m. \$2000.

Set of 6 golf clubs plus golf bag. No. 3, 5, and 7 Pro-Master irons; driver and No. 3 wood club, and a putter. \$25. Call 244-2780 after 5 p.m.

Lady's 26", 3-speed bicycle, \$40; child's school desk, \$5; 8" hi-fi speaker, \$4. 252-8316 after 5:00 p.m.

House-sitting done (after July 1). Have local references. Call Ken Bilski, ext. 6001.

Bedroom set: Twin beds, dresser, mirror, nightstand. Contemporary, butterscotch color. \$220. 325-1230 after 5 p.m.

Ushers/door men and women. Symphony, ballet, and rock. Pacific Performance Art Center. Call: Ethel Squires, 241-1007.

The Astrogram

Admin. Mgt. Building, Phone 965-5422

The Astrogram is an official publication of the Ames Research Center, National Aeronautics and Space Administration, Moffett Field, California, and is published bi-weekly in the interest of Ames employees.

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Associate Editor Marcia Kadota
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Moffett Field, California 94035

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Space Administration
NASA-451



The Astrogram

VOLUME XX NUMBER 17

June 15, 1978

New cataract removal instrument

NASA and the National Eye Institute (NEI), Bethesda, Md., have signed a cooperative agreement to conduct laboratory and clinical tests of a new surgical instrument for the removal of hard cataracts.

The new instrument was developed by Lewis Research Center in a project initiated jointly with a Cleveland ophthalmologist, Dr. William J. McGannon.

The NASA-NEI program involves refinement of surgical techniques with the cataract instrument and the design and implementation of clinical trials.

As part of the agreement, NASA and NEI also announced that interested companies may apply for a non-exclusive patent license to manufacture and market a key component of the new surgical instrument, a flow sensing pressure regulator which may be applicable to other types of eye surgery.

The full agreement underscores NEI's commitment to improve the quality of eye care through laboratory and clinical research and NASA's contributions to biomedical research under its Technology Utilization program.

The agreement calls for the clinical trials of the device to be carried out by the Eye Research Institute (ERI) of the Retina Foundation, Boston, which has been evaluating the instrument for the past three years. NEI will also select other eye research centers to participate in the clinical trials.

Some 400,000 Americans each year undergo cataract surgery. Worldwide, the incidence of cataracts runs into millions of cases.

A cataract is a condition in which the lens of the eye becomes cloudy or opaque, obstructing vision. The treatment is to remove the lens.

Most cataract surgery today is performed using a semi-circular incision in the margin between the cornea and the sclera (The tough outer covering of the eye) to provide access for removing the cataract. A technique in limited use employs ultrasonic equipment which makes possible removal of the lens through a small opening in the corneal margin provided that the nucleus of the lens is not too hard. The NASA instrument is aimed at allowing removal of the hardest cataracts through a small opening, leading to faster healing and recovery of vision.

The new NASA-developed cataract removal instrument consists of a surgical hand piece, a regulated flow system for infusion fluid and a peristaltic outflow pump with necessary controls.

Age-70 retirement ends

Mandatory Federal retirement at age 70 has been abolished.

After Sept. 30, Federal employees will no longer be required to retire at 70, in accordance with Public Law 95-256 of April 6.

Also repealed was the law requiring that individuals who have reached age 70 may be appointed to the competitive service only on a temporary basis, opening the way for permanent appointment.

Pioneer Venus detects gamma ray "burst"

Scientists have now confirmed that Pioneer Venus 1, on the first leg of its seven month voyage to orbit around Venus, detected an extremely powerful "burst" of gamma rays from somewhere in the universe.

So-called gamma ray bursts, unknown until 1973, have enormous energies and occur about once per month, seemingly from random points in our galaxy or even beyond. Discovering their origin - "black holes," brilliant supernovae, neutron stars or some totally unexpected source - represents one of astronomy's difficult tasks. Over the course of its 482 million km (300 million mi) mission, Pioneer Venus' measurements of these puzzling bursts should enable scientists for the first time to accurately track down their origins.

Designed to orbit Venus to study its weather processes, the Pioneer Venus Orbiter spacecraft (Pioneer Venus 1) carries six interplanetary instruments, including a 2.8 kg (6.4 lb) gamma ray burst detector. The instrument's twin sodium iodide detectors sensed a "classical" two second pulse of these very high energy photons just 33 hours after lift-off and 585,000 km (351,000 mi) from Earth.

Both Pioneer Venus 1 and its companion Pioneer Venus 2, a multiprobe spacecraft to be launched in August, are managed by Ames. Both will arrive at the cloud-shrouded planet in early December.

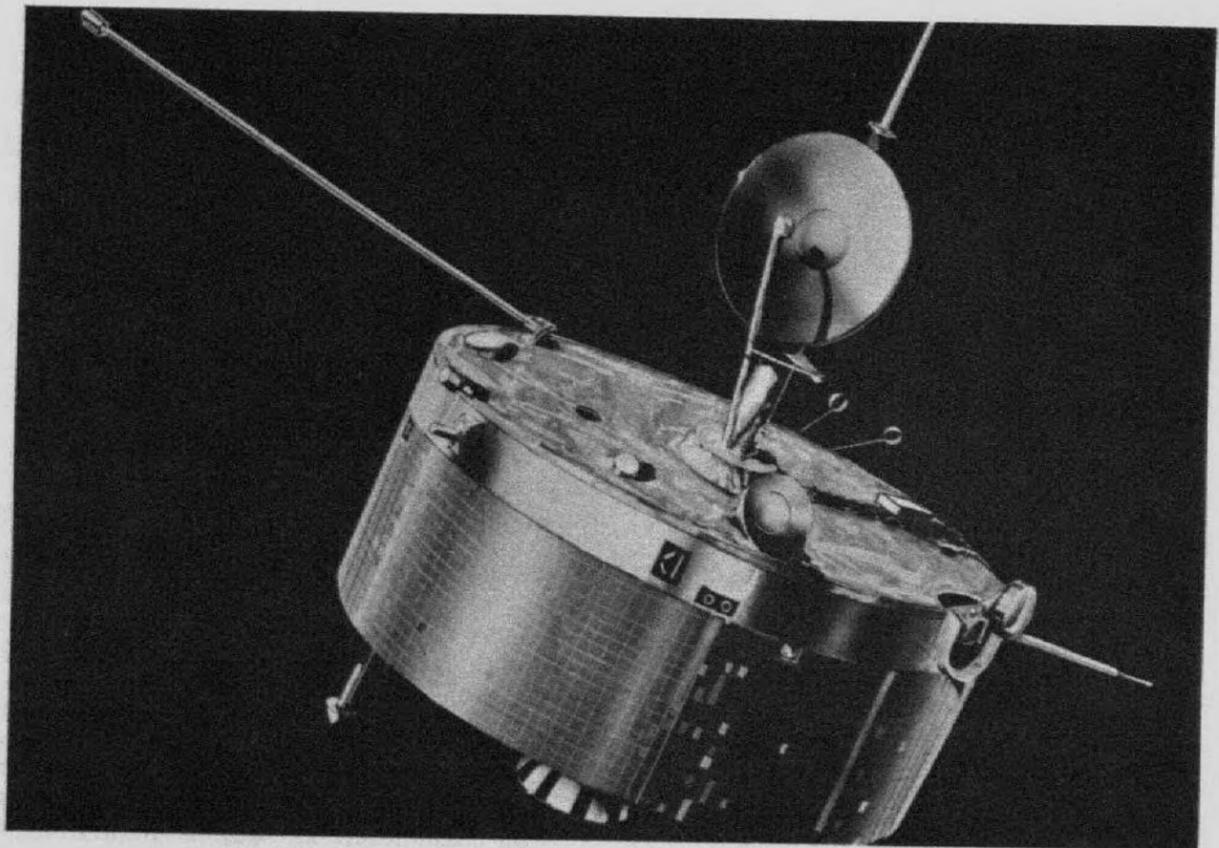
Two other American spacecraft also detected the gamma ray blast - VELA, a Department of Energy satellite circling the Earth and HELIOS B, a NASA-European scientific satellite orbiting the Sun. Scien-

tists will correlate the observations of the Venus Orbiter with these satellites' data to obtain a rough "fix" on the burst. As Pioneer Venus 1 speeds toward Venus, away from Earth satellites, such "triangulation" techniques will pinpoint the origin of gamma ray bursts with ever-increasing accuracy.

