

The Astrogram

VOLUME XXI NUMBER 20

July 12, 1979

One year QSRA anniversary

The Fourth of July is a national holiday known to all Americans, but July 6th is a date which stands out in the minds of the Quiet Short-Haul Research Aircraft (QSRA) project personnel at Ames Research Center and at the Boeing Commercial Airplane Company in Seattle.

In 1978, July 6th was the date of the first flight of the QSRA. It was a foggy, overcast day in Seattle. At 8:00 a.m., Boeing Field weather was a 400-foot ceiling and 1 mile visibility in fog — good enough for instrument flight operations but much too bad for the first flight of a new research airplane. For three months the QSRA had been undergoing an intensive ground test program and now it was eagerly awaiting first flight. Project personnel waited impatiently for the weather to clear. Finally, at about 11:00 a.m. the Boeing Field weather started to clear. However, the weather at Paine Field (Everett, Washington), was still unacceptable. Since the flight plan called

for takeoff from Boeing Field and landing at Paine Field, the first flight could not proceed until the weather lifted at Paine. By noon, the sun was shining brightly at Boeing Field, but Paine Field was still below minimums. A frustrated project team went to lunch wondering if the long-awaited first flight would really happen that day.

By 1:00 p.m. the weather at Paine Field lifted and at long last the shiny new QSRA taxied out to the main runway at Boeing Field. In the left seat was Tom Twiggs, Boeing Project Pilot, and in the right seat was Jim Martin, NASA Project Pilot.

The QSRA started down the runway and was airborne in a little over 1500 feet. The QSRA was flying, at last! Suddenly, one wing went down and the airplane started a series of roll oscillations, leaving vapor trails from the wing tips in the moist Seattle air. Over 300 members of the QSRA project team held their breath as the pilots stabilized the

airplane and climbed to a safe altitude. Later, it was found that a defective gyro installation was at fault. The pilots, reacting on the basis of their simulator training in the Ames FSAA, immediately switched off the affected system and completed the flight successfully.

The subsequent flight program at Paine Field went very smoothly and the airplane was delivered to Ames on August 3, 1978, ahead of schedule and under cost. At this point, 17 flights had been completed. The NASA flight research program started with the first Ames flight on August 9, 1978, just four working days after delivery. Since then the QSRA has made 49 flights at Ames and Crows Landing, for a total of 66 flights. The airplane underwent a major modification early this year when the leading edge boundary layer control system was removed. This represented a major simplification which made the QSRA concept much more attractive for commercial applications. Subsequent flight tests have shown that this modification resulted in only a small performance loss (as was predicted by model tests in the 40 by 80 wind tunnel). Significant accomplishments achieved during the QSRA flight test program include demonstration of a maximum lift coefficient of 8.9, a takeoff ground roll of 664 feet and a ground roll after landing of less than 550 feet, all with no wind. In recent flight demonstrations at Moffett Field for Navy and NASA officials, an in-flight turn radius of less than 600 feet was demonstrated with commercial type safety margins.

Project pilot for the QSRA is Jim Martin and most of the flying at Ames has been done by Jim and Bob Innis, Manager of Flight Operations. Recently, Warren Hall became the third NASA pilot to be checked out in the left seat of the QSRA. Flight research with the QSRA at Ames will continue for a number of years with the airplane available for the long term flight experiments program in July 1980. However, outside experimenters have been invited to contact the QSRA Project Office at any time to discuss concurrent flight experiments with the QSRA.

Visitors interested in ARC's QSRA

AC 79-0542-4



Left to right are: Dennis Riddle, Ames Project Office; Michael Shovlin, Ames QSRA Project Office; Dr. Toshio Hiraki, Kawasaki Heavy Industries; John Cochrane, Ames QSRA Project Office; and Mr. Makoto Shibata, Kawasaki Heavy Industries.

On the 29th of June, Dr. Toshio Hiraki and Mr. Makoto Shibata of Kawasaki Heavy Industries Ltd. visited Ames Research Center to view the Quiet Short-Haul Research Aircraft (QSRA). Dr. Hiraki is Director of Engineering for Kawasaki and has been appointed chief designer of the Japanese STOL experimental airplane project. Mr. Shibata is responsible for research and development at Kawasaki.

The Japanese STOL experimental airplane project is similar to the QSRA in that it uses four turbofan engines in an upper surface blowing concept and will be a modification of an existing airframe. The air-

plane to be modified is the C-1 which is manufactured by Kawasaki. The modified airplane will weigh approximately 85,000 pounds as compared to 50,000 pounds for the QSRA. The new Japanese experimental airplane and the QSRA share the same goals: development of the technology for commercially viable quiet short-haul aircraft operations. Short field capability is important in Japan because land is not available to build new long runways and many wartime airfields with short runways are available. The new STOL experimental airplane is expected to be operational in 1983.

Dr. Klein honored

"Dr. Harold P. Klein, Director of Life Sciences, was honored in New York on June 12th during commencement exercises for over 3,500 graduating students of Brooklyn College. His award, the Distinguished Alumnus Award, reads, "In recognition of your outstanding achievements in microbial physiology and biochemistry and your contributions to the national space program, the Faculty of Brooklyn College confers upon you this Award of Honor."

Wine tasting tour

A wine tasting tour after work (starting at 6:00 p.m.) is planned for Wednesday, July 18, 1979, at the Mirassou Vineyards, San Jose. Space is limited. Only confirmed reservations will be permitted entrance. Call John Habermeyer at Ext. 5602 or C. J. Fenrick at Ext. 5093 to reserve a space for yourself or guests. Each person must provide his or her own transportation.

Area Scout leader

George H. Holdaway has been selected to serve as a resource person for the "National Resource Handbook Project on Scouting for Handicapped Children and Youth." He has been requested to provide extensive information for this "Handbook" which will be used to develop Scouting programs for children and youth with handicaps in the Special Education programs of the schools and institutions of the nation. The persons selected for participation in this national survey were chosen on the basis of their demonstrated knowledge and experience with Scouting programs for handicapped children. Mr. Holdaway's current and past leadership roles in Scouting for Handicapped Children include: Chairman, Advisory Committee on Scouting for Handicapped Children; Executive Board, Stanford Area Council.

"The National Resource Handbook Project on Scouting for Handicapped Children and Youth" is sponsored by the Bureau of Education for the Handicapped, United States Office of Education, and is receiving complete cooperation from Mr. Jack Richmond, Director of Scouting for the Handicapped, Boy Scouts of America, the National Advisory Committee on Scouting for the Handicapped, BSA, and from Mrs. Elizabeth Munz, Program Specialist, Girls with Special Needs, Girl Scouts of the United States of America.

SAFETY CORNER

Periodically, the Environmental Health and Safety Officer receives inquiries as to whether personnel should be allowed to work alone. This subject is covered in Chapter 6 of the Ames Safety Manual. "Working alone" (i.e., working out of audio or visual contact with a coworker) is not permitted under such hazardous conditions as:

1. High-voltage (over 500 V) electrical work on switching equipment or in remote or inaccessible areas.
2. Work on high-pressure equipment (pressures above 15 psig).
3. In Chemical laboratories during hazardous operations.
4. Work involving use of explosives.
5. Work involving machine tools (as in machine shops) and moving equipment.
6. Work involving the use of lasers, radioisotopes, and radiation equipment.
7. In confined areas (i.e., any location where either toxic or combustible gases may accumulate thereby creating an oxygen-deficient atmosphere that would cause a loss of consciousness or awareness). Tanks, test chambers, sewers, manholes, pits, and tunnels are examples of confined areas. An open area or a large room may, under certain conditions, be susceptible to this hazard in a localized condition.
8. A supervisor may further limit working alone whenever, in his judgment, the work constitutes an undue risk to the employee's safety.

Supervisors will establish written procedures for checking the physical condition of employees that work alone. These procedures may consist of personal contact, radio paging, television monitoring, or other arrangements so long as the safety of those working alone is assured. The amount of time between contacts with the person working alone will depend on the work conditions and the nature of the hazards to which the person is exposed. Since few employees are available between 4:30 p.m. and 8:00 a.m. and on weekends or holidays, special arrangements must be made to protect employees working alone during these hours.

If anyone has additional questions, call the Environmental Health and Safety Office, John Habermeyer, at Ext. 5602. On nonscheduled shifts, personnel may call the Ames Duty Office, Ext. 5416, for information on how to check the safety or physical well-being of the employees.

"Life in the Universe" conference

The June 19-20 Conference on Life in the Universe, held here at Ames, brought together for the first time more than 200 experts in many disciplines to explore prospects for research into the nature and distribution of life in the Universe. Mr. A. Thomas Young, Deputy Director of Ames, welcomed the participants and turned the Conference over to Dr. Robert Frosch, NASA Administrator, who gave the Introduction. General Chairperson for the Conference was Dr. John Billingham of Ames.

To set the theme for the Conference, Dr. Eric Chaisson of Harvard presented an Overview of Cosmic Evolution. A session on The Origin of Life was chaired by Dr. Harold P. Klein of Ames. The second session on Life Supporting Environments was chaired by Dr. George Herbig of the University of California at Santa Cruz. Highlight of the first day's activities was an after-dinner talk by Dr. J. William Schopf of UCLA, entitled "Biogeocosmopoeity," followed by a panel discussion chaired by

Dr. Philip Morrison of MIT featuring experts in the fields of astronomy, astrophysics, biology, chemistry, geology, and planetary exploration.

The second day of the Conference began with a session on The Evolution of Complex Life in the Galaxy, chaired by Dr. Mark Stull of Ames. The final session on The Detectability of Technological Civilizations was chaired by Dr. Frank Drake of Cornell University.

Over 25 papers were presented during those four sessions, on topics ranging from chemical evolution, the origin of life, climatology and paleontology to biological evolution, the development of intelligence and the search for extraterrestrial civilizations.

In a concluding talk entitled "Reflections," Dr. Philip Morrison of MIT emphasized the uniqueness of this type of Conference, and said "we see here the merging of many disciplines and the coming together of many points of view - all of which lend strength to the enterprise."



Dr. Bernard Campbell of the Leakey Foundation, Dr. A. G. W. Cameron of Harvard University, Dr. Philip Morrison of MIT, and Dr. James Valentine of the University of California at Santa Barbara, meet the press at Ames Research Center during a recent conference there concerning "Life in the Universe."

Gov't drivers license

The Badge, Pass, and Decal Office, Building 241, Room 119, issues new and renews Government Motor Vehicle Identification Cards to personnel operating NASA-Ames or GSA vehicles. Application packets are available in the Badge Office. Reminder: Six full working days are necessary from the time that applications are submitted until issuance. All issues are made between 3:00 and 3:30 p.m. on business days.

1979 Savings Bond Campaign results

The 1979 Savings Bond Campaign resulted in an increase of 8.5% in total participation. Centerwide participation at the end of the campaign was 76.6% assuring that Ames will continue to fly the Minute-man Flag awarded since 1976 for 75% or more participation. The final percentages by Directorate are shown below:

A	D	F	L	R	S	Total
83%	78%	71%	69%	80%	78%	76.6%

Photography club

The NASA-Ames Photography Club held its Annual Awards Banquet on June 9, 1979. The dinner, held at the Moffett Field Officers Club, heralded the election of the new officers and the end-of-the-year photography competition. The new officers are: Scott McRae/Code W, President; Joe Licursi/Code RSE, Program Chairperson; Art Ragosta, Competition Chairperson; Duncan Dieterly/Code H, Secretary; and Andy Grotowski/Code RSE, Treasurer. All members participated in the latest competition by submitting their best work in five categories: Nature Prints, Nature Slides, Monochrome Prints, Color Prints, and Slides. Dale Boyer, a local photographer and photography teacher acted as judge. His critical comments emphasized the basic aspects of photography and technical print quality. The judge awarded First, Second, Third Place, and Honorable Mention ribbons in all categories. The First Place winners in each category were:

Nature Prints	John B. Wallace
Nature Slides	Art Ragosta
Monochrome Prints	Art Ragosta
Color Prints	John B. Wallace
Slides	Peter Dexter

The NASA-Ames Photography Club meets the last Wednesday of each month.

AIAA announcements

The San Francisco section of the AIAA will make a joint commemoration (with the AAS) of the tenth anniversary of the first landing on the Moon. They will help mark Space Week with a conference called "Remember the Future."

The celebration of Apollo 11 is more than a commemoration, it is a tribute to the spirit of space-flight.

Special features include: (1) a banquet dinner Friday the 21st of July featuring science and science fiction writer Poul Anderson and physicist, nuclear rocket pioneer and seer of interstellar flight Robert Bussard, (2) a tour of Robert Truax's rocket test facility, (3) and a special planetarium show.

The conference of two day-long meetings at the San Francisco Airport Hilton will mark the major advances into space during the past decade and examine the numerous fascinating possibilities that lie ahead in space in future years. People will have a chance to contemplate construction of orbiting space cities, solar power satellite stations, space manufacturing, communication with extraterrestrial intelligence, and the early preparations for interstellar travel.

Student barbeque

All Ames student employees are invited to the 5th Annual Summer BBQ on Thursday, July 19. Hotdogs, soda, salad and dessert will be the bill of fare and the cost is only \$1.50. Come and get acquainted with your fellow workers. The festivities begin at 11:30 a.m. on the grass area between Arnold Ave. and Clark Road here on the Center. Contact Marcia Kadota, Ext. 5422 for further information or send your \$1.50 to Mail Stop 241-3 along with your name, mail stop and extension.

Golf

How sweet it is (was)! Indeed! Tournament chairmen Mike Orozco and Wayne Harry said that the Ames Golf Club, as a group, shot lights-out at the Sunnyvale Municipal Course May 19th. It may be sometime, if ever, that that many low numbers show up again all at one time - a record maybe? Well worth mentioning was an "easy" scratch 73 shot by Ruben Ramos (he plays only once every three weeks), and a smooth 74 by Billy Odneal - his best ever. Nice going! And for the individual low nets, can you believe - John Pogue, a blazing 58! And what about Wayne Harry, Ina Rathert, Hazel Mulkern and Art Joly, all in with 59's? Outstanding! Following closely behind were a bunch of low 60 rounds.

Wayne Harry who had never broken 100 before skipped the 90's and shot an 89. That's the kind of day we had. All the above is the good news! The bad news is that Frank Lazzeroni is sharpening his little red pencil.

The following are the winners:

First flight:
1-B. Odneal, 2-J. Martin, 3-R. Ramos, 4-A. Petretti and P. Barisich

Second flight:
1-R. Richardson, 2-D. Dust, 3-D. Davis, J. Silver and P. Quattrone

Third flight:
1-J. Pogue, 2-W. Harry, A. Joly, 4-D. Pachucki, 5-M. Macon

Fourth flight:
1-H. Mulkern, I. Rathert, 3-J. Levin, 4-B. Quattrone, 5-D. Johnson

See you all at Laguna Seca on June 9!

Tour of Robert Truax

A field trip has been arranged to the test firing facility for the Robert Truax rocket. This is the rocket that may carry the world's first private astronaut.

Truax will give a briefing of the mission and show off the hardware and the test facilities. A captive firing may be possible during our visit.

Place: Fremont Airport

When: Wednesday, July 18, 1979

Time: 4:30 p.m.

Reservations are required and no children under 14 will be permitted. Bring your camera. For reservations call Bob Ward (415) 328-4423.

Planetarium show

The show will be at the Foothill Planetarium recreating the experience of an Apollo 11 astronaut as he journeyed to the Moon.

Star projections and omniphonic sound will interleave the factual story with philosophical reflections on space exploration. The show will hail back to when walking on the Moon was only a dream and stretch the imagination forward to current dreams of walking on the planet of another star.

Two evening shows will be given July 19 by Bill Copeland at 7:15 and 8:30 p.m., Foothill Planetarium. Make reservations with Bill Copeland (415) 494-1165, Ext. 221. Cost: \$2.00 Adults, \$.50 Children under 12.

Organize to protect

There have been many public attacks on the Federal Civil Service Retirement Fund in recent years. Most of these articles contain misstatements of fact. One organization, in addition to federal employee unions, is continuing to champion the preservation of our retirement benefits. That organization is NARFE - National Association of Retired Federal Employees.

NARFE was organized in February 1921 and today is comprised of approximately 300,000 members. Included in the membership are present employees who are eligible for optional retirement or employees who have at least five years of service and have reached the age of 50.

Members of Congress and the Administration are more impressed by organizational positions than by individual objectives. The San Jose Chapter of NARFE has made presentations to area congressmen in explaining the position of local federal em-

ployees. Additional members are needed for both the Local Chapter and the National Association.

The Local and National Chapters issue monthly information of high interest to present and retired federal employees. The National Headquarters distributes a monthly magazine, "Retirement Life" which contains up-to-date information on the status of proposed changes to our retirement system.

If you are interested in joining, please complete the membership application below and mail with your check for \$9 (\$6 for National and \$3 for Local) annual dues to:

NARFE - San Jose Chapter 50
305 Belblossom Way
Los Gatos, CA 95030

The Local Chapter will forward your application and National dues to the NARFE National Headquarters.

Application for National Membership

NATIONAL ASSOCIATION OF RETIRED FEDERAL EMPLOYEES
1533 New Hampshire Ave., NW, Washington, DC 20036

I apply for National Membership and have indicated my eligibility below.
I enclose \$6.00 in payment of 1 year's dues, two dollars of which is for a subscription to Retirement Life magazine. PLEASE PRINT FOLLOWING DATA. *98 Mr. ___ Mrs. ___ Miss ___ Ms. ___

*01 _____
(Last Name) (First) (Initial)

*02 _____
(Apartment number or other address data)

*03 _____
(Street address, PO Box No., or RFD No.)