Ideally, measurements of the gamma ray sources will be made with an accuracy of less than one minute of arc, precise enough for an attempt at identifying the source with powerful optical or radio telescopes on Earth. By locating the origin of the bursts (probably within our own galaxy), scientists hope to deduce what extraordinary physical events produce these enormously high energy explosions. None of the theories proposed in the past few years satisfactorily accounts for the gamma ray bursts.

One popular theory suggests the existence of binary star systems involving a star like the Sun and an extremely dense entity such as a "black hole," so termed because not even light can escape its incredibly strong gravity field. "Bursts" occur when chunks of stellar material flowing from the star fall into the black hole. This event ignites thermonuclear explosions much like hydrogen bomb blasts and gives off high energy gamma rays which streak across the universe at the speed of light. The leading candidate for such a system is Cygnus X-1 in our galaxy.

Other contending theories propose comets colliding with dense neutron stars or gigantic outbursts from brilliant supernovae as causes of gamma ray bursts.



First Spacelab science crew selected

Two Americans have been named by NASA as part of an international group of five scientists who will serve as payload specialists during the first Spacelab mission scheduled for the latter part of 1980.

One American and one European eventually will be selected to fly aboard the Earth-orbiting space laboratory and operate the science instruments.

The American payload specialists were nominated and selected by the Investigators Working Group (IWG), which is composed of scientists representing all investigators.

U.S. scientists selected were:

- Dr. Michael L. Lampton, 37, of Berkeley, a space physicist at the University of California, Berkeley; and
- Byron K. Lichtenberg, 30 of Natick, Mass., a vestibular researcher at the Massachusetts Institute of Technology.

Dr. Lampton is a member of the Research Staff at the Space Sciences Laboratory, University of California at Berkeley. His main fields of research include X-ray astronomy, UV astronomy, space physics and optical and electronics engineering.

Byron Lichtenberg is currently working on his Ph.D. at MIT. He is also actively involved in an experiment which is to be flown on Spacelab 1.

Between 1969 and 1973, Lichtenberg served in the U.S. Air Force. He received two distinguished flying crosses during his tour of duty in Vietnam. At the present time, he is a fighter pilot in the Massachusetts Air National Guard flying F-100 Super Sabres.

Payload specialists are new to the space program. Their responsibilities will be to perform experiments in space aboard NASA's Space Shuttle, which will carry Spacelab into Earth orbit. Payload specialists are not pilots.

The three payload specialists who are not chosen to fly in space will act as backup specialists, participating in ground-based mission activities at Johnson Space Center during the flight. This choice will be made some months before the flight.

The American payload specialists named this week were selected from a list of six finalists, identified late last year after screening programs were conducted. The European scientists, announced last week, were selected by the European Space Agency

(ESA) from among thousands of applicants in its member states after parallel screening programs were conducted in Europe.

The first Spacelab will be launched aboard the Shuttle from NASA's Kennedy Space Center in Florida. It will orbit the Earth at an Altitude of 250 kilometers (155 miles). At the end of the seven-day mission, the Shuttle will return for a runway-type landing at the Kennedy Center, be serviced and readied for other missions.

On the Spacelab 1 mission, investigations will be conducted in stratospheric and upper atmospheric physics, materials processing, space plasma physics, life sciences, astronomy, solar physics, Earth observations and space technology.

Upcoming calendar of events

The Security Branch has established a visits coordination office for the Center. Among other things a master calendar will be maintained and part of this information will be published on a separate sheet in the Astrogram entitled "Calendar of Events."

It is planned to be included in the June 29, 1978 issue. The idea is to show on one page the next three weeks of Center activities. Activities shown will include seminars, weekend activities, and any event to which the public could be invited. The separate page will lend itself to display on bulletin boards and is back printed with a frank allowing it to be mailed out.

For the visits coordination office to fulfill its tasks, all resident persons are requested to provide information of all known activities for inclusion on the master calendar. The "Calendar of Events" will be extracted from the master calendar. The visits coordination office mail stop is 253-1 and the extension is 5546.

Cruise offered

The California Museum Foundation, in cooperation with NASA, is presenting an eight-day Mardi Gras Caribbean Cruise from July 30 to August 6 in conjunction with the Pioneer Venus Launching on August 7.

The tour will include four more days at Walt Disney World at \$799 (total) per person. For more information call the Ames Educational Programs office, ext. 5543.

Jet ejector workshop at Ames

There will be a 2-day meeting on Thrust Augmenting Ejectors at Ames, in the Main Auditorium on June 28-29, 1978. This workshop is being jointly sponsored by NASA-Ames Research Center, the Air Force Flight Dynamics Laboratory and the Naval Air Development Center. The purpose of the meeting is dissemination of progress to date and to point the desired direction of future studies in all aspects of Ejector Thrust Augmentation systems. There will be a panel discussion following the paper presentations to discuss the present status and the areas of emphasis for future study. The two Ames coordinators are Armando Lopez and David Koenig.

Sheldon Smith EEO counselor



Sheldon Smith of the Astrophysical Experiments Branch, Code SSA, has been appointed as Ames EEO Counselor for Class Complaints by Ames Director, C. A. Syvertson. His extension is 6136, and he is located in Building N-245, Room 139.

Sheldon will counsel employees or applicants only on allegations of discrimination against classes of people, not against individuals. A class is defined as a group of current or former employees or applicants who feel they have been hurt by an agency policy that discriminates against them on the basis of race, color, religion, sex, national origin, age, physical or mental handicap they have in common. An employee or applicant who wants to represent a class must contact the class counselor within 90 days after the alleged discriminatory act. The class counselor has 30 days to try to resolve the problem informally. If at the end of that time the problem has not been resolved to the satisfaction of

the complainant, he/she may file a formal complaint within 15 days of the final interview with the counselor. For an explanation of the formal procedures for processing class discrimination complaints, see Ames Management Manual 3713-2.

Employees with individual complaints of discrimination should contact the EEO counselors whose photographs appear on posters on all official Ames bulletin boards.

Palmer Dyal honored

Palmer Dyal, a 1955 cum laude graduate of Coe College, has recently received an honorary Doctor of Science degree.

Dyal received a Ph.D. in Chemistry and Physics from the University of Illinois in 1959.

A member of a NASA-Ames Research Center research team, he has been engaged in research about particles and magnetic fields, high altitude nuclear bursts, and magnetism of the moon.

Dyal was responsible for developing magnetometers for the Apollo moon missions and he has authored or co-authored more than 50 scientific publications.

He has received the Air Force Systems Command Award for Scientific Achievement for experiments resulting in a new understanding of nuclear explosions above the atmosphere. He also has received the NASA Medal for Exceptional Scientific Achievement for his experiments in the Apollo program leading to a deeper understanding of the moon's magnetism.

He is currently Branch Chief of the Astrophysical Experiments Branch in the Space Science Division.