*04 (City) *05 (State) *99 (Zip Code)

*07 _____ *11 _____
(Chapter No.) (Date of Birth) Signature

Make check payable to NARFE. Allow 4 weeks for processing.

I am (check one)

(a) A retired civil employee of the Government of the United States or an agency thereof, or the Government of the District of Columbia.

(b) A former employee who has the right to a deferred annuity.

(c) A person receiving an annuity as the survivor of a deceased employee or retiree.

(d) A present employee eligible for optional retirement or with at least five years service and who has reached the age of 50.

(e) A spouse of a living member of NARFE or the widow or widower of a deceased member.

(f) The widow or widower of a retired employee.

(g) A former Member of the U.S. Senate or House of Representatives.

Retired from or employed by _____
Agency or Department

**FOR EFFECTIVE STATE AND NATIONAL LEGISLATION
JOIN YOUR LOCAL CHAPTER**

Ames Promotion Plan vacancies

Notice No.	Title	Grade	Org.	Area of Consideration	Closing Date
79-111	Assistant Chief Extraterrestrial Research Div.	GS-14/15	LX	Ames/outside	7-27-79
79-112	Secretary (Typing)	GS-4/5	FAE	Ames/outside	7-27-79
79-113	Electronics Engineer (Group Leader)	GS-12/13	RKT	NASA-Ames/ Army/Tenant Agencies	7-27-79
79-114	Personnel Clerk (Typing) or Personnel Assistant (Typing) (Senior Clerk)	GS-5/6	APM	Ames Personnel Division	7-23-79
79-115	Personnel Clerk (Typing) or Personnel Assistant (Typing) (Retirement Counseling)	GS-5/6	APX	Ames Personnel Division	7-23-79
79-116	Research Aircraft Mech. (Crew Chief)	WG-12	FOS	NASA-Ames/ Army/Tenant Agencies	7-27-79
79-117	Secretary (Typing)	GS-4/5	FSV	Ames/outside	7-27-79

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

MERIT PROMOTION PLAN SELECTIONS

Notice No.	Title	Org.	Name
79-82	Secretary (Typing)	FAR	Cancelled
79-95	Secretary (Steno)	AFB	Carol Miner (outside candidate)

Want ads Transportation

FOR SALE: 1972 Dodge Dart - 4-dr, PS, PB, Air cond., new tires. Clean inside and out. Call after 5 p.m.: (408) 226-3315.

FOR SALE: 1968 Pontiac Tempest, AT, PS, AC, good reliable commute car. \$400 or offer of exchange for station wagon or van. Call 965-5281 or 251-1967.

FOR SALE: 1972 Yamaha 175 cc Enduro. Set up for dirt, but all parts to return to street, including tires. Good condition. \$350, includes automobile bumper carrier. Call 272-1406 evenings.

'69 FORD LTD, 18.1 MPG-highway. New water pump/alternator. \$600. Call 255-0139 after 6 p.m.

Housing

Vacation Rental - Weekly. New Capitola condo, park-like setting, 2 br, 1 ba, completely furnished, pool and Jacuzzi. Walking distance to New Brighton State Park and Capitola beaches. Call 948-0165.

FOR RENT: 4 br/2 ba Eichler. Atrium entrance. Large corner lot w/pool, vegetable garden, apricot trees. South Sunnyvale, close to 85. Phone 941-0594.

Miscellaneous

FOR SALE: 17 cu.ft. Coldspot refrigerator/freezer w/lg. separate bottom freezer. \$50. Call 263-3829.

Driver needed! We have almost enough people to fill a vanpool for commute bet. Berkeley/Oakland and Moffett Field. But we need to find somebody w/a regular schedule to become the driver (note that the driver rides free and has after-hours use of the van). If interested, please call Jill at Ext. 5593 or Dave at Ext. 5511.

FOR SALE: Singer Sewing Machine, Model 600, Auto-Reel, \$75. Call 255-6788.

AIR Conditioner: GE, 10,000 BTU/Hr. 115 V. \$150. Call 255-0139 after 6 p.m.

15' Doughboy pool - Free for the taking. Call 247-0650 evenings.

For Sale: Baby carriage, converts to stroller: \$30. Child's spring horse: \$10. Box Flea Market items: \$10. Toybox: \$5. Roller skates size 10 and 7 sm.: \$5 for both. Boy's ice hockey skates size 10: \$15; size 7: \$10. Electric toothbrush: \$3. Ladies' electric razor: \$2. Carpet sweeper: \$5. Ass't. children's books: \$2 all. Phone 733-3173.

For Sale: Single bed, complete \$30. Coffee table \$10. Crib w/mattress \$15. Baby high chair \$10. Skis and shoes \$20. Auto battery \$5. Call 377-1302.

I am interested in sharing a car pool. I live in Union City and my working hours are 8 to 4:30 p.m. or possibly 7:30 to 4 p.m. Call Ext. 5657 or 471-2570. (home).

I am interested in sharing a carpool. My working hours are 8 to 4:30 or 9 to 6 p.m. I live by Capitol and Snell in San Jose. Any interested persons please call Mary at 578-2072.

CAR pool members wanted: Depart San Francisco and Daly City to ARC. Hours 7:30 a.m. to 4:00 p.m. Call Ext. 6351.

Congratulations!

Mr. C. A. Syvertson
Director
NASA/Ames Research Center
Moffett Field, CA 94035

Dear Sy:

The overwhelming success of Pioneer Venus activities is a tribute to professionalism and dedication of many groups of people at NASA, in universities, and in industry. In a letter from the White House, the President has expressed his congratulations to all those involved in this great achievement. Although these people are scattered world-wide, they worked as a team during the encounter period and in the years of effort leading to the encounter events.

Although much remains to be done, early results indicate exciting scientific return, and all are to be congratulated. Please extend my appreciation to everyone in your organization who contributed to this outstanding success.

Very truly yours,

Robert A. Frosch
Administrator

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
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National Aeronautics and
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Ames Research Center
Moffett Field, California 94035

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Space Administration
NASA-451



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 23 - Chemical Research Projects Office Seminar Speaker: Dr. Dieter O. Hummel, Univ. of Cologne, Germany Topic: Combination of Infrared Spectroscopy with Pyro-Field Ionization Mass Spectrometry for the Identification of Complex Polymeric Materials Time: 10:00 a.m. Location: N-223, Room 100</p>	<p>JULY 24 - Computational Fluid Dynamics Branch Seminar Speaker: Dr. Joel C. W. Rogers, Applied Physics Laboratory, The Johns Hopkins University Topic: Incompressible Flows as a System of Conservation Laws with a Constraint Time: 3:00 p.m. Location: N-233, Room 227 Tuesday Noon at the Movies Time: 11:40 a.m. Location: N-201, Main Auditorium</p>	<p>JULY 25 - Ames Photo Club Monthly Meeting Time: 4:45 p.m. Location: N-245, Auditorium</p>	<p>JULY 26 - Bible Study for Ames and Navy people Coordinator: Dr. Dewey Hodges, Ext. 5835 Time: 12:00 Noon Location: Bldg. 48, Navy side (Sunday School bldg.)</p>	<p>JULY 27 - Thermo- and Gas-Dynamics Division Seminar Speaker: Professor Richard Pletcher, Dept. of Mechanical Engineering, Iowa State University, Ames, IA 50010 Topic: Status of Turbulent Flow Predictions for Flows with Recirculation Time: 10:30 a.m. Location: N-229, Room 117</p>
<p>JULY 30 -</p>	<p>JULY 31 - Tuesday Noon at the Movies Time: 11:40 a.m. Location: N-201, Main Auditorium</p>	<p>AUG. 1 - Ames Stamp Club Meeting Time: 7:30 p.m. Location: N-241, Room 237</p>	<p>AUG. 2 - Bible Study for Ames and Navy people Coordinator: Dr. Dewey Hodges, Ext. 5835 Time: 12:00 Noon Location: Bldg. 48, Navy side (Sunday School bldg.)</p>	<p>AUG. 3 - If you wish to have an event announced on this Calendar please notify Linda Mackey, Visits Coordinator, Ext. 5546, M/S 253-1. The next Calendar will cover the period August 6-August 24. The deadline is July 17.</p>
<p>AUG. 6 -</p>	<p>AUG. 7 - Ames Scuba Club Monthly Meeting Time: 11:30-1:00 p.m. Location: N-235, Ames Cafeteria Private Dining Room</p>	<p>AUG. 8 -</p>	<p>AUG. 9 - Bible Study for Ames and Navy people Coordinator: Dr. Dewey Hodges, Ext. 5835 Time: 12:00 Noon Location: Bldg. 48, Navy side (Sunday School building)</p>	<p>AUG. 10 - If you wish to have an event announced on this Calendar please notify Linda Mackey, Visits Coordinator, Ext. 5546, M/S 253-1. The next Calendar will cover the period August 6-August 24. The deadline is July 17.</p>

WEEKEND ACTIVITIES: JULY 28 -

ARC Golf tournament
Santa Teresa Golf Course
Time: 11:00 a.m.
Co-Chairmen: Fred Johnson and Les Collins
Send money to Dave Banducci,
M/S 226-3, by July 13.

ARA STORE HOURS: 12:00 - 12:45 TUESDAY & THURSDAY

NASA-AMES TOUR OFFICE - 965-6497
LOCATED IN N-235 AMES CAFETERIA

TUESDAY Baked Ham and Spinach with Cheese Sauce.....
 Picadinho Copacabana (Meat Filled Crepe).....
 Choice of One: Mashed Potatoes, Yellow Rice,
 Savory Green Beans, Buttered Carrots or Salad
 Soup - Cream of Vegetable.....

WEDNESDAY Old Fashion Irish Stew and Dumplings.....
 Creamed Chip Beef on Cheese Biscuit.....
 Choice of one: Snowflaked, Scalloped Potatoes,
 Au Gratin Sprinach, Beets or Salad
 Soup - Tomato Laredo or French Onion.....

THURSDAY Roast Tom Turkey, Dressing & Cranberry Sauce.....
 Macaroni Mexiconi.....
 Choice of One: Whipped or Lyonnaise Potatoes,
 Italian Mixed Vegetables, Carrots or Salad
 Soup - Beef Broth with Peas and Rice.....

FRIDAY Potted Swiss Steak with Vegetables.....
 Seafood Omelette or Quiche Lorraine.....
 Choice of One: Snowflaked Potatoes, Buttered Rice
 Cauliflower & Cheeder Cheese Sauce, Peas or
 Salad
 Soup - Boston Clam Chowder.....

MONDAY Roast Sirloin of Beef & Mushroom Sauce.....
 Swedish Meat Balls & Rice Pilaf.....
 Choice of One: Whipped Potatoes, Rice O'Brien,
 Broccoli Au Gratin, or Corn
 Soup - Macaroni, Tomatoe & Onion.....

DAILY SPECIALS INCLUDES: A \$1.40 ENTREE, VEGETABLE OR POTATO, SALAD
 ROLL & BUTTER, AND A .30¢ BEVERAGE.....

(CHEF'S CHOICE) HOT SANDWICH AND LARGE BOWL OF SOUP...

DAILY DIET SPECIAL

(Chef's Choice) - Vegetarian Plate: 3 Vegetables, 1 Jello or
 Cottage Cheese or Poached Egg.....

Veal Cordon Bleu.....
 Baked Stuffed Knackwurt with Cheese.....
 Choice of One: Mashed Potatoes, Rice Pilaf,
 Green Peas, Carrot Vichy or Salad
 Soup - Chile Macaroni.....

Boiled Beef over Noodles.....
 Pork Fried Rice.....
 Choice of One: Whipped, Ideal Potatoes,
 Baby Limas, Buttered Broccoli or Salad
 Soup - Ames Bean Special.....

Liver Smothered with Onions.....
 Baked Tamale & Chile Beans.....
 Choice of One: Snowflaked, Au Gratin Potatoes
 Brussel Sprouts, Beets, or Salad
 Soup - Cream of Spinach.....

Braised Sirloin Tips over Noodles.....
 Seafood Crepes.....
 Choice of One: Mashed, Parslied Potatoes,
 Buttered Spinach, Corn or Salad
 Soup - Clam Chowder.....

Roast Pork with Dressing, Glazed Apple.....
 Turkey Pot Pie Biscuit Topping.....
 Choice of One: Snowflaked, Candied Yams,
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 Soup - Princess.....

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 ROLL & BUTTER, AND A .30¢ BEVERAGE.....

(CHEF'S CHOICE) HOT SANDWICH AND LARGE BOWL OF SOUP...

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 Cottage Cheese or Poached Egg.....

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The Astrogram

VOLUME XXI NUMBER 21

July 26, 1979

ARC's VIP system a huge success

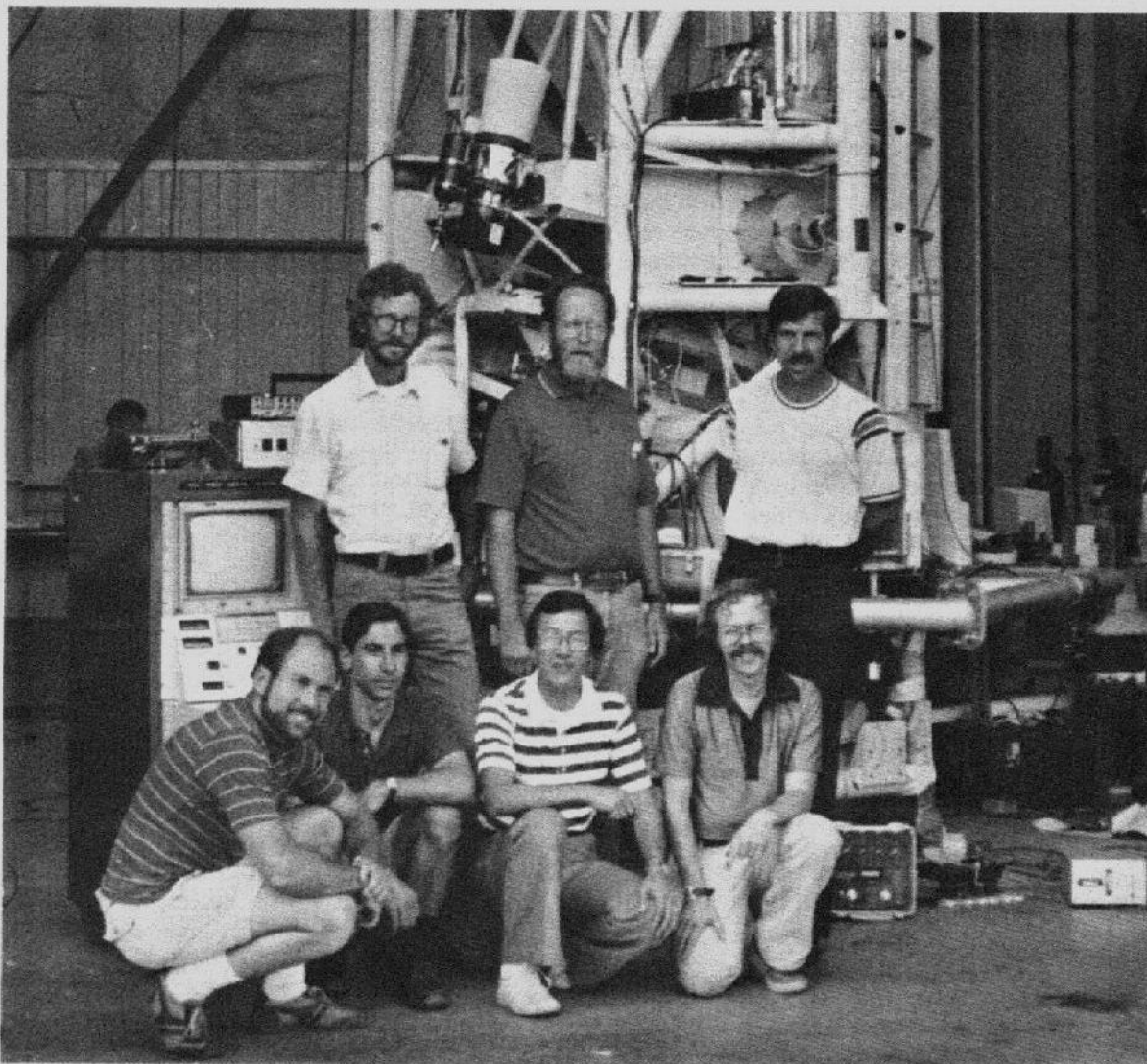
The ARC-developed Video Inertial Pointing (VIP) System, used to guide remotely controlled telescopes, was successfully flown on the Harvard-Smithsonian Center for Astrophysics 102-cm balloon-borne infrared (IR) telescope.

The launch took place at 8:15 p.m. CST from the National Scientific Balloon Facility, Palestine, TX on June 14. After the payload reached its predetermined float altitude of 29.8 km, the VIP System's Charge Coupled Device (CCD) star tracker was commanded to lock on to a variety of stellar and planetary targets. With the telescope stabilized and precisely pointed at the desired infrared source, the Smithsonian-built Far Infrared Spectrometer was able to make the first-ever long wavelength infrared spectra taken from balloon altitudes. The entrance slit of the FIRS is so narrow that it would be virtually impossible to use this instrument without the automated control capability provided by VIP.

The VIP System has two main functions: helping the astronomer steer the telescope, and continuously updating or "correcting" the automatic stabilization system used to hold the telescope steady during viewing periods. These tasks are accomplished by processing the star field picture generated by a video star tracker with a small digital computer built into the VIP electronics.

Presently, telescopes which are automatically stabilized utilize gyroscopes to keep the telescope aimed at the desired point in space despite the rotation of the Earth and other disturbances. Unfortunately, the gyroscopes eventually develop errors due to drift causing the telescope to wander off the target. In the VIP System, precise error signals are computed several times a second by comparing the current locations of stars in the tracker field of view with the desired locations of these same stars as stored in the computer's memory. VIP has the unique ability to generate the signals required for all three control axes, pitch, yaw, and roll, with the use of just a single video sensor. In addition, it can be used to point at non-visible (infrared) sources using visual information. Previous systems employing star trackers used from two to six conventional sensors to obtain the same information and perform the pointing task.

The video star tracker coupled to a digital computer provides another unique feature of the VIP system: a television picture of the telescope viewing area so that the astronomer may guide the telescope to the exact location required for data gathering. Remotely controlled telescopes in the past have relied on conventional star trackers and the output of the scientific instrumentation for their orientation. With VIP, the astronomer uses a small "joystick" located just below the television screen on the control panel to move the telescope. When he has identified the precise area of interest (by comparing the TV picture with star charts or noting the output of his instruments), he simply pushes a button on the joystick to tell the computer to automatically lock on to the star pattern and generate the appropriate correction signals. The telescope position may be changed while VIP is locked on to a star pattern by again moving the joystick.



Standing in the back row are (left to right) Bill Barrows, Tom Hamon, and Phil Salomon (JPL). Front row are (left to right) Ken Lorell, Bob Clappier (Contractor), Jack Lee (Informatics), and Tom Glavich (JPL).

Through the use of the joystick controller and the ground console computer, the astronomer can precisely position the orientation of the telescope optical axis anywhere in tracker field of view. This feature is especially important for instruments like the Far Infrared Spectrometer whose very narrow entrance slit requires repeatable precision alignment

of the telescope and for infrared astronomy in general, since many infrared objects do not radiate energy in the visible portion of the spectrum. The VIP System permits astronomers to guide the telescope on the star field surrounding a desired infrared object; there is no need to make any special provisions for using guide stars not directly on the

(Continued on Page 2)

Soviet scientists arrive at Ames

Scientists from the Soviet Union arrived at Ames on July 19 to participate for three weeks in the first joint U.S./U.S.S.R. study to investigate physiological changes in humans resulting from simulated weightlessness.

The two scientists, both medical doctors, are Valeriy Mikhailov, project manager for the Soviet phase of the study, and Anatole Grigoriev, one of the principal researchers for the project.

The July/August tests at Ames constitute the second phase of the study which began in May when two NASA scientists, Dr. Harold Sandler of Ames and Dr. Carter Alexander of Johnson Space Center, traveled to the Soviet Union. Sandler, the Ames project scientist, and Alexander, project manager,

went to Moscow where they participated as observers in an experiment at the Institute of Biomedical Problems.

The joint study is expected to help standardize physiological measurements and techniques for studying cosmonauts and astronauts. Scientists also expect the study to improve bedrest test procedures, help reduce duplication in testing and increase the flow of information between the United States and the Soviet Union.

In October, the United States and Soviet teams will meet to discuss results of the study and to talk about the possibility of future collaborative efforts.

(Continued on Page 2)

ARC's VIP (Continued from Page 1)

telescope (or CCD tracker) optical axis unlike other star tracking systems used in this type of application.

Work on the Video Inertial Pointing System has been carried out in the Space Projects Division (Code SP) since 1974. The basic concept for VIP was conceived by James P. Murphy and Dr. Kenneth R. Lorell as an outgrowth of the Ames AIROScope Program (AIROScope was a balloon-borne infrared telescope flown by ARC personnel until 1975 when it was extensively damaged on landing). Dr. Lorell has continued to lead the VIP development team of SP personnel over the last five years. The team includes: William Barrows who designed all of the electronics equipment; Jack Lee who developed the extensive software; and Tom Hamon who fabricated all of the electronic and mechanical components of the system.

VIP has been made possible by the use of a number of state-of-the-art devices. The computer inside the VIP electronics is called a microprocessor, a complete digital computer on a single printed circuit card. VIP is designed to use a solid-state image device called a CCD (Charge Coupled Device) that incorporates a matrix of 40,000 light sensitive elements on the surface of silicon chip measuring 1/4 inch on a side. This star tracker was developed under the direction of the ARC team by the Jet Propulsion Laboratory in Pasadena and has its own microprocessor to read out, interpret and format the data before sending it to the VIP electronics. Although there have been other CCD-type trackers developed at JPL and elsewhere, this was the first successful flight of a computer-controlled CCD star tracker capable of simultaneous multistar tracking.

A major benefactor of the VIP technology will be the Shuttle Infrared Telescope Facility, or SIRTf. The SIRTf is being planned for a mid 1980's launch and will be a 1-meter, cryogenically cooled, IR telescope many times more sensitive than any now available. The Space Projects Division is currently involved in advanced planning for the SIRTf, including development of a prototype Fine Guidance Sensor (FGS) based on VIP technology.

The VIP program has been supported by Mr. Chuck Pontious at OAST and Dr. Nancy Boggess of OSS at NASA Headquarters.

Soviet scientists

(Continued from Page 1)

The joint study consists of two nearly identical experiments, each involving 10 subjects, ages 35 to 40 years. The weightless environment of spaceflight is simulated by subjecting individuals to extended bedrest. The two experiments will each last five weeks with two weeks of controlled observations, one week of bedrest and two weeks of post-bedrest measurements. Stress tests of the cardiovascular system, as well as extensive analyses of blood and urine samples, will be performed.

Five of the subjects will remain horizontal while the other five experience bedrest with their heads lowered six degrees from the horizontal.

Past bedrest studies in the United States have been conducted primarily with subjects in the horizontal position. However, Soviet scientists in recent years have abandoned the horizontal procedure in favor of studying subjects exposed to varying degrees of head-down tilt. The joint study is expected to determine which procedure is more effective.

Needed

McCracken FORTRAN books are desperately needed! Please return to the Training Office if you are no longer using the book. Thank you.

Army research scientist heads NASA branch



Dr. William F. Ballhaus, Jr., 3rd from left, newly appointed Chief of the Applied Computational Aerodynamics Branch, NASA-Ames Research Center, is congratulated by Dr. Irving C. Statler, 2nd from the left, Director, Army Aeromechanics Laboratory, as Victor L. Peterson, right, Chief, Thermo- and Gas-Dynamics Division, NASA Ames, and H. Andrew Morse, left, Chief, Fluid Mechanics Division, Army Aeromechanics Laboratory, look on.

Dr. William F. Ballhaus, Jr., a Research Scientist with the Aeromechanics Laboratory of the U.S. Army Research & Technology Laboratories AVRADCOM, was named Chief of the Applied Computational Aerodynamics Branch, Ames Research Center. This is the first time that an Army research scientist has been selected to head a NASA research branch.

This branch, one of six in the Thermo and Gas-Dynamics Division, was created a year ago to help bridge the gap between the more basic work in computational technology, being done in part by the Computational Fluid Dynamics Branch and the applications-oriented requirements of the aerospace industry. Special emphasis is placed on (1) the construction of computational methods for solving aerodynamic problems of interest to industry, (2) the development of computer codes based on these methods, and (3) close

interaction with users of these methods and codes in the aerospace industry. This branch should significantly contribute to Ames Research Center's objective of providing the aerospace community with technology to produce better aerodynamic designs faster and at lower cost.

Play to be presented

A play will be presented at Ames on Wednesday, August 1, 10:30 a.m., in the Main Auditorium by summer students in the county's SPEDY (Summer Program for the Employment Development of Youth) Program. Ames employees and summer students are all invited. The theme of the play is how to pursue employment effectively.

Technician certification exams

Civil, electrical/electronic, and mechanical technicians will have an opportunity on November 17 to obtain certification from the National Society of Professional Engineers. NSPE certification is the only national recognition of technician ability, achievement, and professionalism. It is considered to be equivalent to a bachelor's degree in engineering technology.

The 6-hour certification exams follow the completion of 14-week preparation courses offered by the Professional Engineering Institute. There are 3 different courses, one each for the civil, electrical/electronic, and mechanical technician examinations.

All 3 courses meet from 7:00 till 10:00 p.m. on Tuesday nights starting August 14. The last class meeting is November 13, just prior to the certification examinations. Cost of the courses, which are held at Menlo College in Menlo Park, is \$115. All materials are included in the course fee.

To obtain a brochure describing the certification process or the courses, call (415)593-9731 or write: Professional Engineering Institute, P.O. Box 911, San Carlos, CA 94070.

The Professional Engineering Institute is a non-profit educational organization specializing in licensing of engineers and certification of technicians.

Attention Vets and dependents

DeAnza College's Office of Veterans Affairs (OVA) offers a wide variety of services to veterans and their dependents. If you are a dependent of a deceased or disabled Veteran, you may also be eligible for benefits. Some of the areas in which they can assist you include free tutoring, career counseling, VA work-study, on-the-job learning experiences for college credits, job placement, financial aid and discharge upgrading referral. Also, they can help you with information regarding home loans, Cal Vet loans, medical, dental, and disability benefits.

The OVA is located behind the Learning Center at DeAnza College and is open from 8 a.m. to 9 p.m. Mon. through Thurs., and 8 a.m. to 4:30 p.m. on Friday. Give them a call at (408)996-4595. You earned these benefits, take advantage of them! And remember, you will lose some benefits if they are not used within 10 years from separation from the service.

Notice

The official "Lost and Found" department at Ames is run by the Badge Office, Building 241, Room 119, hours - 8 a.m. to 3:30 p.m.

French exchange engineer departs



Dr. Jean Jacques Chattot, Helicopter Research Engineer, recently completed a 9-month assignment with the Army Aeromechanics Laboratory, Research & Technology Laboratories here, under the French-USA Memorandum of Understanding (MOU) for cooperative research helicopter dynamics.

While here, Dr. Chattot developed a transonic rotor blade computer code which extended previous Aeromechanics Laboratory codes to provide additional freedom in geometric variations of rotor blade design. The new computer code "THREED" will be a very useful tool for rotor blade planform and airfoil research in both France and the USA.

Dr. Chattot is with ONERA, a French government agency equivalent to NASA. Memorandum of Understanding is an agreement that promotes an exchange of research engineers between the two countries for periods up to 1 year.

Ames bus service

NASA Headquarters has imposed upon each Center a requirement to reduce the amount of energy that is being expended. In particular, its request is to reduce the amount of gasoline used by the Center. As a start, Ames has replaced the taxi service with bus service, effective July 16, 1979. Attached is a map of the Center with the bus route indicated, as well as time schedules. There will not be designated bus stops, but the bus will make pickups anywhere along the route indicated. The service will be available 8:00 a.m. to 11:30 a.m. and 1:00 p.m. to 4:00 p.m. The bus will be a nine passenger Club Van with a bus sign affixed similar to what the taxi had. Because the bus will be operating on a regular schedule, there will be no "holding" of the bus for building run-ins.

Golf

Conrad McCloskey successfully took over the reigns of the ever popular Aptos Tournament June 30, where 61 players took part.

One of the new members, Ted Brown, had a particularly fine day! He had the highest point total in this point par tournament, 30, and the lowest net score of the day, 61. Other good net scores were brought in by H. Matthews, 69, L. Collins, 66, B. Scott, 65, and Charlene Banducci (our new handicap chairperson), 66. In the raw score column, R. Hedlund shot his third consecutive 75 (wouldn't we all like to be in a similar rut?).

The winners for the day were:

1st Flight: 1-Matthews, 2-Orozco, 3-Koontz, 4-Hochstein, 5-Peeler.

2nd Flight: 1-Collins, 2-Chaussee, 3-Oyama, 4-D. Dust, 5-Carlson.

3rd Flight: 1-Scott, 2-Menefee, 3-E. Levin, 4-Brovarney, 5-Silver.

4th Flight: 1-T. Brown, 2-C. Banducci, 3-J. Levin, 4-G. Rathert, 5-Polek.

See you all at Santa Teresa, July 28.

Vanpool

As Driver/Coordinator, I am organizing a vanpool from the east foothills of San Jose to NASA/Ames with "Rides" for Bay Area Commuters Inc. My latest survey shows that there are more people interested in the 8:00 a.m. to 4:30 p.m. shift from areas extending from Alum Rock area to Milpitas.

The proposed route would commence at Alum Rock Ave. and Miguelita Ave., to McKee Rd., Toyon, Penitencia Creek Rd., Piedmont Rd., Sierra Rd., Morrill Ave., Park Victoria Dr., Calaveras Blvd., Weller and Main, Hwy. 237 to NASA/Ames. Rider pick-up and drop offs will be made at any point on proposed route.

The only obligation for a rider is that the fare be paid a month in advance. Example: for month of Aug., due by July 31.

A rider can terminate his vanpooling at any time. "Rides" suggests that a 30-day notice of termination be given to Driver/Coordinator so he can pick up another vanpool rider.

Any individual leave time used during any given month will not be prorated by "Rides Inc."

Any interested persons living on or near this proposed route please call Fred R. Lemos. Phone: 965 ext. 5463.

Estimated monthly fares: Fourteen riders at \$33.50 each.

Deluxe van, fully equipped, new B300 Dodge Royal Sportsman Maxiwagon, 15 passenger. Fare includes lease, insurance, maintenance, and gasoline.

Check a San Jose map for proposed route which may be in your area.

Mid-summer happy hour

The Ames Winter Bowling League, in cooperation with the ARA Executive Board, is sponsoring a mid-summer happy hour on August 3, 1979. The Tuesday Night League bowls at Camino Bowl in Mountain View, and the Thursday Night League bowls at Moonlight in Santa Clara. Both leagues start at about 6:00 p.m. Officers from both leagues will be there to answer any questions. There will be a raffle for a bowling ball. Tickets will be sold at the door. Price will be three for \$1.00. If you are not a bowler come anyway and enjoy those wild and crazy bowlers!

DATE: August 3, 1979

TIME: 4:30 p.m. to 6:30 p.m.

Bowlers

The 1979-80 winter bowling season is only a couple of months away. As yet, we do not have a secretary or a treasurer. These are both paid positions. We desperately need volunteers for these positions because the league *cannot* be run without them. The league will be cancelled if we do not get these positions filled.

I am now taking names and teams of those wishing to bowl this season. Selections will be on a first come, first served basis. My extension is 5974 and my mail stop is N238-1. At this point, we will have 10 (ten) teams, 5 (five) people each. If the response is favorable, I will try to get two more lanes so we can have two more teams. We need volunteers!!

Thank you,
Wayne Harry

"Thank you"

To all those who shared my most enjoyable retirement luncheon, I again extend my special thanks and appreciation.

The luggage and carrier rack are a real practical reminder of good friends whose generosity and associations at Ames will remain bright in the future.

Trina McCormick

"Thank you"

To the members of the 40X80 Project - Thank you all very much for the farewell luncheon. I've enjoyed working with all of you. I'll see you again in January.

Todd Greene
Coop Student

Want ads Transportation

For Sale: 1978 Volvo 264, 6800 miles, A/T, A/C, sunroof, 5 yr. warr., AM/FM stereo cass. Call 328-7987 eves.

For Sale: 1978 Toyota Celica GT Coupe, A/C, sun roof, stereo, air dam., 13,000 miles. Asking \$5700. Call 386-0730.

For Sale: 4 HP Bonanza Minibike. \$85. Call 252-7160.

FOR SALE: 1971 Chevrolet Nova (8 cylinder), auto. transmission. Good condition, 65,000 miles, \$1,850. Call 257-7759.

Housing

Home to Share - 3 BR/1 BA, Sunnyvale home, near Hwy. 101 and Mathilda, \$120/mo. & 1/2 utilities. First, last, deposit. Call Ramon after 5 p.m. - 734-2604.

Roommate needed, M/F, straight, non-smoker, 25-35 yrs. old, very nice duplex, 1 1/2 miles from DeAnza, \$200/mo. Call days 9-2, 257-3465.

Squaw Valley condo, summer rates, daily/weekly, 3 br, 2 ba, view, w/w carpets, private entry, fireplace, cable TV, fully equipped, U.S. Olympic ice arena, theater, horseback riding, hiking, tennis. Call 968-4155 eves.

For Rent: 3 br/2 ba house in Cambrian area of San Jose. Available Sept. 1, \$400/mo. 377-6746.

Miscellaneous

Vegetables & Fruit on Sale - behind wind tunnels at the farm (Bettencourts) when in season: Zucchini, Beans, Corn, Tomatoes, Peppers, Red beets, Chard, Apricots, Cucumbers, Eggplants, Pears, etc.

Baby Items: Crib & Mattress, \$35; Changing Table, \$5; Backpack Child Carrier, \$5. Call 253-7779.

LAWN MOWER: Sears Craftsman 18" push mower with grass catcher, \$25. Call 253-7779.

DESKS: Student classroom-type (2), \$5 each. Call 253-7779.

Turntable, Kenwood KD-1033, AT-10, and M-70 cartridges, \$60 or best offer; Violin, 3/4 size violin Honer, 2 bows, case, \$80 or offer. Call Brian at 739-9124.

Brilliant Aerospace Engineer Wanted - Successful businessman, Ph.D., needs assistance with nearly completed stock market trading technique. Your background should include working with probability, momentum and trajectory. This is a voluntary intellectual challenge with potentially unlimited rewards. Call Bernie, (415)365-8239.

Free German Shepherd: Female, 1 1/2 yr old, house trained, well-trained for on or off leash, intelligent and lovable. Call B. Parris at X5320.