Energy 2020 series

A timely series of seminars — ENERGY 2020 — is to be held at Ames during the summer months. Various sponsoring organizations, including San Jose State University/Department of Continuing Education, The National Science Foundation, and The San Francisco Foundation, have assembled an impressive list of speakers and topics to address important issues confronting the nation in the energy field. Each seminar at Ames, complementing a general-level lecture to be given later in the day in San Jose, will consist of a technical-level presentation followed by an ample period for audience-speaker discussion of the ENERGY 2020 topic. The seminars will be given on Tuesdays in the N201 (Main) Auditorium, commencing at 3:30 p.m. All Ames employees are invited to participate. Speakers and topics will be:

27 June

AN ENERGY POLICY: WHO NEEDS IT?

William Arntz, Regional Administrator, U. S. Dept. of Energy with Tom McCall, former two-term Governor of Oregon

Will Congress approve an energy policy and what might be the nature of the policy? What are the alternatives if we end with "no energy policy?" These and other questions related to our national energy policy will be considered in this presentation.

11 July

THE GENIE IS OUT

Robert Budnitz, Head, Energy and Environment Division, Lawrence Berkeley Laboratories

The wrenching arguments over nuclear power sometimes obscure a basic reality: the nuclear genie is out of the bottle and is not likely to go back in. The United States will have many more reactors by the end of the century — 68 are operating now — which leads to some crucial practical questions. What institutions control nuclear power? Are they working? Is the public interest served?

18 July

IS CHEAP WHAT WE WANT?

Walter Mead, Professor of Economics, University of California/Santa Barbara

Is low cost energy really what we need, or are we better off with the conservation that follows automatically from high energy prices? Some basic economic principles may show us how to save energy without elaborate, artificial and unworkable tangles of government taxes, subsidies, price controls, quotas, and jawbone politics.

25 July

DOING BETTER, NOT WITHOUT

Lee Schipper, Energy and Environment Division, Lawrence Berkeley Laboratories

Conservation does not mean crippling the economy, or returning to a more primitive and less comfortable lifestyle. It means efficiency — warm homes, for example, that no longer consume 20% of the nation's energy budget. There are ways to get more from life using less energy per person.

1 August

SUNPOWER AND EARTHPOWER

Allen Hammond, Editor, Research News, Science Magazine

The Sun and Earth are democratic and, there is energy in each. The Sun's rays bring energy to us directly, and that energy can also be tapped indirectly from wind, growing plants, falling water, and the ocean's heat. Steam from within the Earth's crust carries energy stored since the planet was born. Technology is rapidly making it practical to tap the spheres above us and below us.

8 August

LOCAL IS BEAUTIFUL

David Morris, Director, Institute for Local Self-Reliance

15 August

WHOSE FINGER ON THE SWITCH?

Earl Cook, Dean of Geosciences, Texas A & M University

Menu

June 20, 1978 through June 26, 1978
A LA CARTE MENU

TUESDAY

Roast Veal and Dressing
Pork Fried Rice or Omelette
Choice of One: Whipped or Lyonnaise Potatoes,
Green Peas, Carrots or Salad
Soup: Cream of Corn

WEDNESDAY

Home Style Meat Loaf
Diced Bar-B-Que Turkey over Rice or Omelette
Choice of One: Mashed or Au Gratin Potatoes,
Savory Beans, Buttered Beets or Salad
Soup: Beef Barley

THURSDAY

Beef Stroganoff over Rice
Baked Corned Beef Hash with Poached Egg or
Omelette
Choice of One: Whipped or Boiled Potatoes,
Green Peas, Carrots or Salad
Soup: Chicken Okra

FRIDAY

Braised Sirloin Tips over Noodles
Baked Beans and Knockwurst or Omelette
Choice of One: Whipped or Scalloped Potatoes,
Cauliflower, Spinach Au Gratin or Salad
Soup: Boston Clam Chowder or Borscht

MONDAY

Breaded Veal Steak with Tomato Sauce
Pizza Sandwich with Salad or Omelette
Choice of One: Whipped or Country Fried
Potatoes, Buttered Green Beans, Corn or Salad
Soup: Old Fashioned Navy Bean

June 27, 1978 through July 3, 1978
A LA CARTE MENU

TUESDAY

John Quincy Adams Creamy Horse Radish Ham
Roll
Baked Stuffed Potato with Cheese and Meat or
Omelette
Choice of One: Whipped or Au Gratin Potatoes,
Green Peas, Buttered Baby Limas or Salad
Soup: Cream of Celery

WEDNESDAY

Ben Franklin Sauerbraten and Potato Pancake
Spaghetti and Meat Balls or Omelette
Choice of One: Snowflaked Potatoes, Rice Pilaf,
Golden Hominy, Savory Green Beans or Salad
Soup: Beef Vegetable and Noodles

THURSDAY

Swiss Steak and Vegetables
Chili Burger and Rice or Omelette
Choice of One: Rissolle or Whipped Potatoes, Zuc-
chini with Scallions, Beans or Salad
Soup: Minestrone

FRIDAY

Andy Jackson Crisp Oven Fried Chicken
Shrimp Chow Mein or Omelette
Choice of One: Whipped Potatoes, Rice Pilaf,
Green Peas, Buttered Beets or Salad
Soup: Boston Clam Chowder

MONDAY

Booker T. Washington Baked Pork Chop and
Apple Sauce
John Paul Jones Shrimp Florentine or Omelette
Choice of One: Mashed Potatoes, Candied Yams,
Green Beans, Corn O'Brien or Salad
Soup: Old Fashioned Navy Bean

AVRADCOM awards



Dr. Richard M. Carlson, Director, RTL, presented awards to three employees during special ceremonies held recently at Headquarters, U.S. Army Research and Technology Laboratories AVRADCOM, Ames Research Center.

Pictured above are, left to right, Dr. Carlson; George K. Merchant, Chief, Policy, Plans and Programs Office, received an Outstanding Performance Rating and a Sustained Superior Performance certificate which included a check for \$350; Dr. Richard S. Dunn, Engineering Psychologist, Advanced Systems Research Office, received a certificate and pin for completing 10 years Federal Service, and Calvin Q. Lee, Program Analyst, Plans, Programs and Budget, received an Outstanding Performance rating and a Quality Step Increase.

Ames Promotion Plan vacancies

Notice No.	Title	Grade	Org.	Area of Consideration	Closing Date
78-108	Supv. Aerospace Engineer (NTE 1 yr)	GS-14/15	FAE	Centerwide	Extended to 7/7/78
78-113	Supervisory Aerospace Engineer, Assistant Chief Biosystems Division	GS-14/15	LB	NASA and outside	7/10/78
78-115	Aerospace Engineer	GS-12/13	LB	Centerwide and outside	6/21/78
78-117	Technical or Staff Assistant	GS-7/9/11/12		Centerwide	6/20/78 (Amendment)
78-122	Aerospace Engineer AST, Fluid & Flight Mechanics	GS-12/13	FSA	NASA and outside	7/7/78
78-123	Aerospace Engineer AST, Fluid & Flight Mechanics	GS-12/13	FSA	NASA and outside	7/7/78
78-124	Supv. Aerospace Eng.	GS-14/15	FAR	NASA and outside	7/7/78
78-125	Secretary (Typing)	GS-4/5	FOS	Centerwide and outside	6/30/78

TO APPLY: Complete ARC 59 and submit to Mail Stop 241-6.

MERIT PROMOTION PLAN SELECTIONS

Notice No.	Title	Org.	Name
78-24	Aerospace Engineer	FHI	Haff, Stephen
78-66	Administrative Specialist (STEP)	AT	Margaretta Rosamond
78-68	Aerospace Engineer	FSV	Cancelled
78-84	Contract Specialist	ASF	Lena London (outside candidate)
78-89	Physical Science Technician	SSA	Albert Harris (outside applicant)
78-90	Modelmaker (Metal) Foreman	RSS	Glen DeWitt

Want ads Transportation

For Sale: Complete motorcycle package; '75 XL 100, '73 TL 125, 2-bike trailer, helmets, all like new, \$1500 firm. 244-1132.