(Continued on Page 4)

Ames Promotion Plan vacancies

Notice No.	Title	Grade	Org.	Area of Consideration	Closing Date
79-118	Secretary (Typing)	GS-5/6	FO	NASA/Ames/ Army Tenant Agencies	8/10/79
79-119	Electronics Engineer AST, Measurement & Instrumentation Systems	GS-11/12	FSV	Ames/Outside	8/17/79
79-120	Aerospace Engineer	GS-13/14	FSN	NASA/Ames/ Army Tenant Agencies	8/17/79
79-121	Aerospace Engineer	GS-12/13	FHI	Ames/Outside	8/17/79
79-122	AST, Human Performance Studies	GS-13	LM	Ames/Outside	8/31/79
79-123	AST, Human Performance Studies	GS-13	LM	Ames/Outside	8/31/79
79-124	AST, Human Performance Studies	GS-11/12/13	LM	Ames/Outside	8/31/79
79-125	AST, Human Performance Studies	GS-11/12/13	LM	Ames/Outside	8/31/79

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

MERIT PROMOTION PLAN SELECTIONS

Notice No.	Title	Org.	Name
79-83	Computer Technician (GO)	RI	Angela Walkup
79-91	Supv. Aerospace Engineer	FSN	Denery, Dallas
79-93	Research Aircraft Mechanic Foreman	FOS	Gudino, Antonio
79-97	AST, Data Systems	FAX	Backs, David
79-106	Visual Information Specialist	ATG	Marianne Rudolph

Want ads

(Continued from Page 3)

Miscellaneous

For Sale: Admiral side by side refrigerator/freezer, 22 cu.ft., frostfree, coppertone, \$100 or make offer. Call B. Parris at 262-8940 after 6 p.m.

For Sale - Pentax K-1000 w/50 mm original lens and Vivitar 2X tele-converter purchased Dec. '78, asking \$125. Call Joe after 5 p.m., 327-0298.

Bed Frame, metal single, \$5; Traverse Rods (8 ft) left pull, 2 each, \$5. Call 965-5465.

American Airlines 1/2-fare coupons, 4 for \$150 or \$40 each. Call 263-3730.

Queen Size Water Bed: Liner, mattress, heater, hose attachments, and two side pads. \$100 or best offer. Call 5835, ask for Kim.

Box Springs: Two twin-size (no mattresses), one is nearly new, \$20 for both. Call 968-4624 afternoons or evenings.

For Sale: Boys 3-spd 22" bike, good condition, \$25; "Heritage" traditional style sofa and loveseat, light blue and green, excellent condition, \$600; 2 blue velvet swivel rocking chairs, \$150; Magnavox 24" color TV-console with rollers, \$175. Call 255-2195 after 5 p.m.

Delicious Dried Apricots - Santa Clara Valley's finest, \$1.95/lb, 10 lb min. Call 259-4618 eves, will deliver to Ames.

Women of all ages and ability wishing to play soccer can join the Bay Area Womens Soccer League. If you are interested in playing in the Sunnyvale area (at Fair Oaks and Hwy. 101) contact Coaches Terry Stegemiller (739-5328) or Joel Faulkner (733-9366) for details, or simply show up for practice any Tuesday or Thursday at the DeAnza off-campus center on Fair Oaks in Sunnyvale at 5:30 p.m. Practice starts now for the fall season, so be sure to act soon especially if you are a beginner. It's great exercise and a lot of fun!

For Sale: 16" sidewalk bicycle with training wheels, \$20. Call Angie, 245-8256.

For Sale: 84" Early American sofa (celery green), \$200; armchair (needs reupholstering, \$40; girls white colonial nightstand, \$20; hexagonal commode, \$40; large colonial table lamp, \$25; girls bicycle (20"), \$30. Call (408)252-0963.

Depth Sounder: Apelco Model MS-108, 0' to 50' range, \$25. Call 255-8429.

FOR SALE: Baby items - Playpen, \$10; Jolly Jumper, \$5; Back pack, \$5; Porta-crib, \$5. Call 259-7419.

Roller skates, little used, \$15; Hepcats, size 7, never worn, black, \$5; Walkie-Talkie, like new, \$15; basketball, \$4; Games, ages 6 to adult, complete in good condition, \$1-3; Microscope with light, \$3; Lego sets or collection, \$15 or make offer. Call 964-1725 after 5 p.m.

VANPOOL - Six-member VanPool (not part of "Rides" program) has room for riders, 6:30 a.m. to 3:00 p.m. shift. Leaves South San Jose, Santa Teresa and Snell 5:40 a.m.; Capitol Expressway and Snell 5:50 a.m.; Capitol Expressway and Bayshore Freeway (101) 5:55 a.m.; 101 to Ames Research Center arriving at 6:20 a.m. Present rate \$7.50 per week with no charge during absences of five (5) days or more. Contact John Grant X6385 until 3:00 p.m. After 4 p.m., 578-3318.

CARPOOL: Would like to add another person to carpool. Immediate vicinity of Ortega Park in Sunnyvale. Call Grant Miller, ext. 5298 or Mary Hall, ext. 6254.

SAN FRANCISCO CARPOOL. Anyone interested in carpooling from San Francisco to Ames please contact West Kurihara in Bldg. N-248 or call 468-3295 in the evenings.

FOUND - One pair of tinted bifocal prescription glasses in building 210, Rm. 239. Call Fred Baker, X5488.

1 Bike - Girls 20-inch high-riser, \$20. Call 732-1579 after 6 p.m.

Drafting table, wood, very good condition, \$40. Call 964-1725.

Close-up bellows focusing attachment & slide copy attachment for Nikon F camera. Excellent condition. Call 739-5373 after 5 p.m.

Sailboat: 12' S.F. Bay Pelican on Sears trailer. Beautifully handcrafted and outfitted for racing with active Bay Area fleet. Top condition. Reduced to \$795. Call 732-4858.

Housetrailer: 16' Aristocrat, sleeps 4-5, air conditioned, propane stove, oven, ice box, 20 gal water tank, electric brakes. Clean, good condition, \$795. Low rental storage near Moffett available. Call 732-4858.

FOR SALE: Schwinn 3-speed girl's bike, 26 inch wheels, hand and coaster brakes, \$75. Record changer, Dual 1009, \$25. Call 245-6924.

FOR SALE: Two aluminum sliding windows 4'x3' - \$15 and 4'x2' - \$13. Also West Bend model no. 14500 air cleaner - \$100. Call 248-7164 after 5 p.m.

Utility Trailer: 4' x 8', drop axel, ramp/tailgate, like new, \$695 or offer. Call 371-3084.

Canoe: 16' redwood strip and fiberglass, square end, fore and aft storage, paddles and oars included. Call 371-3084.

Galvaniz Roofing, 2' x 10', good condition, 14 sheets, \$3 each. Call 378-3143.

Bikes for sale, like new: 10-spd Schwinn, men; 3-spd 26", men; 3-spd 20", boys; 3-spd 20", girls; 1-spd 20", boys; 1-spd 20" motor cross, boys, HD wheels. Call 296-8594.

The Astrogram

Admin. Mgt. Building, Phone 965-5422

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The Astrogram

VOLUME XXI NUMBER 22

August 9, 1979

Apollo revisited: the liftoff 10 yrs ago

It was a beautiful morning at Launch Complex 39 — bright sunshine, a few fleecy clouds . . . and very warm. As the Sun marched up the eastern sky, a light breeze wafted in from the nearby Atlantic, ruffling the flags behind the wooden bleachers at the viewing site north of the huge Vehicle Assembly Building and cheering the assemblage of 5,000 special guests.

They had gathered at the Kennedy Space Center on Florida's coast from all over the nation and the world — political figures, diplomats, scientists, judges, religious and military leaders, corporate executives, sports and screen celebrities — personalities such as Vice President and Mrs. Spiro Agnew, former President and Mrs. Lyndon B. Johnson, Army Chief of Staff General William Westmoreland, Chief Justice of the U.S. Supreme Court Earl Warren, The Archbishop of New York Cardinal Terence Cooke, aviation pioneer Charles Lindberg, writer William F. Buckley, TV's Johnny Carson and Ed McMahon and affable comedian Jack Benny.

Close by was the press corps, 3,500 strong, representing 56 nations, including three Iron Curtain countries. Thousands of NASA civil service and contractor employees and their families lined the perimeter roads of the complex. And miles away, jamming the riverfronts, beaches and highway approaches to the space center, were an estimated one million visitors, possibly the largest crowd in history to witness a single event. (Continued on Page 2)

A. Laboy named FEW National VP for Training

Seattle, Washington was the site of the National Conference of Federally Employed Women. During the National meeting, Annette T. Laboy, of Ames EEO Office, was elected National Vice President for Training. F.E.W. is a private organization founded in 1968 to promote the interests of women in the Federal Government by increasing job opportunities and improving the merit system. It is the only independent national organization solely concerned with helping women achieve equal opportunity in the Federal Services.

Annette has been a member of F.E.W. for the last 5 years. She organized the South Bay Chapter here in Mountain View and served as its first President. Before accepting the post of Vice President for Training, she was a Regional Representative for the San Francisco Region, which serves California, Nevada, Arizona, Hawaii, Guam, and Japan.

As Vice President for Training, Annette will be responsible for developing and providing training for regional and chapter officers, will act as a resource for regional training conferences, and will develop a speakers bureau or resource list for the organization.

There will be five meetings for the executive officers in the next year; one in Topeka, Kansas and the other four in Washington, D.C.

Research aircraft makes milestone flight

An innovative research aircraft which combines advantages of both helicopters and airplanes has successfully demonstrated in-flight conversion from the helicopter mode to the airplane mode.

The milestone flight was made July 24 at Bell Helicopter Textron's Flight Research Center in Arlington, Texas. Bell designed and built the aircraft under a joint research program of Ames and the U.S. Army's Research and Technology Laboratories (AVRADCOM).

The unique aircraft has a 7.5 meter diameter (25-foot) helicopter-type rotor at each wing tip. Each rotor is powered by a turboprop engine and each engine-propeller system can be pivoted from straight up to straight ahead. With rotors oriented up and the blades rotating 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.

The aircraft is currently undergoing initial flight testing by Bell in preparation for delivery to Ames. Approximately 15 flight hours have been logged since the present series of flight tests was begun in April, 1979. Conversion from the helicopter mode to airplane mode was performed gradually with steady-state flight being demonstrated at each five degree increment of nacelle rotation.

The aircraft under test at Bell is the second aircraft built under the joint Army-NASA program. Aircraft number one made initial hover flights in

May, 1977, then was shipped to Ames for wind tunnel testing to define the initial flight envelope for flight tests with the second aircraft.

The Tilt Rotor Research 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. The aircraft is 12.6 meters (42 ft) 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 free turbine engines and Bell transmissions which drive the propellers. Each nacelle-engine-rotor combination rotates through 95 degrees to provide its unique helicopter/aircraft capabilities.

Honorary award for Flight Nurse Dee O'Hara

A75-1293



Dee O'Hara of the Life Science Biosystems Division was recently made an honorary member of the Society of NASA Flight Surgeons.

The Society is an organization within the Aerospace Medical Association and is one year old. The intention of the society is to present one honorary membership per year and Dee was an unanimous decision of the group to receive the first honor.

Dee served as Flight Nurse for all of the U.S. manned space flights from Mercury through ASTP and has held the esteem of all the astronauts, doctors and their families. Her personality, honesty and dedication to space flight medicine led to this award.

A79-0616



The responsibilities of Vice President of F.E.W. will increase Annette's duties in the organization and her contact with members throughout the country.

Apollo revisited: the liftoff 10 yrs ago

(Continued from Page 1)

They had come — the invited and the uninvited — to see the start of the most daring voyage of exploration ever attempted . . . man's first journey to the surface of the Moon.

The time was 9:26 a.m. EDT, six minutes before liftoff, and all eyes were riveted on the gleaming white Saturn V rocket and its bright orange launch tower silhouetted against the pale blue Florida sky.

Atop the 36-story-tall rocket, the Apollo 11 astronauts were making last-minute checks of their spacecraft. In the left seat was Commander Neil Armstrong, civilian and ex-test pilot. Next to him was Lunar Module Pilot Edwin "Buzz" Aldrin, a colonel in the Air Force. Occupying the right seat was Command Module Pilot Michael Collins, an Air Force lieutenant colonel. All three had flown in space before. Each was born in 1930, weighed 80 kilograms (165 pounds) and were within an inch of the same height — 5 feet, 11 inches.

They had started the day at 4:15 a.m., after being awakened by Flight Crew Director Deke Slayton, also an astronaut. Following a breakfast of orange juice, steak, scrambled eggs, toast and coffee, they had suited up and departed for Pad 39A, arriving after fueling operations had been completed. Armstrong had entered the Apollo at 6:45 a.m., assisted by the six-man pad closeout crew under the direction of Rockwell International's Gunter Wendt and NASA's Spacecraft Test Conductor "Skip" Chauvin.

Collins had entered next, followed by Aldrin. Before leaving the pad at 8:32 a.m., the closeout crew had shut the hatch, pressurized the cabin to check for leaks and purged it. For Armstrong,

Aldrin and Collins, the lonely vigil had begun. They would not gaze upon other human faces until splash-down in the Pacific Ocean eight days later.

Nine kilometers (5.6 miles) away, in the control center, launch director Rocco Petrone and his 463-man Apollo launch team monitored the final minutes of the countdown. Petrone directed the operation from his command station in "management decision row" which looked out over row upon row of flashing consoles and recording racks manned by engineers and technicians out of the space agency and its major Apollo contractors — Boeing, Rockwell International, McDonnell Douglas, IBM, General Electric, Grumman, Rocketdyne and Aerojet General. Seated alongside Petrone were Dr. Kurt Debus, director of the Kennedy Space Center; Dr. Hans Gruene, the center's director of Saturn V operations; and Dr. George Low, Apollo program manager for the Johnson Space Center in Houston. Observing the countdown procedures were NASA Administrator Dr. Thomas O. Paine and other high level NASA officials, including Dr. George Mueller, Associate NASA Administrator; Lt. Gen. Samuel Phillips, NASA's Apollo program chief; and Dr. Wernher von Braun, father of the Saturn V rocket and director of the Marshall Space Flight Center in Huntsville, Ala.

Over the past dozen hours or so, the launch team had checked off thousands of items from the 7.6-centimeter (3-inch) thick countdown manual, the bible of Saturn launch operations. The huge launch status board showed all green. Two minor equipment problems, a leaky valve and a faulty signal light, had been corrected while the astronauts were enroute to the pad.

At 9:27 a.m., or T-5 minutes, the Apollo access arm on the launch tower was retracted. At the four-minute mark, the "cleared for launch" command was issued. The countdown became automatic at 3 minutes and 20 seconds. Things were happening too fast now for the human mind to keep up with. Only computers, with their millisecond quickness, would be able to detect any problems. If one developed, the machines would automatically shut down the launch sequence. Man had become a bystander.

T-15 seconds. All attention was centered on the launch pad. On the beaches and the roads, on boats anchored in the surrounding waterways, spectators raised their binoculars. At the VIP bleachers, everyone stood. Newsmen, with direct phone lines opened to their papers in New York, Paris, Tokyo and thousands of other cities around world, were describing the final moments. Walter Cronkite and his fellow network broadcasters turned from the cameras to view the massive Moon rocket.

Everywhere, for a distance of 120 km (75 mi), hundreds of thousands of people waited and watched. Fingers were crossed, rosaries kissed, breaths held.

About 790 meters (2,600 feet) from the launch pad, protected by a sand bunker, 14 rescue personnel stood watch. Equipped with armored personnel carriers, and wearing flame protection gear, they would move in quickly to assist the astronauts in case of an emergency. Manning special roadblocks surrounding the complex were teams of doctors, nurses, safety officials, ordnance experts and recovery specialists — prepared to spring into action if the Saturn V exploded on the pad. Loaded with nearly 3,000 tons of volatile fuel, an exploding Moon rocket would shatter with a force equivalent to 1.2 million pounds of TNT.

High in the Apollo command module, the astronauts gripped the arm rests of their couches . . . ready, if necessary, to trigger the launch escape tower atop Apollo which would pull them free of the rocket and parachute them back to the ground some distance from the pad. Firemen and medical specialists would speed to the scene in moments aboard helicopters and amphibious vehicles.

At 8.9 seconds before liftoff, the five first-stage engines of the Saturn V erupted like inverted volcanoes, spewing fire and smoke down the huge flame deflector at the base of the pad. Sheets of ice, formed on the rocket's skin by the super-cold propellants within, flaked off in an avalanche of white. Thundering shock waves pounded the flat ocean front, filling the sky with startled flocks of duck, heron and small birds. Seconds later, the throbbing thunder enveloped the thousands of spectators several miles away. Some gasped in awe. Others clasped their hands over their ears to shut out the near-deafening roar.

At T-0, the engines had built to full thrust of 7.5 million pounds, the equivalent of 180 million horsepower, and the computer signalled the hold-down arms to release the vehicle. An instant later, the remaining swing arms connecting the rocket to the launch tower swung back. At 9:32 a.m. EDT, the 111-m (363-ft), 2.9-million kilogram (6.5-million pound) behemoth rose in a brilliant fireball.

"Liftoff! We have liftoff!" blared the loudspeakers.

Cheers broke out in the control room as the Saturn V slowly gained momentum. "Go, baby, go!" someone shouted.

At the guest site, cheering throngs, some teary eyed, followed the flaming rocket as it struggled to overcome Earth's gravity.

"C'est formidable!" exclaimed a French tourist as Apollo 11 bored through the wispy clouds. "C'est magnifique!"

It was that . . . a magnificent beginning.

ACE fall quarter/semester 1979 courses

COURSE NUMBER	COURSE TITLE	START AND END DATES	DAY	TIME
GOLDEN GATE UNIVERSITY MBA PROGRAM				
EC 294	Current Economic Problems	09/24-01/16	MW	7-8:15 am
FI 211	Investments	09/25-01/15	T	4:30-7pm
GM 281	Law & The Free Enterprise System	09/25-01/17	TTh	7-8:15am
QA 272	Management Science	09/27-01/17	Th	4:30-7pm
COLLEGE OF NOTRE DAME FOUNDATION PROGRAM & MANAGEMENT DEVELOPMENT COURSES				
BA C102.02	Financial Accounting	09/25-12/04	T	5-6:45 pm
BA C153	Planning & Operations Management	09/26-12/05	W	5-6:45 pm
BA C195	Principles of Organizational Behavior	09/24-12/03	M	5-6:45 pm
SUPERVISORY SKILLS PROGRAM				
BA C102.01	Introduction to Accounting	09/24-12/05	MW	12-1pm
BA C113D	Principles of Effective Business Writing	09/24-12/05	MW	12-1pm
BA C135.01	Elements of Supervision	09/24-12/05	MW	12-1pm
PERSONAL DEVELOPMENT				
ENG C8	Word Power: Using Words More Effectively	09/24-12/05	MW	12-1pm
MATH C102C	Beginning Business Math	09/25-12/06	TTh	12-1pm
IMS 101	*Intro to Industrial Microcomputer Systems	09/24-11/26	M	4:30-6:15pm
ET 300B	*Math for Electronics Technicians	09/26-12/05	W	4:30-6:15pm
FR C13	Basic Conversational French	09/25-12/11	TTh	12-1pm
BA C117	Personal Income Tax Preparation	09/27-12/13	Th	5-6:45pm
SPT 100	*Signing: The Silent Language	09/25-12/04	TTh	12-1pm
PR 821	Administrative Skills for Managers	09/27-12/13	Th	5-6:45pm
Short Courses				
PR 816	*Personal Shorthand	09/25-11/06	TTh	12:30-1pm
PR 824	*Communicating Successfully	09/28-10/19	F	12-1pm

(*) Videotaped Program

Note: ARC 301 forms are required to enroll in the courses listed. Registration forms, as well as course descriptions, are available in the Training Office, Bldg. 241, Room 138.

Sixteenth year for ASEE program at Ames

For the sixteenth year, Ames is hosting professors participating in a summer faculty fellowship program jointly sponsored by NASA and the American Society for Engineering Education (ASEE). Faculty members work with their peers on research projects or as a member of a team on an engineering design project. The collaborating university for the research program is Stanford with University of Santa Clara coordinating the design project.

The topic for this year's design project is Signal Characterization Systems for High Data Rates and How Signal-to-Noise Ratios. Both programs will conclude on August 24, 1979.

The research participants are: Albert S. Chen, Louisiana Tech. Univ.; Dennis C. Jespersen, Oregon State Univ.; Richard H. Miller, Univ. of Chicago; Steven F. Nerney, San Francisco State Univ.; Eugene E. Niemi, Jr., Univ. of Lowell; Charles J. Rogers, Univ. of Santa Clara; Gary L. Slater, Univ. of Cincinnati; Willen Stuiver, Univ. of Hawaii at Manoa; Carlos Tirres, Motlow State Community

College; William P. Tucker, Florida A&M Univ.; James R. Varner, Univ. of California; and Cynthia Zanger, Queensborough Community College.

Members of the design team are: John Bahng, Northwestern Univ.; John C. Baird, Dartmouth College; Madelaine Bates, Bronx Community College; Tyler Blake, California State Univ. at Northridge; Steve Choquette, Univ. of Santa Clara; Stanley Deans, Univ. of South Florida; Rose Dishman, United States International Univ.; Robert Dixon, Oregon State Univ. Radio Observatory; Jeremy Dunning, Oregon State Univ.; William Evans, Univ. of Santa Clara; Steven Lord, Univ. of Massachusetts; Frank Maloney, Villanova Univ.; Scott McClelland; Alexander Nauda, Pennsylvania State Univ.; Charles Rhodine, Univ. of Wyoming; Gerhard Ritter, Univ. of Florida; Robert A. Rubin, Whittier College; Robert H. Rubin, California State Univ.; Jim Schimannndle, Univ. of Santa Clara; Luigina Sogliero, Trinity College; Charles Spiteri, Queensborough Community College; and Gerald Zeitlin, Univ. of California at Berkeley.

Tech Brief award presentation

A79-0471-2



A Technology Utilization award presentation was recently made. The following Ames employees were acknowledged for their Tech Brief and/or Patents:

Larry L. Erickson, Stability Characteristics of Elastic Airplane; William T. Eckert, Subsonic Wind-Tunnel Performance; Emma Jean Jope, Subsonic Wind-Tunnel Performance; Kenneth W. Mort, Subsonic Wind-Tunnel Performance; Rodney C. Wingrove, Analysis of Aircraft Motions; Demetrius Kourtides, Heat-Resistant Nontoxic Composite Laminate; John E. Greenleaf, Sweat Collection Capsule; Gilbert K. Kojima, Batteryless Implanted Echonometer; Richard M. Westbrook, Wideband EMG Telemetry System; Salvador A. Rositano, Wideband EMG Telemetry System; Walter R. Mann, Automated Process Planning System; Michael G. Dix, Portable Data System; Salvatore Riccitiello, Fire Protection Covering for Small Diameter Missiles; Daryl N. Rasmussen, Calibration Face Plate for X-Ray Image Intensifiers and Alinement Tool for X-Ray Image Intensifiers; Harold Sandler, Multi-channel Implantable Telemetry System and Real-Time Video Display for Angiographic Studies; George G. Mateer, Flow Separation Detector; James

Howard, G-Load Measuring Indicator Apparatus; Hubert C. Vykukal, Patent, Spacesuit Mobility Joints; Donald A. Boxwell, Patent, Acoustically Swept Rotor; Fredric H. Schmitz, Patent, Acoustically Swept Rotor; William J. Gilwee, Patent, Honeycomb-Laminate Composite Structure; and Tech Brief, Honeycomb-Laminate Composite Structure; Robert D. Lee, Patent, (-1) Biomedical Ultrasonoscope and (-2) EKG and Ultrasonoscope; Theodore J. Wydeven, Tech Briefs, Corona-Discharge Air-Purification System, Abrasion-Resistant Antireflective Coating for Polycarbonate, High-Yield Process for Preparing Calcium Superoxide; and Patent, High-Yield Process for Preparing Calcium Superoxide; Wendell D. Chase, Nominal, Full Color Hybrid Display for Aircraft Simulators; George M. Fohlen, Major, Transparent Fire Resistant Polymeric Structures; Paul M. Sawko, Tech Brief, Fire Protection Covering for Small Diameter Missiles; Major, Transparent Fire Resistant Polymeric Structures; John A. Parker, Tech Brief, Heat-Resistant Nontoxic Composite Laminate, and Honeycomb-Laminate Composite Structures, Patent, Honeycomb-Laminate Composite Structures, Major, Transparent Fire Resistant Polymeric Structures.

Important notice to ARC Hanger visitors

There have been repeated incidents recently of Ames employees giving impromptu tours to friends and relatives in the hangar and ramp area in and adjacent to building 211. This creates a tremendous safety problem to both visitors and aircrew members for the following reasons:

Visitors have been seen climbing into various aircraft, sitting in pilots seats and moving switches. If these switches are overlooked during a preflight inspection it could result in an aircraft accident. The same is true of outside protuberances such as stall vanes, pitot static probes, and even flight control surfaces.

Visitors have also been walking across the ramp to view the C-141 on the north side and are subject to being hit by high velocity jet and prop blast. This can lead to damage to eyes from flying debris, nausea from fumes, and ear damage due to extreme noise. People have even walked up to helicopters with rotors turning which could result in decapitation. The ramp area is clearly marked with yellow chains and signs that state "KEEP OUT - AUTHORIZED PERSONNEL & VEHICLES ONLY." These are here for your safety and we hope that Ames employees will be responsible and mature enough to obey them.

We ask you to comply with a few simple rules.

1. Check in with flight operations prior to going on an impromptu tour to find out the status of aircraft operations.

2. DO NOT touch or enter any aircraft WHATSOEVER!

3. Stay on the perimeter of the ramp at all times and beware of jet and propeller blast.

Mutch named Space Science Assoc. Admin.

Dr. Thomas A. Mutch has been appointed NASA Associate Administrator for Space Science, effective July 1.

Dr. Mutch, Professor of Geological Sciences at Brown University, Providence, R.I., has been associated with Brown since 1960. He has served as the Associate Dean of the Graduate School and Chairman of the Department of Geological Sciences.

Dr. Mutch has been a major contributor to NASA science programs since 1969 as a member of the Lunar Science Review Board from 1969 to 1973, as leader of the Lander Imaging Science Team for the Viking Project (1969-1977), as chairman of several NASA committees planning the post-Viking exploration of Mars, as co-chairman of the Second International Colloquium on Mars which was held at the California Institute of Technology in January 1979, and as a scientific investigator.

He received the NASA Medal for Exceptional Scientific Achievement, 1977, and NASA Group Achievement Awards for lunar science, Viking science and the Viking Undergraduate Intern Program.

Born Aug. 26, 1931, he graduated from Princeton University in 1952 with an A.B. in history. He earned his M.S. in geology in 1957 from Rutgers University and his Ph.D. in geology in 1960 from Princeton. He was named a Fellow of the Geological Society of America in 1973. He is also a member of Sigma Xi and the American Association for the Advancement of Science. He is a mountain climber and has visited the Himalayas twice, most recently during the summer of 1978 with a Brown University group.

Dr. Mutch is married to the former Madeline Maurer. They reside in Providence with their three daughters, Patricia, Wendelin and Margaret.

Ames Promotion Plan vacancies

Notice No.	Title	Grade	Org.	Area of Consideration	Closing Date
79-126	Equal Opportunity Specialist	GS-7/9/11	DE	Ames/outside	9-7-79
79-127	Secretary (Typing) Secretary (Stenography)	GS-4/5	DOO	Ames/outside	8-24-79
Y-17-79	Aircraft Control and Instrument Mechanic	WG-12	Aero Mech Lab Support Division	Army & NASA/Ames Center-wide	8-20-79

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

TO APPLY: Complete APM-62 and submit to Mail Stop 241-6.

Want ads Transportation

FOR SALE: 1969 Toyota Landcruiser 283 V-8 engine. Hardtop and new soft top. Full cage, white spokes, clean. \$3450/offer. Call 941-3899.

FOR SALE: 1974 Cadillac El Dorado, grey with white vinyl top and red leather interior; mint condition; low mileage; must sell. Call 522-1156 (day) or 581-7524 (evenings).

FOR SALE: Austin Healey '65, 3000. Excellent condition, new top, new paint, Michelin tires. \$4,500. Call 968-5697 after 5:00 p.m.

FOR SALE: 1979 Mustang, 4 speed, 4 cylinder, 2 door. 1320 miles, AM radio. Asking \$4700.00. Call 262-0624 after 6 p.m.

FOR SALE: 1979 VW Rabbit Diesel, 4 door luxury model, 5 speed, silver. Less than 30 miles. Pick up at boat, mid-August. New car warranty and financing, \$8900.00. Call 738-2948.

Housing

FOR RENT: 3 bedroom, 2 bath home in San Jose near San Tomas and Hamilton. Large kitchen and yard. No pets. \$550.00 per month, first, last and deposit. 248-1356.

ROOM FOR RENT: Sunnyvale, M/F. \$175.00 per month, nonsmoker. Available late August. Call John, 738-0429.

FOR RENT: In Cupertino, deluxe 2 bedroom one bath apartment. \$325.00 per month, plus security deposit. Will be available August 12th. Call 252-3937 evenings.

Miscellaneous

FOR SALE: Woman's/girls 24 inch Raleigh bike, 9 speed. Nice for around town use or whatever. Excellent condition. \$50.00. Call 984-2753.

Travel notice

NASA Physical Security Handbook NHB 1620.3 and NMI 1620.4B concerning this subject, omit Yugoslavia, however, since last January an increased number of intelligence incidents have been reported involving U.S. Nationals. In accordance with citations above, all personnel are reminded of their responsibilities concerning such travel. Information and guidance will be provided by the Security Branch upon request.

Golf

The tournament at Santa Teresa for 1979 is history. Pete Johnson and Les Collins hosted their very first tournament and it was fun for all sixty-some players.

The day was a scorcher. The course was nicely groomed — well, maybe the greens were a little fuzzy. And, as usual, the back nine was physical. Also, following the tourney, Stu and Donna Johnson had an open house party for Tom Almojuela (on his way to Korea), who was a last minute guest-entree.

Listen, there were some good rounds shot — especially Ramos with a fine 74 gross, and Hedlund with his fourth consecutive 75. Unreal! But, the real honors for the day belong to Stu Johnson. From the early going he sensed a good game and he never let up. Not once! The pay off? — the best round of his life and the low net round of the club — a 64! Congratulations, Stu! Also, let's hear it for Vance Oyama who played in his street shoes and with rented clubs (he forgot his gear) and still managed to win his match and also the second flight. What next? Finally, Orozco, Dewitt, and Oyama all won their individual flights with net 65's. Good. Good. Good!

The day's winners were:

1st flight: 1 - Orozco, 2 - Ramos, 3 - Matthews, 4 - Hochstein, 5 - D. Banducci/J. Lee
2nd flight: 1 - Dewitt, 2 - Nachtsheim/Dick, 4 - D. Dust, 5 - Collins
3rd flight: 1 - V. Oyama, 2 - Silver, 3 - McFadden/Pachucki/Macon
4th flight: 1 - S. Johnson, 2 - J. Marvin, 3 - G. Rathert/Harry, 5 - Polek

See you at Pajaro on August 11.

Timely Survey Reports

The Center has recently been criticized for less than timely submission of Survey Reports in accordance with NHB 4200.1. A survey is the administrative action whereby loss, damage, or destruction of government property is investigated and reviewed to establish the pertinent facts, adjust the records, and determine the extent or absence of personal responsibility. When such loss, damage, or destruction of property is discovered, the individual who had possession of the property at the time must promptly prepare Part I of the Survey Report, NASA Form 598 and submit it through his Division Chief in sufficient time to reach the Property Manager within 30 days. Division Chiefs can also help expedite closing out the survey action by indicating in Part II the specific action he has taken to prevent recurrence of this type of incident.

OPERA TICKETS: Seats N110 & N112 (right center). The following performances are available (all at 1:30 p.m. Saturday): 9/22 Don Carlo, 11/10 Cosi Fan Tutte, 11/17 Forza del Destino. Price, \$25.00 each ticket. Call 851-0137 after 5 pm.

FOR SALE: Record-A-Call Answer Phone with Vox., \$125.00. Bearcat Programmable Scanner, \$175.00. Call 494-3311.

FOR SALE: Pentax K-1000 w/50mm original lens and Vivitar 2x Tele Converter, purchased December 1978. Asking \$125.00. Call Joe after 5 p.m. at 327-0298.

ROOMMATE WANTED: Male roommate wanted to share 3 bedroom, 2 bath house in Foster City (25 minutes from Ames). Call 345-6915.

Forming a rock group. Need amplifiers and mikes at reasonable prices. Call Keith 322-1380 after 5 pm.

RIDE WANTED: I will soon be employed at NASA/Ames, and I wish to share a ride to make this commute. My start date is 13 August 1979. Please contact Pat P. Pizzo, 1183 Lynhurst Way, San Jose 95118, Almaden Expressway and Branham. (408) 264-8425.

"Thank you"

Many, many thanks to my friends who started me off on a "happy retirement" by honoring me with a luncheon. I was overwhelmed and will always remember it as one of the special events of my life. It was wonderful to see all of you again!

A special thanks to the friends who did the work necessary to make my "going away" party such a great success.

Betty and I are thoroughly enjoying the radio-recorder and I couldn't have wished for anything nicer. Thanks again!

Sincerely,
Elmer (Tommy) Thomsen

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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The Astrogram

VOLUME XXI NUMBER 23

August 23, 1979

A billion miles from Earth Pioneer Saturn turns left

Pioneer Saturn, Earth's first spacecraft to Saturn, has been reoriented to keep the spin axis and antenna pointed toward Earth as it hurtles toward Saturn at 19,200 miles per hour.