For Sale: 1971 Toyota Mark II Wagon, 71 K mi., auto, radials, good mechanical condition, \$1200. Call 264-8473 after 6 p.m.

For Sale: 1971 Datsun pickup, 1600 cc engine, economical, runs good, \$1050. Call after 5 p.m. 245-8325.

For Sale: 1973 Vega GT, 4-speed, good condition, 60 K miles, \$1,250 or best offer. Call. 226-7940.

For Sale: 1967 VW Bug, 1 owner, 63,000 miles. Call 736-6947 evenings.

For Sale: 1974 Audi/Fox, 2-door sedan, 4-speed, air conditioning, AM/FM radio, low miles, good body. Overall condition: Excellent! Call 733-2079 after 5:00 p.m.

For Sale: 1970 Triumph GT6+ overdrive, good wires, tires and interior, racing green, runs good, \$1900 w/o paint, \$2100 w/new lacquer. Call 744-0849.

For Sale: 1963 Cadillac, 4 door, body-fair, everything works, low miles, good tires. Call 733-2079.

For Sale: 1967 Corvette convertible, 300 HP, 327 cu. in., one owner, very good condition, 80 K miles, best offer, must sell. 946-0451.

For Sale: 1967 VW Squareback, good condition. Call 327-2428 after 6:00 p.m.

For Sale: 1972 Super Beetle, 87 k actual miles with new (brakes, shocks front and rear, and radial tires) and other extras for \$1700, one owner. Call 965-5651.

Housing

U.C. Davis women students, comfortable, furnished, air conditioned residence near campus. Call (408)255-9036.

House for Sale: Quiet Milpitas location next to golf course, 3 bdrm, 1 1/2 bath, excellent view of hills, Many extras \$68,950. 946-0451.

For Sale: 3 bdrm, 2 bath, formal dining room, family kitchen, Cul-De-Sac, Cupertino School District, Sunnyvale location, Ideal commute, \$82,500, Fox & Carskadon Realtors, Los Altos, 948-8050. Call 736-9245.

Wanted: Male or female roommate interested in locating and sharing a small rented house near Ames with a male bio-medical engineer type who is tired of apartments. Call 968-4898.

Home for Sale: San Jose East Foothills, by original owner, well-kept 3 bedroom home, ample kitchen, large backyard, \$47,000. 253-7945.

For Rent: Neat condo, near new, 2 bdrm, near Bethel Island on California Delta, all water sports, fishing, etc., with covered boat slip to 25', sleeps 8, pool, sauna too. Reasonable, day, week, or month. Call (408)356-6849.

Miscellaneous

For Sale: Singer 600 touch and sew, In Queen Anne cab., sews straight, zig-zag, with extra attach. and cams, \$75. 263-8851.

For Sale: Organ, Gulbransen, 1 octave of pedals, earphones, \$800. 248-6281 evenings.

For Sale: Propane tank, 45 gal, \$100, Impco carb. and converter for converting car or truck to propane, \$75, or both items for \$150. Call 245-9542.

Temporary sitter wanted for 10 year old girl during July and August, from 8:00 until 4:30, prefer home near Moffett to leave her in mornings or my apartment, Vicinte and Bernardo. Call 961-4682 after 5.

Wanted: Used canoe either aluminum or fiberglass. Call 941-5287 after 6 p.m.

Anyone interested in bowling in a winter league at the new Milpitas Bowling lanes please contact Betty Hemphill, Ext. 5630.

For Sale: Kenmore washer, 2 speed, 5 cycles, 6 yrs. old, good condition, \$45.00. 378-3143.

For Sale: Philco air conditioner, 110 volts, 8.5 K Btu, good condition, \$75.00. 378-3143.

For Sale: Depth finder, dual range, 0-60 feet and 0-120 feet, good condition, cost \$139.00, selling for \$50.00. Call 245-8325.

Transportation needed: From Campbell area - San Thomas Expressway and Budd Avenue, working hours: 8 a.m. to 4:30 p.m. 379-5074.

Swimming Lessons: Experienced instructor, junior in college, \$3.00 per half hour private lesson, Los Altos. 967-6850.

For Rent: Spanish style house, 4 bedroom, 3 bath, 2 story, rent from mid-August 1978 through mid-August 1979, large yard (some yard work required), 2 patios, barbeque pit, double garage, fruit trees, fully furnished, quiet street, near San Jose State (walking distance), children welcome, bikes, toys available, pets negotiable, approximately \$550 per month (negotiable). Call 294-8670.

House for Sale: Quiet Santa Clara location, 4-bdrm, 2-bth, recently remodeled kitchen, tile counters and custom cabinets, utility room, new w/w carpet, wall-paper, water softener and other extras, \$95,000. Call 248-3900 after 5 p.m.

Apartment for Rent: Corner of Moffett and Middlefield, 1 bdrm in large complex /w pool completely furnished (including dishes) \$265/mo, single person or couple, no pets or kids, no sublets, available 6-16 to 9-12. Call 965-9715.

The Astrogram

Admin. Mgt. Building, Phone 965-5422

The Astrogram is an official publication of the Ames Research Center, National Aeronautics and Space Administration, Moffett Field, California, and is published bi-weekly in the interest of Ames employees.

Editor Meredith Moore
Associate Editor Marcia Kadota
Reporters NASA Employees

Deadline for contributions: Thursday between publication dates

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Space Administration
Ames Research Center
Moffett Field, California 94035

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The Astrogram

VOLUME XX NUMBER 18

June 29, 1978

Key mechanism in origin of life apparently found

Scientists working for NASA apparently have discovered a way to account for the formation on Earth about four billion years ago of nucleic acids, one of the two most essential components of life.

The discovery supplements recent work in which the same investigators discovered a mechanism to explain the formation of the other critical component of life, protein.

Taken together, the findings provide an answer to a vital question that for years has puzzled theorists on the chemical evolution of life on our planet.

Basically, the mystery has been: How could the building blocks of life — randomly scattered on the shores of primitive oceans — be continuously collected and organized over millions of years in high enough concentrations to produce living organisms?

The scientific team which conducted the investigations at Ames consisted of Dr. James Lawless, team leader, of ARC; Dr. Edward Edelson, a National Research Council Associates, and Lewis Manring, a student at the University of Santa Clara.

The newly-found mechanism involves substances which would have been common on the shores of Earth's primitive bodies of water — metal-clays. When low-concentration solutions of DNA-forming nucleotides were mixed with commonplace metal-clays, Dr. Lawless's team found that most clays attracted them. The very long DNA nucleic acid chain in every living cell contains a blueprint of the entire organism.

Furthermore, one type of metal clay, containing zinc, preferentially attracts all six of the building

blocks of DNA and RNA (nucleotides). Especially significant is the fact that zinc-clay attracted 97 percent of nucleotide 5-prime-adenosine monophosphate (AMP). AMP is the most common DNA building block in living systems. Further, AMP with slight modification becomes ATP, the basic energy molecule, present in every life form.

The role of zinc-clay is especially interesting because zinc plays an important role in the enzyme, DNA polymerase, which performs the task of linking DNA building blocks (nucleotides) in living cells to make DNA chains. Enzymes are super-catalysts, which drastically speed up many life processes.

The group did another experiment. The most common DNA nucleotide, 5-prime-adenosine monophosphate (AMP), is composed of three chemical units — a sugar, a purine base and a phosphate group. Three forms of the nucleotide are theoretically possible: a "2-prime" form, a "3-prime" form, and a "5-prime" form, the three differing only in the position of the sugar ring to which the phosphate group is attached. However, only one of these forms is found in living organisms, the "5-prime" form. Dr. Edelson reported that zinc-clay preferentially attracts the "5-prime" form over the "2-prime" and "3-prime" forms.

The work appears even more significant in light of earlier results from Dr. Lawless' group which showed that metal-clays could effectively concentrate amino acids, the building blocks of proteins, and could catalyze their reaction to form polypeptide chains, the basic structural units of

proteins. In addition, it was found that certain metal-clays could preferentially attract those amino acids found in the protein of living things today.

Most scientists accept the theory that life began by chemical evolution on the shores of primordial bodies of water. The theory says that various forms of energy such as lightning, heat and ultraviolet radiation converted the abundant carbon-containing methane, ammonia, and water of the primitive atmosphere into building blocks of life (organic molecules). These molecules, according to the story, then rained into primordial lakes and oceans and joined together into ever-more complex molecules until a molecule or group of molecules appeared which could replicate itself. This was the first living thing.

In recent years, many scientists have performed a large number of chemical evolution experiments. These have produced most of the basic life molecules (including amino acids and nucleotides) in small quantities, by applying electric discharges or other energy release to ammonia, methane, and water vapor. But until now, scientists have been unable to explain how the life-building blocks in the primordial waters were organized.

The group is doing further experiments to see if the zinc-clay preference for the "life-form" of this DNA building block applies to the five others. They are also trying to demonstrate the ability of clays to link up nucleotides into polynucleotides, the next step toward forming a DNA-like molecule.

ASEE Summer Seminars

The 15th Annual Stanford — NASA — ASEE Aerospace Technology Seminar series began last Wednesday, June 28, and will be presented every Wednesday at 8 p.m. at Stanford University's Skilling building in room 080 (auditorium) until August 9. The Astrogram will publish each of the upcoming seminars as the dates grow near. The next three are:

July 5

Edward Teller, Sr. Research Fellow, Hoover Institution, Stanford University; University Professor Emeritus, University of California; Consultant and Emeritus Associate Director, Lawrence Livermore Laboratory, University of California "Paradoxes in Energy".

July 12

Arthur L. Schawlow, J. G. Jackson- C. J. Wood, Professor of Physics, Stanford University, "Lasers — Yesterday, Today, and Tomorrow".

July 19

Geoffrey M. Lilley, Head, Department of Aeronautics and Astronautics, University of Southampton, England; Visiting Professor, Department of Aeronautics and Astronautics, Stanford University, "The Supersonic Transport — A Challenge in Aerodynamic Noise".

Gillam named Director of Dryden

Issac T. Gillam IV has just been named Director of the Dryden Flight Research Center. The announcement was made at Dryden by NASA Administrator Dr. Robert A. Frosch.

Gillam is the former Deputy Director of the Center and has served as Acting Director since November 1977. Prior to that, he was Director of Shuttle Operations at NASA Dryden.

Gillam first joined NASA in 1963 as a Resources Management Specialist. In 1966 he was appointed Assistant Program Manager for the Delta Launch Vehicle and in 1968 he became Delta Program Manager. In 1973 he was appointed Program Manager, Small Launch Vehicles and International Projects which included the Delta and Scout Launch vehicles and numerous international cooperative and reimbursable projects with the European Space Agency, Italy, France, Japan, Germany, etc.

Born on February 23, 1932 in Little Rock, Arkansas, Gillam graduated from Howard University, Washington, D.C. in 1953. Following graduation, he joined the U.S. Air Force and served as a pilot during the Korean Conflict. Gillam was also a missile launch commander for the Strategic Air Command and later an Assistant Professor of Air Science in the Air Force ROTC program at Tennessee State University where he pursued graduate studies.

Gillam is an Associate Fellow of the American Institute of Aeronautics and Astronautics, a Senior Member of the American Astronautical Society, a member of the Air Force Association, the National Defense Preparedness Association and the American Management Association.

Among numerous other awards, he has received NASA's highest award, the Distinguished Service Medal, for his work on the NASA Launch Vehicle Program.

"Spinoff '78"

The booklet "Spinoff '78" has recently been published by NASA's Technology Utilization Office. It has a list of current NASA programs and also describes in detail the secondary application of Aerospace technology into other sectors of the national economy and how it has helped to improve the quality of life for all Americans.

For additional information on items described in the book or information regarding NASA's technology transfer program please contact:

Mr. Ken Senstad
Public Affairs Officer
Mail Code LF-7
NASA Headquarters
Washington, D.C. 20546

Overlong details to higher graded position,

Supervisors are advised to review their responsibilities with regard to the detail of employees, the limitations on such details, and the conditions for accomplishing details of 30 days or more. For further information on this subject, refer to AMM 3307-1 in the Ames Management Manual.

In a published decision, the Comptroller General of the United States has determined that employees who have been detailed to established positions at a higher grade beyond 120 days without prior Civil Service Commission approval may qualify for retroactive temporary promotions and backpay. Such temporary promotions would normally be effective for the period encompassing the 121st day of the detail until completion of the detail. To qualify for such retroactive temporary promotions and backpay, employees must also meet the normal statutory and regulatory requirements for promotion, such as time in grade, qualification, and Commission approval requirements. The conditions in the published decision apply to former or retired employees, as well as current employees, but there is a 6 year time limit. By statute, the General Accounting Office only has authority to accept claims received in that office "within 6 years after the date such claim first accrued." If any part of the claim accrued more than 4 years ago GAO requests that it be submitted to the Claims Division, General Accounting Office, to stop the statute of limitations from running.

As an aid to employees in assessing their employment histories in deciding whether or not they have a valid claim for backpay, the following definitions and conditions apply:

- A detail is the temporary assignment of an employee to a different position within the same agency for a specified period, with the employee returning to regular duties at the end of the detail.
- For purposes of this decision, the position must be an established one, classified under an occupational standard to a grade or pay level.
- The detail to a higher grade position must have lasted more than 120 days, and must have been without the approval of the Civil Service Commission to extend the detail beyond 120 days. (One extension of up to 120 days may be approved by the Commission - which would disqualify a claim for backpay. However, details lasting longer than a Commission approved extension will qualify under the backpay decision providing all other conditions are met.)
- While claims may be based on details to higher graded positions, claims may *not* be based on classification actions upgrading positions.
- The employee must satisfy statutory and regulatory requirements for promotion, such as Whitten Amendment, minimum qualification standards for competitive positions, and prior Commission approval for positions above GS-15. For example, the Whitten Amendment generally requires an employee to serve at least 1 year in the next lower grade before promotion in a General Schedule position.
- Backpay claims are limited to 6 years after the date such claim first accrued.

At Ames, many employees are appointed to serve on ad hoc committees or projects which may have a duration of several months or years. These appointments typically involve duties comparable to their regularly assigned duties, but are directed toward specific goals or objectives which are broader in scope than their primary position assignment, or broader than the function of their assigned branch and division organization. For the most part, these appointments do not meet the definition of a detail, are not officially classified positions and consequently would not qualify under the conditions of the Comptroller General's decision for backpay.

Depending on the conditions present in a particular case, an employee may file a backpay claim with either Ames or the General Accounting Office. Claims should be filed with the GAO when:

- (a) Any part of the claim accrued more than 4 years ago; or
- (b) the detail continued beyond a Commission approved extension; or
- (c) a claim has been denied by the Ames Personnel Officer.

Claims should be filed as follows:

1. *Filed With Ames* - Claims must be submitted in writing, over the signature and address of the employee (or the employee's authorized agent), addressed to the Personnel Officer, and should include:

- a. Citation of Comptroller General Decision B-183086, March 23, 1977, as basis for the backpay request;
- b. starting and ending dates of the detail;
- c. title, series, grade, and organizational location of the position to which detailed; and
- d. supporting information in the employee's possession to show the detail occurred.

2. *Filed with GAO* - The same as above, but addressed to the Claims Division, General Accounting Office, Washington, D.C. 20548. Copies of claims submitted to the GAO should concurrently be submitted to the Ames Personnel Officer to facilitate development of an administration report for GAO, or to effect the payment by Ames.