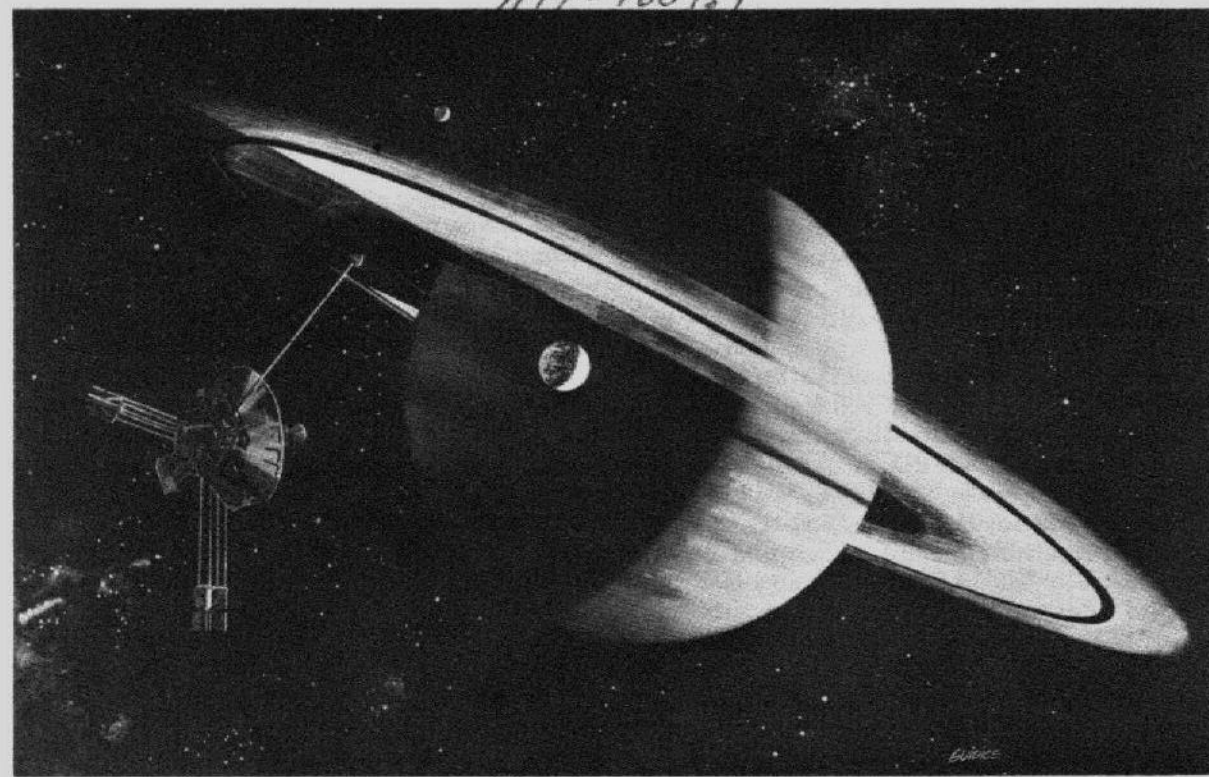
With the spacecraft 945 million miles from Earth, controllers here at Ames Research Center fired two one-second burns of Pioneer's pair of thrusters, moving the spacecraft 1.1 degree to the left. Despite Pioneer's six-and-a-half years of space travel across two billion miles of the solar system, through the Asteroid Belt and past the giant planet Jupiter, the spacecraft still responds well, moving to within 0.1 degree of the planned attitude.

On Thursday, the spacecraft will again be maneuvered to allow the ultraviolet instrument to begin measuring Saturn.

Pioneer now has begun to experience the tremendous gravity force of the ringed planet. The huge, swirling gas ball will pull the spacecraft toward it at an ever faster rate, until at closest approach on September 1, Pioneer will speed past Saturn at 70,900 miles per hour.

With Saturn still 10 million miles away, Pioneer has returned about 10 pictures of the planet, the first ever taken from a spacecraft. Because of the great distances, these images of the unlit side of Saturn's rings have been no larger than a penny.

As the spacecraft continues moving closer to the planet, the images will grow larger and more clear, until on August 26, they will begin to be better than any ever taken from Earth. On August 30, image resolution will be twice as good as in Earth-based photos and on August 31, resolution will be five times as good. In the closest picture, taken September 1, images of Saturn's cloud tops are



expected to be 20 times better than Earth-based photos. During the encounter period, Pioneer will send back 50 to 100 pictures which will be better than those taken from Earth.

The most critical event of the mission will occur at 9:01 a.m. Pacific Daylight Time on September 1, when the spacecraft crosses the Saturn ring plane at 53,000 miles per hour. In less than a second, the

spacecraft will pass through the ring plane at a point 70,000 miles above Saturn. The crossing is dangerous because an impact with planetary debris outside the visible rings could destroy the spacecraft.

After the ring crossing, Pioneer will make the historic first flight under Saturn's rings, taking
(Continued on page 2)

Dr. Mark sworn in as Secretary of the Air Force

Former Ames Director Dr. Hans M. Mark was sworn in on Thursday, July 26, as the Secretary of the Air Force by Secretary of Defense Harold Brown.

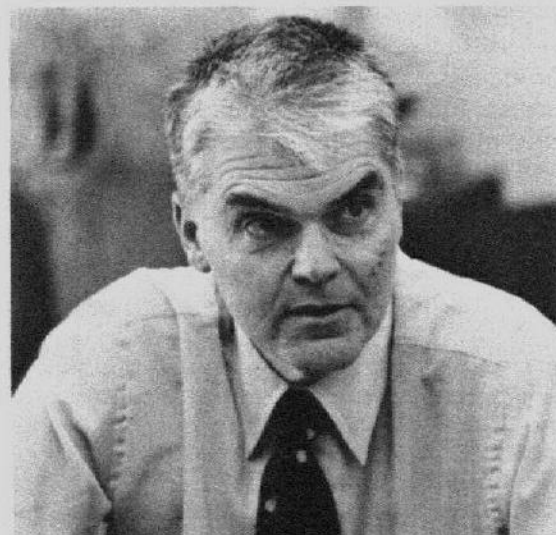
Dr. Mark was nominated by the President and confirmed by the senate.

Previously the Under Secretary of the Air Force, Dr. Mark has been serving as the acting Secretary of the Air Force since May 18, 1979.

Dr. Mark was born June 17, 1929 in Mannheim, Germany. He came to the United States in 1940 and became a citizen in 1945. He received an A.B. in physics from the University of California at Berkeley in 1951 and a Ph.D. in physics from the Massachusetts Institute of Technology in 1954.

Department of Defense and Air Force officials attended the 6:00 p.m. ceremony in Dr. Brown's Pentagon Office.

Active in teaching since 1952, Dr. Mark taught courses in physics and engineering at Boston University, the Massachusetts Institute of Technology, the University of California at Berkeley and Davis and Stanford University. Concurrently, he was active in research and held a number of administrative appointments. Following completion of his



graduate studies, Dr. Mark remained at the Massachusetts Institute of Technology as a research associate and acting head of the Neutron Physics Group, Laboratory for Nuclear Science, until 1955. He then returned to the University of California as
(Continued on page 2)

NASA Conference on Life in the Universe-June 1979

As reviewed in the July 12th issue of the Astrogram, a Conference on Life in the Universe was held at Ames on June 19-20, 1979. Dr. Frosch, the NASA Administrator, gave the welcoming address to an audience of some 300 scientific, academic, and management people. Following is the text of Dr. Frosch's speech:

When I was invited to attend this meeting, I decided to come for two reasons; one being to demonstrate by coming to talk to you that I think this subject is of central importance to the NASA job. My second reason, which is always a problem to the formal system, is that I wanted to come to the meeting to hear the papers because of my interest in the subject. As it happens, the system will not let me escape completely, so I will get to hear papers today, but not tomorrow.

We are in a unique time and in a unique situation. All generations feel that is the case. I think we can make the statement that for the first time we can see what the sketch of the connection between the origin of the universe and ourselves may be. As I
(Continued on page 2)

Dr. Frosh speaks at Universe Conference *(Continued from page 1)*

understand the situation, it is only a sketch. There are lots of gaps in the chain of connection between the first instants of the universe, the formation of matter, the whole evolution of the universe, the galaxies, the stars, the solar system, the planets, the organic molecules and so on to ourselves. But at least we can say we have a sketch. We have pieces that we think we understand and there are pieces that we do not understand.

There are perhaps two gigantic missing pieces in this chain where I think it's fair to say we have hardly a clue. One is at the end nearest ourselves when we contemplate the nature of consciousness; and the other is at the very other end where we contemplate the first instants of the universe. At best, we may simply have reduced the whole problem to a lack of understanding of the beginning, which I suppose could be described as reducing it to a previously unsolved problem.

At least we have the satisfaction of knowing that a quest for understanding of ourselves has now become more than a blind groping for ideas. It has become a matter of connecting ideas from a distant past through a set of processes of which we have a glimmering and some knowledge, to a present, and looking on beyond that, into some distant future that we can only imagine. Our job now is to begin to test this chain of logic by looking at the universe, and to ask seriously: "If the chain of logic is correct, is it only us?" If it is not only us — and that is what the chain of logic implies — then how can we not seek our siblings? How can we not find out who else is part of the same chain of logic? If it should turn out that it is only us, then a very much greater problem is posed for us — how come? And what does that mean for the tasks that we have set for ourselves next? If the task is to find an understanding of ourselves, and if our understanding of origins implies others, surely we must find the others; but if there are no others, then we have the problem of generating our own next tasks.

All of this understanding comes at a very difficult time for attempts to understand. It comes at a time in which we seem to have a faltering in global and national interest in knowledge for its own sake. We have become hyperpractical and are expected to explain the use of things we don't understand, before we understand them.

It is a time of the "golden fleece" for SETI, and I presume it will be a time of golden fleeces for other things we try to do. The "golden fleece" idea, the idea that searches, gropings for knowledge whose purposes we don't understand are silly and some kind of ripoff, results from sheer lack of understanding, lack of imagination, and lack of perception of the meaning of the history of the human race.

It is a lack of understanding of the nature of the increase of knowledge whether immediately practical knowledge or not, and a lack of understanding of the intellectual risk-taking which is an essential part of any groping for knowledge. In any noisy system the only way in which we can be sure of



Dr. Frosh, Administrator, giving the welcoming address at the Conference on Life in the Universe.

making no false alarm errors is to turn the system off. There can be no detections if there is no possibility of false alarm. To grope we must have the possibility of error. The whole game is making errors, finding them, and disposing of them.

The second strain of trouble with which we battle in doing this work is the idea that the universe has been around for a long time, so let's postpone the expensive effort to understand it until we have saved the human race. The question is again backwards, a misinterpretation of the nature of our history as a race. The question is not, "How can we pursue knowledge until we have saved the race?" The historical question is more, "How and why should we bother to save the race unless we seek to understand where we came from, who we are, and what the universe around us is about?"

The very process of saving ourselves is imbedded in and indissolubly tangled up with the process of understanding ourselves and what is around us. The cathedral of knowledge of self cannot be built only from the inside. It must also be built by testing what is built inside against what is outside. Our inner perception must somehow be congruent with the outer fact of the universe in which we are imbedded. What we are doing is not seeking, as is sometimes suggested, only power, technological capability, and what is sometimes described as bloodless scientific knowledge. Scientific knowledge is tied up intimately with our internal attempts to search for ourselves and to understand ourselves because it provides the true context for what we are trying to understand.

I look forward to participating in this meeting because I think it is of profound importance scientifically, socially, and philosophically to pursue this subject. I think we are at the point where we must seriously talk about how we do experiments and seek success; we are beyond the point where we can only talk about how we grope. I look forward to the next steps.

Saturn at Exploratorium Aug. 31 – Sept. 1

On Friday, August 31, and Saturday, September 1, from 6:00 to 10:00 p.m., the Exploratorium will hold a Saturn celebration. The first extraterrestrial images of Saturn from Pioneer 11, transmitted from Ames, will be shown on giant screens. These two evenings will commemorate the last ten years in which we first visited the Moon, Mars, Venus, Jupiter and Saturn and the tenth anniversary of the Exploratorium. It is also the fifth anniversary of the Jupiter Fly-By by the same Pioneer spacecraft.

In addition to the first close-up of Saturn, one of the spectacular sights in the solar system, there will be computer simulations of the fly-by, movies and slides of previous missions to the Moon, Mars, Venus

and Jupiter, and telescopes outside for viewing Saturn. Astronomers will provide commentary on the images and space mission and will answer questions.

The film "Mars in 3-D" will be shown hourly. Developed by Dr. Elliot C. Levinthal of Stanford University, it is viewed with special glasses and has a sound track of computer-generated music. Canyons as deep as the Grand Canyon are seen in full relief, and surface features on the ground dramatically project into the foreground. The ridges, outcrops and craters of the Martian terrain are shown in vivid, realistic detail.

Pioneer Saturn

(Continued from page 1)

measurements to determine their structure. Pioneer will make its closest approach to Saturn at a distance of 13,300 miles at 11:00 a.m. Ground Received Time at Pioneer Mission Control Center in Mountain View, California.

A final hazardous ring plane crossing will occur on the outbound journey on the afternoon of September 1, again at 70,000 miles above the planet.

On September 2, Pioneer will take pictures of Saturn's giant moon Titan, which is bigger than the planet Mercury. After passing the ringed planet and nine of its ten moons, Pioneer Saturn will head out of the solar system, traveling roughly the same direction the solar system moves through the galaxy.

Pioneer carries a 30-kilogram (650-pound) scientific payload of 11 operating instruments. Two other experiments use the spacecraft and its radio signal as their instruments.

Pioneer Saturn is managed by Ames. The spacecraft was built by TRW Systems in Redondo Beach, California.

Dr. Mark *(Continued from page 1)*

a research physicist at the Berkeley campus, then at the university's Lawrence Radiation Laboratory in Livermore, where he served until 1958.

After two years as an assistant professor of physics at the Massachusetts Institute of Technology, Dr. Mark returned to the Lawrence Radiation Laboratory in Livermore to continue physics research and to head the Laboratory's Experimental Physics Division (1960-1964). During that period, he was also first an associate professor (1961-1966) and then professor of nuclear engineering (1966-1969) at the University of California's Berkeley campus. He served as chairman of the Department of Nuclear Engineering and administrator of the Berkeley Research Reactor from 1964 to 1969.

In 1969, Dr. Mark accepted the position of director of Ames Research Center. As director he managed the center's research and applications efforts in aeronautics, space science, life science and space technology.

Auto insurance meeting

The California Casualty representative will be at Ames from 11:00 a.m. to 2:00 p.m. on the following dates:

Wednesday, August 29
Wednesday, September 26
Wednesday, October 31

Moped riders

Effective immediately, all moped riders are required to wear safety helmets when riding aboard NAS Moffett Field. This applies to both privately owned and rented mopeds. This change is the result of recent accidents involving moped riders which indicate the need for safety equipment. Additionally, all personnel are reminded that the carrying of passengers on mopeds is not permitted by law and that moped riders are required to observe the same rules of the road as other vehicle drivers.

Free fiber optics

Jack Pope is sponsoring a speaker to give a free seminar on "Fiber Optics" on Thursday, August 30, from 9:00 to 4:00 in Bldg. 213, Room 261. Through the application of fiber optics method, more data or other information can be transmitted from one point to another than on a cable wire. If you are interested in attending this free seminar, call the Training Office on Ext. 5422, for registration.

Golf

The Pajaro tournament started in drizzle and ended in bright sunshine - typical weather on a typical Monterey Bay course. The course was in good shape. Anyway, to the Chairmen, Armando Lopez and Wayne Harry, thanks for a good tournament!

However, there was some exceptional shooting done by Phil and Betty Quattrone (unusual pairing). They really put together a balanced attack and most of the kudos go to them. For what? Well, as a team, they won the best ball twosome event with a low total of 58 points (G. Rathert and D. Peeler were a close second with 59 points). In addition, Phil Quattrone along with steadily improving G. Rathert, clearly outdistanced all 56 players with low net scores of 63. Really something! - Quattrones and G. Rathert. Also, Roger Hedlund finally ended his string of 75's at four with a solid low gross 73. Looking good! Another good looker - a 75, was carded by Owen Koontz. Et tu?

Here is the lineup of winning twosomes:

1. P. Quattrone, B. Quattrone
2. G. Rathert, D. Peeler
3. W. Harry, T. Polek
4. R. DeConti, D. Norman
5. R. Hedlund, C. Imprescia
6. R. Eddy, M. Radovich

See you all at Spyglass on September 8!

Blue Cross - Blue Shield rep at Ames

The Blue Cross Blue Shield representative will be at Ames on Thursday, August 30, from 11:30 a.m. to 12:30 p.m. to answer questions regarding health insurance under the Federal Employees program. The meeting will be held in Building 241, Room 147.

Stanford honors coop meeting

There will be a meeting for all Ames employees who will be attending the Stanford course during the Autumn Quarter - this includes Honors Coop, Nonregistered Option, and Auditors. New registration procedures will be discussed. The meeting will be held in Bldg. 241, Rm. 147, Thursday, Aug. 30, at 9:00 a.m.

WANT ADS

Transportation

FOR SALE: 1976 Buick Skylark; V6 Engine, lots of extras; \$3600/offer. Call 965-2392.

FOR SALE: 1974 SAAB 99LE. A/C, AM/FM radio and tape deck. 52,000 miles. \$3200. Call 241-1679 after 5 pm.

For Sale - 1970 Ford LTD Squire Wagon 390, PS, PB, Air - Needs work. \$400. Call 738-3689 after 5 p.m.

1971 GMC 3/4-ton pick-up 350 V8, auto trans., power brakes, power steering, mag wheels w/good tires, \$2700. Call 371-5648.

1973 Tiltin Hiltin, 8 ft c/o Camper. Refrig., AC/DC/gas, stove and oven, porta potti, \$1500. Call 371-5648.

FOR SALE: '71 Ford Wagon, Country Squire, runs well, looks good. \$1100. Call 365-0578 or Ext. 5041.

PLYMOUTH Fury, 1972, A/T, good transportation, runs on regular. \$300. Call 856-0356.