Questions regarding the interpretation of the Commission's detail or backpay regulations and instructions should be directed to John Arcolino at extension 5601. He will also provide guidance in collecting the required documentation and in filing claims.

SAFETY CORNER: First aid procedures for "superglue" bonds

First aid information for skin bonded by the new "superglues" is of importance and has been provided by Loctite Corporation, producer of several of these new cyanoacrylate adhesives. According to the company, surgery should never be necessary to separate accidentally bonded skin if simple first aid procedures are used.

For skin bonds: do not try to pull the surfaces apart with a direct opposing action. Immerse the surfaces in warm, soapy water. Peel or roll the surfaces apart by using a blunt edge such as a spoon handle. Wash the adhesive off the skin with soap and water.

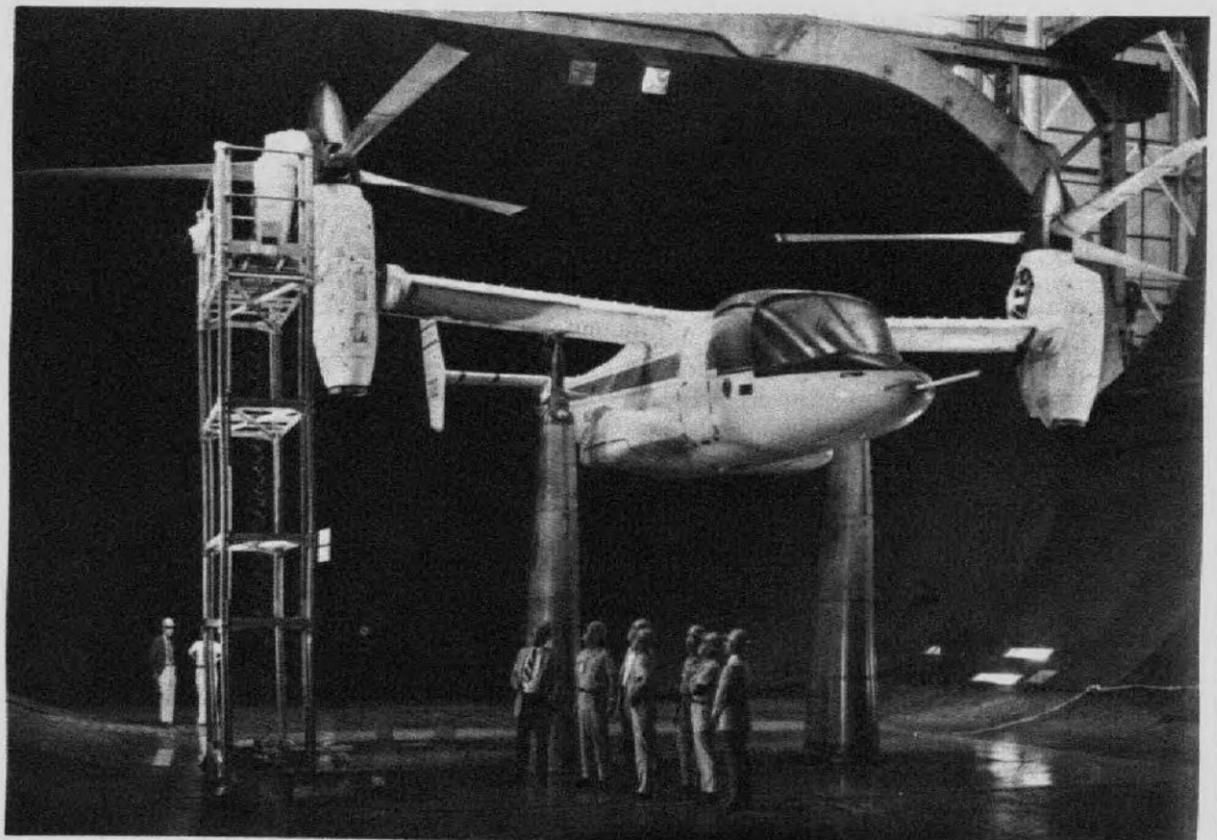
Eyelid to eyelid or eyeball bonds: do not try to open the eyes by manipulation. If eyelids are stuck together or bonded to the eyeball, wash thoroughly with warm water and apply a gauze patch. See an eye doctor.

Mouth: if lips are accidentally stuck together, apply a stream of warm water to the lips and encourage maximum wetting and pressure from saliva inside the mouth. Peel or roll the lips apart gently; do not try to pull with a direct opposing action.

It is almost impossible to swallow cyanoacrylate. The adhesive solidifies and adheres to the mouth. Saliva will lift the adhesive in one-half to two days. If a lump forms in the mouth, position the patient to prevent ingestion of the lump when it detaches.

Burns: Cyanoacrylates give off heat on solidification. In rare cases a large drop may cause a burn. Burns should be treated normally after the lump of cyanoacrylate is released from the tissue.

Col. Dasch and Col. Calcaterra visits Ames



Colonel William E. Dasch, Deputy Commander, U.S. Army Aviation R&D Command, AVRADCOM, and Colonel Kenneth Calcaterra, Director for Procurement and Production, AVRADCOM, visited the Army Research & Technology Laboratories at Ames to inspect the XV-15 Tilt Rotor Research Aircraft undergoing tests in the Ames 40 by 80 wind tunnel.

Left to right are Dr. Richard M. Carlson, Director, Army Research & Technology Labs RTL AVRADCOM; Colonel Dasch; Mark W. Kelly, Chief, 40 by 80 wind tunnel; Colonel Calcaterra; Lt. Colonel James H. Brown, Jr., Army XV-15 Program Manager, Aeromechanics Lab; Colonel John B. Fitch, Deputy Director, RTL AVRADCOM, and Dr. Irving C. Statler, Director, Aeromechanics Laboratory, RTL AVRADCOM.

NASA/Ames Research Center CALENDAR OF EVENTS

(POST ON BULLETIN BOARD OR MAIL TO INTERESTED PERSONS)

PREPARED BY:
VISITS COORDINATOR
965-5546 M.S. 253-1

<p>JULY 3 Please notify the visits coordination office of all center activities. Mail Stop 253-1, Ext. 5546</p>	<p>JULY 4 Holiday</p>	<p>JULY 5 Space Sci Div/Astrophysics Seminar Series Speaker: Professor H. Okuda Department of Physics Faculty of Science Kyoto University Kyoto, Japan Topic: "Stars and Dust in the Inner Region of the Galaxy" Time: 10:30 a.m. Location: N-245 Auditorium</p>	<p>JULY 6 Reminder - Return all visitor badges to receptionist at Mail Stop 253-1</p>	<p>JULY 7 Reminder - A visit information sheet (ARC 127) is required for the following categories: 1) Meetings of 6 or more visitors 2) Informal seminars 3) Classified visits 4) Non-PAO conducted tours 5) Foreign national and foreign representatives 6) Wind tunnel tests</p>
<p>JULY 10 Focal-plane instruments requirements and science team (first) meeting Time: 9:00 a. m. Dates: July 10 and July 11th Location: N-245 Auditorium Sponsor: Fred C. Witteborn Ext. 5520</p>	<p>JULY 11 (First) Meeting - Same as July 10 Space Sci Div/Atmospheric Sci Seminar Series Speaker: Dr. B. Shizgal Time: 3:00 p.m. Location: N-245, Rm 131 Energy 2020 Seminar Speaker: Robert Budnitz Topic: The Genie is Out Time: 3:30 p.m. Location: N-201 Main Auditorium</p>	<p>JULY 12 Reminder - Report all missing property to the Security Office, Ext. 5587 as soon as possible.</p>	<p>JULY 13 Reminder - Please complete directory change notice (ARC 156) whenever necessary.</p>	<p>JULY 14 Happy Hour: Entertainment by the "Satin Dolls" Time: 4:30 - 6:30 Place: N-235 Ames Cafeteria</p>
<p>JULY 17 Reminder - Accidents involving privately owned automobiles have been deemed excessive by safety and security offices. Please comply with traffic regulations.</p>	<p>JULY 18 Energy 2020 Seminar Speaker: Walter Mead Professor of Economics University of California/ Santa Barbara Topic: Is Cheap What We Want? Time: 3:30 p.m. Location: N-201 Main Auditorium</p>	<p>JULY 19 Reminder - Small high-value items are still being picked up by uniform security support service personnel. Be aware that unsecured items of this nature will be removed to the security office.</p>	<p>JULY 20 Reminder - Lock your safe!</p>	<p>JULY 21 In order for the visits coordination office to fulfill its tasks, all resident personnel are requested to provide information of all known activities for inclusion on the master calendar. This "Calendar of Events" will be extracted from the Master Calendar.</p>

WEEKEND ACTIVITIES:

ARA STORE HOURS: 12:00 - 12:45 TUESDAY & THURSDAY
LOCATED IN N-235 AMES CAFETERIA
NASA-AMES TOUR OFFICE - 965-6497

AMES RESEARCH CENTER
 July 4, 1978 thru July 10, 1978
 A LA CARTE MENU

TUESDAY	HOLIDAY		
WEDNESDAY	Roast Pork and Glazed Apples.....	1.35	
	Picadinho Copacabana (Meat filled Crepes) or Omelette.....	1.20	
	Choice of One: Whipped or Au Gratin Potatoes, Broccoli, Harvard Beets or Salad		
	Soup - Cream of Potato with Chives.....	.30 & .45	
THURSDAY	Boiled Beef over Noodles.....	1.35	
	Polonaise Burger or Omelette.....	1.20	
	Choice of One: Snowflaked or O'Brien Potatoes, Cauliflower, Spinach or Salad		
	Soup - French Onion and Croutons or Cream of Celery.....	.30 & .45	
FRIDAY	Beef Steak Teriyaki over Rice.....	1.35	
	Baked Cod Fish with Hot Cheese Sauce or Omelette.....	1.20	
	Choice of One: Whipped Potatoes, Noodles, Spinach, Carrots or Salad		
	Soup - Sea Food Gumbo.....	.30 .45	
MONDAY	Roast Veal & Dressing with Cranberry Sauce.....	1.35	
	Venetain Pie or Omelette.....	1.20	
	Choice of One: Mashed or Lyonnaise Potatoes, Green Beans or Hominy a Salad		
	Soup - Fresh Vegetable		
DAILY SPECIALS	INCLUDES: A \$1.20 ENTREE, VEGETABLE OR POTATO, SALAD ROLL & BUTTER, AND A 25¢ BEVERAGE.....	1.65	
	(CHEF'S CHOICE) HOT SANDWICH AND LARGE BOWL OF SOUP.....	1.00	
	DAILY DIET SPECIAL		
	Chef's Choice.....	1.40	

	HOF BRAU MENU		
	(Sandwich with Choice of French Roll or Bread)		
DAILY	Rare Roast Beef, Pastrami, or Corned Beef.....	1.50	
TUESDAYS	Ham.....	1.50	
THURSDAYS	Turkey.....	1.50	
	Sausage Sandwich on French Roll.....	1.00	

	AN ASSORTMENT OF SALADS, INCLUDING SHRIMP LOUIE, \$1.50 AND CHEF'S SALAD, \$1.35, ARE AVAILABLE		

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Fastpitch softball

The Ames Fastpitch Softball team has garnered an 8-5 record in industrial league play this season and is in a battle for first place. The team members and positions are: Mike Green - Coach & 1B, Jim Myers - P; George Alger - CF; Mike Ospring - SS; Fred Peters - RF & 3B; Paul Soderman - R; John Fetter - R; Joe Shields - 2B; Dave Nardi - C; Bob Corbett - P; Randy Sturgeon - LF; Ray Firpo - C; Kevin Chargin - RF. The games are played at Hoover Park in San Jose on Tuesday nights and Ortega or Fair Oaks in Sunnyvale on Wednesdays. Everyone is welcome to come to the games - contact one of the players for game time.

ATTENTION!

Denticare Open Season

The Denticare plan that many Ames employees and contractors currently belong to is announcing its Open Season, from July 15 through August 18, 1978. There will be a meeting on July 13 at noon (12 to 1 p.m.) in Building 241, Room 237 for interested people.

Anyone enrolling on July 15 will be covered beginning August 1; enrollments turned in after July 15 will be covered September 1. Brochures may be picked up from Training and Special Programs Branch at anytime.

Home Life rep at Ames July 19

Home Life representative Norm Check will be at Ames on July 19 at 9 a.m. for those who have insurance questions. Please contact the Training Office, ext 5622, for an appointment and for the location.

Beer Barrels capture championship



The Beer Barrels have captured the All-Ames Basketball League championship for the sixth consecutive year. Back row: Frank Steinle - center, Mladen Chargin - center, John Fetter - forward, Larry Olson - forward. Front row: Pat White - guard, Paul Soderman - forward/coach, Mike Green - guard, (not shown) Jimmy Myers - guard.

NASA SPECIAL PUBLICATIONS

National
Aeronautics and
Space
Administration

The following NASA Special Publications are now on display in the Ames Main Library and the ARA Store. Following your review of these new releases, if you would like a retention copy for your files, return a completed NASA Special Publication Request Form, ARC 303, for each publication you desire to the Main Library, M/S 202-3, and a copy will be mailed to you. Please allow 2 weeks for processing and distribution of your request. Because the number of copies of NASA Special Publications available to the Center is limited, requests will be processed as they are received until the supply is exhausted and distribution will be limited to Ames Research Center Civil Service employees.

NASA SP-412 APOLLO-SOYUZ TEST PROJECT - Volume 1, Summary Science Report Prepared by NASA Lyndon B. Johnson Space Center

Scientific concepts and the design and operation of 28 experiments conducted during the Apollo-Soyuz space mission are discussed in this summary science report of the project. Undertaken jointly by the U.S. and U.S.S.R. in May 1972, the Apollo-Soyuz Test Project resulted in a highly successful 9-day flight in July 1975. Manned spacecraft of the two nations met in space and were docked for 2 days. The principal objective of the project was the development of a compatible docking system and rendezvous and crew transfer procedures; however, a science program designed by NASA to take advantage of the unusual mission and spacecraft capabilities, was also of major importance. The scientific experiments - related in general to astronomy, Earth's atmosphere and gravity field, life sciences, and materials processing - comprised 5 joint U.S.-U.S.S.R. studies and 23 experiments conducted unilaterally by Apollo crewmen. Each of the experiments is reported individually; included are results that reflect a year of postflight analysis.

NASA SP-7037 (94) AERONAUTICAL ENGINEERING - A Continuing Bibliography, Supplement 94 Prepared by the NASA Scientific and Technical Information Facility

Four hundred seven reports, journal articles, and other documents originally announced in February 1978 in *Scientific and Technical Aerospace Reports* (STAR) or in *International Aerospace Abstracts* (IAA) are listed in this ninety-fourth supplement to the continuing bibliography of aeronautical engineering. Subject matter includes engineering and theoretical aspects of design, construction, evaluation, testing, operation, and performance of aircraft and associated components, equipment, and systems. Research and development in aerodynamics, aeronautics, and ground equipment for aeronautical vehicles are included. IAA and STAR entries are listed separately; most include abstracts. Sources from which publications are available are noted in the bibliographic citations and addresses of source-organizations are listed. Three indexes - subject, personal author, and contract number - are provided.