Stanford Instructional Television

COURSES TO BE TELEVISED
AUTUMN QUARTER 1979-80 OVER THE

Course No.	Title	Units	Days	Time	Channel
AERO/ASTRO					
AA 210A	Fundamentals of Compressible Flow	3	AVAILABLE ON VIDEOTAPE		
AA 230	Aerodynamics of Rotary Wing Aircraft and Power Generators	3	MWF	3:15-4:05	8
AA 244A	Free and Forced Motion of Structures	3	MWF	3:15-4:05	3
AA 297	Seminar in Flight Mechanics and Control	1	W	4:15-5:30	3
COMPUTER SCIENCE					
CS 107	Systematic Programming	3	MWF	2:15-3:05	10
CS 137A	Numerical Analysis	3	MWF	2:15-3:05	12
CS 142	Language Features and Their Implementation	3	TTH	1:15-2:30	12
CS 144A	Data Structures	3	MWF	3:15-4:05	10
CS 155	Concrete Mathematics	3	MWF	1:15-2:05	12
CS 156	Introduction to the Mathematical Theory of Computation	3	MWF	10:00-10:50	8
CS 206	Recursive Programming and Proving	3	MWF	9:00-9:50	10
CS 227	Introduction to Robotics and Computer Vision	3	TTH	2:45-4:00	10
CS 265	Computational Models for the Syntax of Natural Language	3/4	MWF	9:00-9:50	12
CS 311	Computer System Design	3	MWF	11:00-11:50	8
ELECTRICAL ENGINEERING					
EE 111	Electronics	3	TTH	8:00-9:15	8
EE 181	Introduction to Computer Organization, Machine and Assembly Language	3	MWF	11:00-11:50	12
EE 201A	Seminar	1	TH	11:00-11:50	10
EE 202	Medical Electronics	3	TTH	3:35-4:55	12
EE 211	Principles of Pulse and Timing Circuits	3	MWF	10:00-10:50	12
EE 216	Principles and Models of Semiconductor Devices	3	TTH	8:00-9:15	12
EE 238	Electric and Magnetic Properties of Solids	3	TTH	1:15-2:30	3
EE 261	The Fourier Transform and Its Applications	3	MWF	10:00-10:50	3
EE 278	Introduction to Statistical Signal Processing	3	TTH	9:30-10:45	12
EE 322A	Basic Quantum Mechanics	3	TTH	9:30-10:45	8
EE 323A	Acoustic Devices	3	TTH	2:45-4:00	8
EE 326A	Electron and Ion Dynamics	3	TTH	1:15-2:30	10
EE 363	Introduction to Linear System Theory	4	MWF	11:00-11:50	3
EE 370	Information Systems Seminar	1	M	4:15-5:30	3
EE 280	Seminar on Computer Systems	1	W	4:15-5:30	10
EE 381	Logic Design	3	MWF	9:00-9:50	3
ENGINEERING					
Engr 207	Digital Control I	4	TTH	11:00-12:15	3
ENGINEERING-ECONOMIC SYSTEMS					
EES 100A	Introduction to Systems and Policy Analysis	3	TTH	8:00-9:15	VIDEOTAPED ONLY
EES 201A	Dynamic Systems	4	TTH	9:30-10:50	
INDUSTRIAL ENGINEERING					
IE 133	Industrial Accounting	4	MWF	1:15-2:05	10
MATHEMATICS					
MATH 113S	Linear Algebra and Its Applications	3	MWF	10:00-10:50	10
MATERIAL SCIENCE					
MATS 205	Strength and Microstructure	3	TTH	8:00-9:15	3
MECHANICAL ENGINEERING					
ME 180	Energy and Society	3	MWF	1:15-2:05	8
ME 200A	Mathematical Methods in Mechanical Engineering	3	MWF	11:00-11:50	10
ME 231A	Dynamics	3	TTH	9:30-10:45	8
ME 241A	Theory of Plates	3	MWF	1:15-2:05	3
ME 270	Engineering Thermodynamics	3	MWF	2:15-3:05	8
STATISTICS					
STAT 217	Introduction to Stochastic Processes	3	MWF	2:15-3:05	3

Housing

TOWNHOUSE - 3 br, 1 1/2 ba, \$77,830. Easy walking or biking distance from Ames. 532 Tyrella, No. 37, Mt. View. Call 967-2970 or call realtor: 258-3099.

2 br apt. to share: Tennis courts, Olympic-size pool, billiards, activities, etc. On Fair Oaks Ave. (6 mi. to Ames). Now available \$215/mo, nonsmoker, call Norm at 587-0724, Ext. 6175 (San Francisco, weekends and evenings).

Miscellaneous

BIKE: Schwinn, Stingray, like new, \$70 or best offer. Call 257-9248, evenings.

WANTED: Someone under 4'10 1/2", over 21, to perform for birthday party. Contact Linda Montalvo before Sept. 1 to wish her Happy Birthday.

Queen-size springs/mattress, luxury Sears-O-Pedic in good condition. \$50. Call (408) 227-2480.

(Continued on page 4)

Ames Promotion Plan Vacancies

Notice No.	Title	Grade	Org.	Area of Consideration	Closing Date
79-111	Ast. Chief, Extraterrestrial Research Division	GS-15	LX	Ames/Outside	Extended 09/21/79
79-128	Supervisory Research Chemist	GS-13/14	SC	Ames/Outside	09/14/79
79-129	Model Maker	WG-14	RSM	NASA-Ames/ Army/Tenant Agencies	09/04/79
79-130	Secretary (Typing) Secretary (Stenography)	GS-4/5	SST	Ames/Outside	08/31/79
79-131	Aerospace Engineering Technician	GS-11/12	SEM	Ames/Army	09/10/79
79-132	Supv. Aerospace Engineer AST, Flight Systems (TEMPORARY, NTE 1 yr)	GS-14	FVQ	Ames Employees Only	09/07/79
79-133	Electronics Technician	GS-9/10	FOS	Ames/Outside	09/07/79
79-134	Secretary (Typing) Secretary (Stenography)	GS-4/5	SPJ	Ames/Outside	09/07/79
79-135	Secretary (Typing) Secretary (Stenography)	GS-4/5	SC	Ames/Outside	09/06/79
79-136	Computer Specialist	GS-11/12	RKG	NASA-Ames & Outside	09/07/79

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

MERIT PROMOTION PLAN SELECTIONS

Notice No.	Title	Org.	Name
79-74	Spvy AST, Experimental Facility Techniques	STF	Frank Nichols
79-79	Model Maker	RSM	Cancelled
79-80	Model Maker	RSS	Robert Bell Gerald O'Connell George Carvalho
79-96	Mathematics Technician	FAX	Alan Diederichsen
79-102	Secretary (Typing)	RKM	Emelia Fritz
79-104	Secretary (Typing)	RKT	Marjorie Stathes
79-105	Payroll Clerk	AFP	Linda Montalvo
79-107	Supervisory Aerospace Engineer	FVQ	Cancelled
79-110	Computer Systems Analyst	RKM	David Durbin
79-113	Electronics Engineer (Group Leader, Comm.)	RKT	James Hutson
79-117	Secretary (Typing)	FSV	Alice Fontanilla

Want Ads (Continued from page 3)

Are you planning a party or wedding reception? Brighten it up with live music. These three girls play the organ, drums, and guitar and they also sing your favorite songs. Their music consists of yesterday's hits to the current disco beat. Many references; they will audition. Call 739-9768.

Close-up bellows focusing attachment & slide copy attachment for Nikon F camera. Excellent condition. Call 739-5373 after 5 p.m.

ARA STORE SPECIAL: Various styles and colors of T-shirts are being closed out at the ARA store. Sizes available are children's S,M,L,XL, and men's XL. They are being reduced 20% to \$4. each. Store hours are 12:00 to 12:45 Tues. and Thurs.

WOMEN of all ages and ability wishing to play soccer can join the Bay Area Women's Soccer League. If you are interested in playing in the Sunnyvale area (at Fair Oaks and Hwy. 101) contact Coaches Terry Stegemiller (739-5328) or Joel Faulkner (733-9366) for details, or simply show up for practice any Tues. or Thurs. at the De Anza off-campus center on Fair Oaks in Sunnyvale at 5:30 p.m. Practice starts now for the fall season, so be sure to act soon especially if you are a beginner. It's great exercise and a lot of fun!

FOR SALE: Seven United Airlines 1/2-fair coupons. Please call 378-0920.

COLDSPOT Refrigerator-freezer (bottom freezer), 14 1/2 cu.ft. Good cond. White. Very economical to operate. \$85 or best offer. Eves. call 356-2693, days call 965-6509.

FOR SALE: Sears window air cond. asking \$135. Call 657-4247 after 6 p.m. and weekends.

KIRBY Vacuum cleaner - 3 yrs. old, all attachments included: shop tools, sprayer, rug cleaner, waxer, etc. New cond. \$250. Call 738-4166. eves.

FOR SALE: Pentax K-1000 w/50 mm original lens and Vivitar 2X teleconverter purchased Dec. '78. Asking \$125. Call after 5 p.m. 327-0298.

BICYCLERS: Components for sale: Avocet touring III seat, Campy N.R. seatpost (27.2), Mafac racer breaks, Cinelli MOD 1/A stem (black, 22.2, 10 cm), 700x1 wheels (Campy high flange N.R. hubs, Rigida 13/19 rims, Robegel 3 star DB spokes), Campy Super Record chain ring (52), and many other items, all in new condition. All prices negotiable. Call (415) 468-3295.

22 cal rifle, JAGAR AP-74 semi-auto, 15 shot clip. Exact M-16 look alike. Good for target and pest control. \$110. Call (415) 468-3295.

Steens F-100 minicycle. 10 HP Honda Ace 100, excellent condition. \$300/offer. Call (415) 468-3295.

AMES Racquetball players: Anyone interested in applying for a corporate membership to the Campbell Racquetball Club (corner of Campbell Ave. and San Tomas Aquino Rd., Campbell), please call 378-0920. If enough people are interested, the monthly dues would be \$15.

FOR SALE: Wagon Wheel Bunk Beds, complete - \$50; Double Bed Complete - \$50 or both for \$85. Couch, solid, fair cond. \$35. Call 263-3829 before 10 p.m.

Nikonos underwater camera with 35 mm, f2.5 lens, new, never used and still in box. \$365. Stereo, portable, Magnavox in exc. cond. and new stylus. \$50. Call 965-5897.

FOR SALE: Hamilton Smokeless Broiler/Rotisserie. New, still has warranty. Cost over \$40, sell for \$25. Call after 5 p.m. (408) 258-6432.

ROOMMATES needed for 4-br new house in Milpitas; \$150/mo. + dep. + utilities; call Dan at 965-6460.

Garage Sale, Sept. 1, 1979 at 1010 Madison Dr., Mt. View. Power mower, adjustable, \$175. Kroehler recliner chair, \$75. Roll-away bed, excellent, \$75. Baby buggy, deluxe, \$30. Many other bargains.

Half Fare coupons, 2 United, 1 American. Make offer. Call 379-3481.

FOR SALE: Table Tennis Table, extra strong - includes net and heavy-duty swivel casters. Only slightly used, \$60. Call 253-5445.

FOOTHILL MATH. 71 (Math. for Electronics). No prereqs. I will teach the above course starting on Sept. 17, 1979. 5 units, transferable to any 4-yr state college or university as free elective units towards a degree. This will be taught at Fairchild, Whisman Ave., Mt. View. Open to the public, on Monday through Friday from 7 to 7:50 a.m. If you want to enroll call Art Gobets at Ames Ext. 6217.

The Astrogram

Admin. Mgt. Building, Phone 965-5422

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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>SEPT. 3 - LABOR DAY</p>	<p>SEPT. 4 - Ames Scuba Club Monthly Meeting Time: 11:30-1:00 p.m. Location: N-235, Ames Cafeteria Private Dining Room</p>	<p>SEPT. 5 -</p>	<p>SEPT. 6 - Bible Study for Ames and Navy People Coordinator: Dr. Dewey Hodges, Ext. 5835 Time: 12:00 Noon Location: Bldg. 48, Navy Side (Sunday School Building)</p>	<p>SEPT. 7 -</p>
<p>SEPT. 10 -</p>	<p>SEPT. 11 - Deadline for Calendar of Events covering the period October 1 - October 19.</p>	<p>SEPT. 12 - Ames Stamp Club Meeting Time: 7:30 p.m. Location: N-241, Room 237</p>	<p>SEPT. 13 - Bible Study for Ames and Navy People Coordinator: Dr. Dewey Hodges, Ext. 5835 Time: 12:00 Noon Location: Bldg. 48, Navy Side (Sunday School Building)</p>	<p>SEPT. 14 -</p>
<p>SEPT. 17 -</p>	<p>SEPT. 18 -</p>	<p>SEPT. 19 - National Federation of Federal Employees (NFFEE) Monthly Meeting Time: 12:00-12:30 p.m. Location: N-213, Room 261</p>	<p>SEPT. 20 - Bible Study for Ames and Navy People Coordinator: Dr. Dewey Hodges, Ext. 5835 Time: 12:00 Noon Location: Bldg. 48, Navy Side (Sunday School Building)</p>	<p>SEPT. 21 - If you wish to have an event announced on this calendar please notify Linda Mackey, Visits Coordinator, Ext. 5546, M/S 253-1. The next calendar will cover the period August 17 - October 5. The deadline is September 11.</p>

WEEKEND ACTIVITIES: SEPT. 8 - ARC Golf Tournament
Spyglass Hill
Time: 12:00 Noon
Chairman: Larry Hochstein, x5938
Official Deadline: Aug. 30
Send money to Dave Banducci,
M/S 226-3

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

AUGUST 14, THRU AUGUST 20, 1979

A LA CARTE MENU

TUESDAY Beef Roll with Mushroom Sauce.....
Knackwurst and Red Cabbage or Omelette.....
Choice of One: French Fried or Whipped Potatoes,
Savory Beans, Carrots or Salad
Soup - Vegetable.....

WEDNESDAY Baked Ham with Raisin Sauce.....
Swedish Meatballs with Rice Pilaf or Omelette.....
Choice of One: Whipped or Au Gratin Potatoes,
Spicy Beets, Green Beans or Salad
Soup - Tomato, Macaroni and Onion.....

THURSDAY Southern Fried Chicken.....
Macaroni and Beef Casserole or Omelette.....
Choice of One: Hash Brown or Whipped Potatoes,
Mixed Vegetables, Stewed Tomatoes or Salad
Soup - Beef Barley.....

FRIDAY English Fried Sole and Tartar Sauce.....
Creole Omelette or Thomas Jefferson Souffle.....
Choice of One: Rice, O'Brien, Whipped Potatoes,
French Peas, Zucchini or Salad
Soup - Clam Chowder.....

MONDAY Juliene of Beef, Creole Style on Rice.....
Dr. Wendell Holmes Omelette or Denver Omelette.....
Choice of One: Rice, Whipped Potatoes, Buttered Peas
Corn O'Brien or Salad
Soup - Tomato and Vegetable.....

DAILY SPECIALS INCLUDES: A \$1.40 ENTREE, VEGETABLE OR POTATO, SALAD
ROLL & BUTTER, AND A .30¢ BEVERAGE.....

(CHEF'S CHOICE) HOT SANDWICH AND LARGE BOWL OF SOUP...

DAILY DIET SPECIAL

(Chef's Choice) - Vegetarian Plate: 3 Vegetables, 1 Jello or
Cottage Cheese or Poached Egg.....1.60

SEPTEMBER 4, THRU SEPTEMBER 10, 1979

A LA CARTE MENU

TUESDAY Chicken Fricasse over Noodles.....
Spanish Rice and Bacon.....
Choice of One: Whipped or Hashed O'Brien Potatoes,
Peas, Buttered Corn or Salad
Soup - Cream of Fresh Mushrooms.....

WEDNESDAY Ham Steak Hawaiian Style.....
Tamale Pie Casserole.....
Choice of One: Au Gratin or Whipped Potatoes,
Buttered Spinach, Glazed Carrots or Salad
Soup - Old Fashioned Navy Bean.....

THURSDAY Smothered Liver with Onions.....
Pork Fried Rice.....
Choice of One: Mashed or Lyonnaise Potatoes,
Green Beans, Cauliflower or Salad
Soup - Fresh Vegetable and Beef.....

FRIDAY Roast X-Rib of Choice Beef.....
Seafood Curry over Biscuit.....
Creole or Cheddar Cheese Omelette.....
Choice of One: Snowflaked or Country Fried Potatoes,
Cut Buttered Broccoli, Stewed Tomatoes or
Salad
Soup - Boston Clam Chowder.....

MONDAY Pork Chop Creole Style with Rice.....
Turkey, Macaroni and Creamed Cheese Casserole.....
Choice of One: Whipped or Hashed Brown Potatoes,
Harvard Beets, Green Peas or Salad
Soup - Cream of Potato.....

DAILY SPECIALS INCLUDES: A \$1.40 ENTREE, VEGETABLE OR POTATO, SALAD
ROLL & BUTTER, AND A .30¢ BEVERAGE.....

(CHEF'S CHOICE) HOT SANDWICH AND LARGE BOWL OF SOUP...

DAILY DIET SPECIAL

(Chef's Choice) - Vegetarian Plate: 3 Vegetables, 1 Jello or
Cottage Cheese or Poached Egg.....1.60

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The Astrogram

VOLUME XXI NUMBER 24

September 6, 1979

Pioneer Saturn crossing a huge success

Spinning through space at 31,100 kph (20,000 mph) on Earth's maiden voyage to the ringed planet, Pioneer Saturn began on Sunday, August 26, transmitting the first Saturn pictures which will be better than those taken from Earth. The spacecraft was still 5 million km (3 million mi) from the planet.

With Pioneer 1.5 million km (960 million mi) from Earth, deep-space networks in Madrid, Spain, Canberra, Australia, and Goldstone, California, began full-time, simultaneous tracking Saturday, Aug. 25, which will double the data transmission rate, improving image quality.