NASA SP-4203 ON THE SHOULDERS OF TITANS - A History of Project Gemini By Barton C. Hacker and James M. Grimwood

The design, development, qualification testing, and operations of Project Gemini are described in this comprehensive history of the space program that succeeded Project Mercury and demonstrated space flight capabilities essential to the following Apollo flights to the Moon. The Gemini program was approved in 1961 and by 1963 development was complete. The first of two unmanned flights was made in 1964 and the first of 10 manned flights was made in March 1965. The last five Gemini flights were accompanied by launchings of rendezvous target vehicles. Gemini's accomplishments include: first rendezvous in space of spacecraft; first docking of a spacecraft and a propulsive stage; first traverse of man into Earth's radiation belts; first extended stays in space; first extended stays of man outside a spacecraft; and first controlled reentry and precision landing. Included in this history of the project are a glossary of terms, a summary of flight data, flight assignments, cost data, and a description of the tracking network. Amply illustrated, including a selection of Gemini photographs (color).



Ames Promotion Plan vacancies

Notice No.	Title	Grade	Org.	Area of Consideration	Closing Date
78-113	Supervisory Aerospace Engineer, Assistant Division Chief	GS-14/15	LB	NASA-wide and Outside	7-10-78
78-126	Secretary (Stenography)	GS-4/5	LM	Centerwide and Outside	7-7-78
78-127	Secretary (Typing)	GS-4/5	FLS	Centerwide and Outside	7-19-78
78-128	Accounting Technician	GS-4/5	AFC	Centerwide and Outside	7-14-78
78-129	Supervisory Progressman	WN-7	RSP	Centerwide	7-24-78
78-130	Secretary (Typing) or Secretary (Steno)	GS-5/6	F	Centerwide and Army	7-14-78

TO APPLY: Complete ARC 59 and submit to Mail Stop 241-6.

MERIT PROMOTION PLAN SELECTIONS

78-73	Research Aircraft Inspector	FOI	Cancelled
78-82	Supervisory Electronics Engineer	RKD	James P. Hart
78-83	Contract Specialist	ASR	Rosemary Buchanan Roberta Pittman
78-85	Supervisory Mathematician	RKG	William P. Jones
78-102	Procurement Clerk (Typing)	ASP	Jerri Weathersbee
78-104	Administrative Support Clerk	D	Roxanna Woodworth Diane Kimball

Want ads Transportation

For sale: Camper, '74, 10½ ft., Vacationer, air-conditioned, gas or electric. Ref. 4-burner stove with oven, hot water heater, shower, self-contained toilet, gray water holding tank, jacks, bounce aways, crawl through boot, extra clean, \$3,000. On '74 Ford. 250 Ranger, 32K miles. Camper for sale with or without truck. Call 378-3143.

For sale: Honda, '77, 400-4, excellent, \$1050/offer. Call 371-5174/293-4439.

For sale: 1977 Dodge Colt coupe, low mileage, good gas saver, stereo (Pioneer Jensen) system installed, \$350 and take over payments \$119.97. Call 327-0298 after 6:00.

For sale: 1971 Cadillac Sedan DeVille, all extras, runs and looks fine, \$2,800 or best offer. Call 264-1726.

For sale: 1977 Ford E-150 Window Van, Midas conversion, loaded with options, excellent condition. Call 736-7759 after 5:00 p.m.

Housing

Meeks Bay - Lake Tahoe, lakefront, 3 bdrm, available 8/19 - 9/2. Call 324-2043.

Miscellaneous

For sale: 19" Sears Portable Color TV, \$30; round game table, 4 leather club chairs, \$150; Trestle Captain's desk and stool, \$75. Call 255-4484.

The Astrogram

Admin. Mgt. Building, Phone 965-5422

The Astrogram is an official publication of the Ames Research Center, National Aeronautics and Space Administration, Moffett Field, California, and is published bi-weekly in the interest of Ames employees.

Editor Meredith Moore
Associate Editor Marcia Kadota
Reporters NASA Employees

Deadline for contributions: Thursday between publication dates

A student who has a summer job (hours 8 a.m. - 4:30 p.m.) at Ames would like a ride to and from house in the Midtown section of Palo Alto. I live at 842 Clara Drive (between Louis and Ross Roads). I do not drive but am willing to pay for gas. Call 325-6806.

For sale: Organ, Lowry, with Leslie speakers, lots of extras. Call 734-2143 between 4-6 p.m.

For sale: 1 male Sable Collie, Lassie identical, less than 1 year old, papers (AKC), great stud dog. Needs a larger home, \$50 to good home. Call 733-5269.

Found: June 13th, small pair prescription sunglasses, black frame. Call Ext. 5536 or 5524.

New Co-Op student desperately needs a ride to Moffett from Auken Circle near the intersection of Greer and Oregon, willing to contribute. Please call Barbara Kelley Ext. 6525.

Wanted: Female roommate, single with no children to share 2 bedroom, 2 bath townhouse with other single girl and small dog near Winchester and Stevens Creek in San Jose/Campbell. Prefer non-smoker, furnished except for your bedroom. Call Terry at 965-5834.

Would the person who mailed two envelopes to Erika Aschmann please contact Mildred Macon. Ext. 5669.

For sale: White baby crib and mattress, \$45. Call 969-1719.

ARA Notes

The following special prices at the ARA store are now in effect:

- Bicentennial wine glasses - ½ price at \$0.75 each.

- Free Ames baggage tag given for each one dollar purchase.

Mark July 14th on your calendar for the day to enjoy another great Ames Happy Hour from 4:30 to 6:30 in the Cafeteria. The renowned "Satin Dolls," a trio of vocalists playing the organ, drums, and guitar will be playing enjoyable music for your listening and/or dancing pleasures. The three young women, ages 16 and 17, have entertained at numerous functions and establishments in the area including the Old Mill, Elks Clubs, London Rib, weddings, and private parties.

Bowling

The Tuesday Night Bowling League, All-Ames Bowling League, Camino Bowl, announces the following winners of the 1977-1978 season:

First Place, Division A: Bob Stuart, Leo Hall, Bill Doty, Tom Wills, Judy Long.

First Place, Division B: Bob Miller, Pablo Pichardo, George Rathert, Claude Keith, Gayle Woody.

Second Place, Division A: Ray Hafalia, Joe Enz, Dave Brown, Bill Ross, Barbara Diggs.

Second Place, Division B: Jim Peterson, Lori Peterson, Katie Garcia, Carol Anderson, Jerry Anderson.

High Scratch Series: Hank Cole, 648; Judy Long, 599.

High Scratch Game: Bill Ross, 269; Jeanette Remington, 211; Mary Ann Kelly, 211.

High Handicap Series: Ray Hafalia, 697; Stan Dickinson, 711.

High Handicap Game: Pablo Pichardo, 287; Don Vandendriesche, 274.

Most Improved Male Bowler: Ron Airing.

Most Improved Female Bowler: Karen Christiansen.

Officers for the 1978-79 season: Dennis Riddle, President; Steve Kanally, Vice President; Mary Ann Kelly, Secretary; Fran Kaster, Treasurer.

Golf

The tournament chairmen, Frank Lazzeroni and Mitch Radovich, report on the Best Ball Twosome (Blind Partner Draw) played at the Laguna Seca Golf Course on Saturday, June 10, 1978. Forty-six golfers competed for prizes and this was the start of this seasons match play.

Best ball winners were:

First Flight: 1 - Tom Almojuela, Owen Koontz; 2 - Les Collins, Denny Chausse; 3 - Mike Orozco, Bob Eddy; 4 - Bud Hill, Jim Martins.

Second Flight: 1 - John Pogue, Liz Holzhauser; 2 - Earl Menefee, Don Davis; 3 - Mike Rozewicz, B. B. Gray; 4 - David Van Sickle, Ed Mitz.

Closest to pin: B. B. Gray, Frank Lazzeroni, Jim Martins.

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