On August 30, images taken 2 million km (1.3 million mi) from Saturn were twice as good as any taken from Earth. On August 31, the last full-disc picture of the planet, taken from 1.6 million km (1 million mi), was five times better than Earth-based photographs. The closest picture, taken September 1 at 94,200 km (53,400 mi) above Saturn, was 20 times better than Earth pictures, resolving cloud features 50 km (30 mi) wide.

The Imaging Photopolarimeter, Pioneer's camera equipment, already has transmitted more than 50 pictures of Saturn and its rings, some of which show the moons Titan and Mimas as tiny dots.

All images have been of the unlit side of Saturn's rings, a never-before-seen view. The rings have appeared in the negative, with dark rings and light shining through divisions between the rings.

Between August 26 and September 8, Pioneer will return 50 to 100 images which will be better than those taken from Earth.

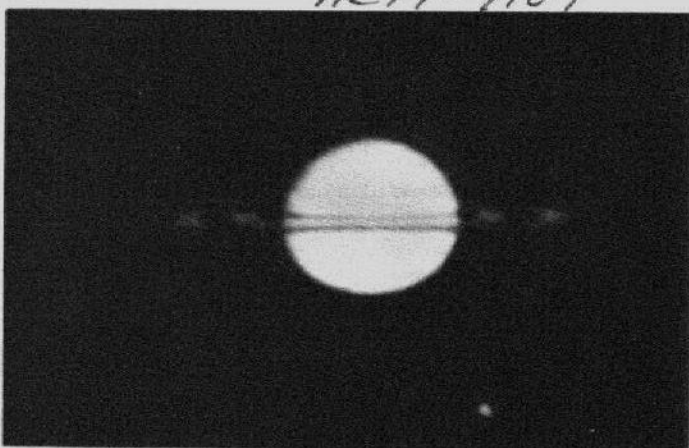
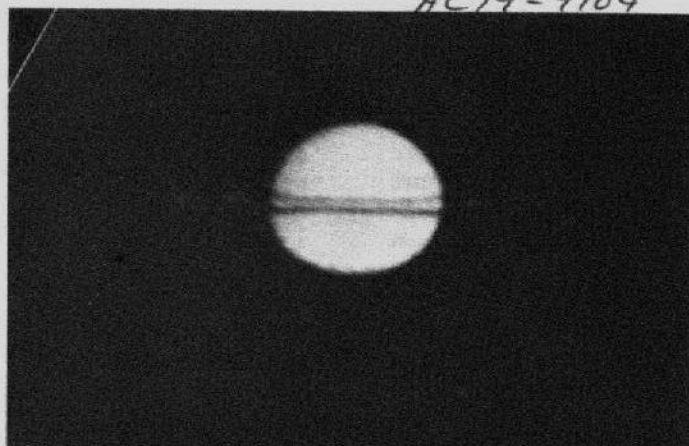
The most critical event of the mission occurred at 9:01 a.m. Pacific Daylight Time on Earth September 1, when the spacecraft crossed the Saturn ring plane at 85,000 kph (53,000 mph). In less than a second, the spacecraft passed through the ring plane at a point 112,000 km (70,000 mi) above Saturn. The crossing was dangerous because an impact with planetary debris outside the visible rings could destroy the spacecraft.

After the ring crossing, Pioneer will make the historic first flight under Saturn's rings, taking measurements to determine their structure. Pioneer will make its closest approach to Saturn at a distance of 21,400 km (13,300 mi) at 11:00 a.m. Ground Received Time at Pioneer Mission Control Center, Ames Research Center.

One minute after closest approach, Pioneer was to have disappeared behind Saturn for 78 min, out of radio contact with Earth. After Pioneer comes out from behind Saturn, it would make another shallow-angle, hazardous ring plane crossing on its outbound journey on the afternoon of September 1, again 112,000 km (70,000 mi) above the planet.

On September 2, Pioneer was to take pictures of Saturn's giant moon Titan, which is bigger than the planet Mercury. After passing the ringed planet and nine of its ten moons, Pioneer Saturn would head out of the solar system, traveling roughly the same direction the solar system moves through the galaxy.

Pioneer carries a 30-kilogram (65-pound) scientific payload of 11 operating instruments. Two other experiments use the spacecraft and its radio signal as their instruments.



This never before seen view of the planet Saturn was made by the Pioneer Saturn spacecraft as it speeds toward its rendezvous with Saturn on Sept. 1. This picture was taken approximately 9.4 million km (5.8 million mi) from Saturn on Aug. 21.

The silhouette of the rings can be seen passing in front of the planet while the shadow of the rings can be seen on Saturn. The spacecraft trajectory is such that sunlight is coming from below the ring plane while the spacecraft is viewing them from above. The top view is in blue light; bottom in red.

NASA Executive Development Program

NASA, as part of its management development plan, annually participates in selected fellowship programs sponsored by leading universities, colleges, foundations, the U.S. Civil Service Commission, and the National Space Club.

In late October, Ames management will be reviewing candidates for the following programs: Stanford and MIT — the Sloan Fellowships, Dryden Memorial Fellowship, Education for Public Management, Harvard PMD (Programs for Management Development), Maxwell Midcareer Development (Syracuse University), Woodrow Wilson (Princeton), Congressional Operations Fellowship, and Industrial College of the Armed Forces. The grade levels for these programs range from GS-11 through GS-16.

Persons interested in being considered for any of the named programs may contact John Leveen or Meredith Moore, ext. 5623/5624, by Friday, Sept. 21. The details of each program will be outlined at meetings to be held in late September.

FEW meets Sept. 11

The South Bay Chapter of Federally Employed Women (FEW) will meet on Tuesday, September 11, from 5:30 to 7:30 p.m. at the Mercury Savings and Loan in the San Antonio Shopping Center in Mountain View. "ASSERTIVENESS" is the topic of the program and Gloria Wilcox, who teaches assertiveness training seminars, will speak. Everyone is welcome to attend.

FEW is an organization promoting equality and opportunity for women in government.

Astronaut applications

NASA is currently accepting applications of potential candidates for pilot and mission specialist astronauts. If you are interested in investigating the opportunities, contact Diane Pearson in the Personnel Office, Bldg. 241, Room 122A, Ext. 5616 for brochure information.

Influenza vaccine to be given

Influenza vaccine will be administered to all interested Ames personnel September 11, 12 and 13 from 1:00 p.m. in the Health Unit. Makeup days will be the following two Thursdays, September 20 and 27, during the same hours.

As we did last year, we will ask you to give your informed consent to receive the vaccine after reading information on the benefits and risks of the immunization. The information is printed below so that you may read and study it before coming to the Health Unit to sign the consent form and get your injection. The information contained on the form has been adapted from that provided by the National Center for Disease Control.

THE DISEASE

Influenza virus infections occur every year in the United States, but they vary greatly in incidence and geographic distribution. Infections may be asymptomatic, or they may produce a spectrum of manifestations, ranging from mild upper respiratory infection to pneumonia and death. Influenza viruses A and B are responsible for only a portion of all respiratory disease. However, they are unique in their ability to cause periodic widespread outbreaks of febrile respiratory disease in both adults and children. Influenza epidemics are frequently associated with deaths in excess of the number normally expected. During the period from 1968 to 1979, more than 150,000 excess deaths are estimated to have occurred during epidemics of influenza A in the United States.

Efforts to prevent or control influenza in the United States have been aimed at protecting those at greatest risk of serious illness or death. Observations during influenza epidemics have indicated that influenza-related deaths occur primarily among chronically ill adults and children and in older persons. Therefore, annual vaccination is recommended for these "high-risk" individuals and should be considered for those persons who provide essential services and/or may be at increased risk of exposure through greater contact with possibly infected persons.

The predominant influenza strain in the United States during 1978-79 was A/Brazil/78 - a variant of the H1N1 prototype A/USSR/77. This strain caused outbreaks in schools, colleges, and military bases, as had been the case with the prototype strain. People over 25 years of age generally were not affected, presumably because of previous infection with antigenically related strains that had circulated throughout the world in the early 1950s. Strains of the subtype H3N2 were not isolated in the United States, but other countries reported the isolation of both H1N1 and H3N2 strains. Since it is uncertain which strain will predominate in the future, continued circulation of strains related to A/Texas/77 (H3N2) and A/Brazil/78 (H1N1) must be anticipated.

Outbreaks caused by influenza B viruses occur less frequently than influenza A epidemics, but influenza B infection can also cause serious illness or death. Influenza B viruses have shown much more antigenic stability than influenza A viruses. Strains of influenza B that were isolated in 1978 and 1979 in the United States and elsewhere resembled the B/Hong Kong/5/72 virus.

THE VACCINE

Influenza vaccine for 1979-80 will consist of inactivated trivalent preparations of antigens representative of influenza viruses expected to be prevalent: A/Brazil/78 (H1N1), A/Texas/77 (H3N2), and B/Hong Kong/72. This year there is only one formulation: Persons 27 years old and older will require only 1 dose. Because of lack of previous contact with H1N1 strains, persons less than 27 who did not receive at least 1 dose of the 1978-79 trivalent vaccine will require 2 doses of the 1979-80 vaccine. Those who received the 1978-79 vaccine will require only 1 dose.

POSSIBLE SIDE EFFECTS AND ADVERSE REACTIONS

Recent influenza virus vaccines have been associated with few side effects. Local reactions, consisting of redness and swelling at the site of injection

lasting 1 or 2 days, have been observed in less than one-third of vaccinees. Three types of systemic reactions to influenza vaccines have been described.

(1) Fever, malaise, myalgia, and other systemic symptoms of toxicity, although infrequent, occur more often in children and others who have had no experience with influenza viruses containing the vaccine antigen(s). These reactions, which begin 6-12 hours after vaccination and persist 1-2 days, constitute most of the side effects of influenza vaccination.

(2) Immediate - presumably allergic - responses, such as flare and wheal or various respiratory expressions of hypersensitivity occur extremely rarely after influenza vaccination. They probably derive from sensitivity to some vaccine component, most likely residual egg protein. Although current influenza vaccines contain only a small quantity of egg protein, on rare occasions they can provoke hypersensitivity reactions. Individuals with anaphylactic hypersensitivity to eggs should not be given influenza vaccine. This would include persons who, upon ingestion of eggs, develop swelling of the lips or tongue or who experience acute respiratory distress or collapse.

(3) Guillain-Barré syndrome (GBS) is an uncommon illness characterized by ascending paralysis which is usually self-limited and reversible. Though most persons with GBS recover without residual weakness, approximately 5% of cases are fatal. Before 1976, no association of GBS with influenza vaccination was recognized. That year, however, GBS appeared in excess frequency among persons who had received the A/New Jersey/76 influenza vaccine. For the 10 weeks following vaccination the excess risk was found to be approximately 10 cases of GBS for every million persons vaccinated - an incidence 5-6 times higher than that in unvaccinated persons. Younger persons (under 25 years) had a lower relative risk than others and also had a lower case-fatality rate. Preliminary analysis of data from GBS surveillance during the 1978-79 influenza season suggests that, in contrast to the 1976 situation, the risk of GBS in recipients of the 1978-79 vaccine was not significantly higher than that in non-vaccinees. *Nevertheless, persons who receive influenza vaccine should be made aware of this possible risk as compared with the risk of influenza and its complications.*

PREGNANCY

In keeping with the policy of prudently limiting drugs and biologics for pregnant women, NASA will not give influenza vaccinations to pregnant women. (If you are pregnant or think you might be, consult your obstetrician and obtain the inoculation there if it is so recommended in your case.)

If you have any questions about flu or flu vaccine, please ask!

Bloodmobile visit

Consider yourself invited to donate blood September 12, 1979 (Room B-39, Building N-239) during the Red Cross Bloodmobile visit.

The Central California Regional Red Cross Service is one of 58 Red Cross Blood programs nationwide. We supply blood to patients at 29 hospitals within this region (Santa Clara, Santa Cruz, San Benito, and Monterey Counties).

Thank you

To all my friends at Ames, the Army Research and Technology Labs and the Aeromechanics Lab: Thank you for a most wonderful retirement luncheon, fabulous gifts, but most of all, for being my friends, co-workers, and golfing buddies.

Frank Lazzeroni (Lazz)

Awards for Pioneer Venus Project Group



The completion of the Pioneer Venus Orbiter's nominal mission on August 4 was celebrated on August 10 with a Sustained Superior Performance Awards ceremony in the Ames Auditorium. Ninety-nine current and former ARC employees and two Headquarters employees were honored with cash awards for their outstanding performance on the Pioneer Venus Project. The orbiter and multiprobe spacecraft were launched in May and August 1978 and encountered Venus in December. The orbiter was injected into a 24-hr orbit about Venus on December 4, and will continue to send back scientific data for two more years. The four probes and the bus of the multiprobe spacecraft entered the Venusian atmosphere on December 9 and all five spacecraft sent back extensive scientific data on the atmosphere and clouds. All spacecraft performed nearly flawlessly. The Pioneer Venus spacecraft were built under contract from Ames by the Hughes Aircraft Company.

Upward-Bound Program

This summer 19 student participants in the Upward-Bound Program spent 6 weeks studying and working alongside scientists and engineers here at Ames Research Center. These high school students, mentally gifted and coming from low-income families in the San Gabriel and Pomona Valleys, participated in a special program exposing them to careers in science and engineering.

The Upward-Bound Program was directed this summer for the fourth year by Harvey Mudd College, the science and engineering campus of the Claremont Colleges, and is funded by the U.S. Office of Education.

Through the cooperation of the Ames Training and Special Programs Branch, the 19 students were involved in a multitude of jobs at Ames. The students worked from 8:00 to 12:00 p.m. on the job, and attended classes the rest of the day and evenings taught by the Upward-Bound staff, consisting of college and high school teachers hired for the summer at San Jose State University. The classes are accelerated courses in math, English, and the sciences.

Upward-Bound programs are taking place at colleges across the nation, but the Harvey Mudd Program is unique, bringing economically disadvantaged students to a college campus for a 6-week period of accelerated on-campus study. The Harvey Mudd plan is designed to directly involve the students in the sciences, allowing them to work at cooperating scientific centers throughout the state. Program coordinator at Ames during these past four summers has been Marcia Kadota of the Training Office, this year assisted by Carlos Naranjo, a summer college graduate student.

The program has been highly successful and has the enthusiastic support of the Ames worksite supervisors.

Recording for the Blind

The Northern California Unit of Recording For the Blind is in need of readers who are able to read clearly and reasonably fast the college-level material requested by blind and physically handicapped students and professional people.

Prospective volunteers are asked to demonstrate their ability by taking a voice test to reveal the quality of their voice on recording tape and their competence in reading in such various fields as physics, biology, chemistry, electronics, engineering, math, and computer programming.

Recording For the Blind, Inc., is a national nonprofit organization, supported by contributions from the public, supplying free recorded textbooks on loan directly to blind and handicapped students, business and professional people.

For further information, contact the studio director at Recording For the Blind, phone (415) 493-3717.

Want Ads (Continued from Page 4)

Half-fare coupons, 3 United Airlines, make offer. Call 948-0733.

For Sale: 1 set of women's golf clubs, like new, Lady Dianne 5 irons, 2 woods, with bag, \$40. Call 378-3143.

Bed for Sale - full size, foam mattress and foundation, \$75. Call 948-1027 or 497-1385.

FREE to a good home, female Dalmation, AKC registered, 2-yr old, unique personality, extremely lovable. Call 961-2119.

For Sale: Girls Hi-Rise Murray bike, good condition, \$25. Call 252-6867.

Cosmos '79 Mission

Final preparations are underway for a mid-September launch of an unmanned Soviet Cosmos biosatellite which will contain experiments from the United States, USSR, and other countries. The Cosmos '79 Mission, like those in 1975 and 1977, will use a version of the Vostok spacecraft, and will be launched and recovered inside the USSR. Over 40 U.S. scientists from 18 universities and research institutes are involved in the 14 U.S. experiments which are being managed by the Cosmos Project, Life Sciences Directorate, at NASA's Ames Research Center, Moffett Field, California.

The major part of the payload will consist of 38 white rats and 60 fertile Japanese quail eggs. They will be placed in orbit for approximately 3 weeks, and upon return will be shared with scientists from participating countries. The studies are aimed at determining the effects of weightlessness of space on various physiological processes.

This will be the first mission by any country in which a mammalian breeding experiment will be attempted. Male and female rats will be separated until the second day of flight, when a divider separating their cages will be removed. In another embryology experiment, fertilized quail eggs will be warmed to incubation temperature on the 8th day of flight. Some of the resulting embryos will be studied on recovery, and others will be allowed to develop to maturity.

This week, the assembly of the U.S. flight experiments has begun. The first units, containing carrot slices inoculated with plant tumor-forming bacteria, will be assembled at Colorado State University. Next week, carrot seeds and embryos will be prepared for flight at the State University of New York, Stony Brook. The completed flight units will be carried to Moscow by U.S. scientists about a week before launch.

The other U.S. experiments include studies on the enzymes of adult and newborn rats; previously noted changes in the mucosal lining of the nose in rats; development of the brain and skeletal system of newborn rats and quail embryos; changes in pro-

portions of fat, protein, and other constituents in the entire rat; radiation due to high-energy particles; changes in muscle fibers; and several studies on bone formation, turnover, and strength. The bone and muscle studies are of particular importance, because of the observed loss of calcium from bones, and loss of muscle strength, in astronauts and cosmonauts during prolonged space flights.

After completion of the Cosmos flight, it is important to recover the animals immediately, before they readapt to earth gravity. As in previous missions, a Soviet recovery team will move rapidly to the landing site, set up a mobile laboratory, remove the animals from the spacecraft, and do those dissections that are required immediately. The remaining animals will be flown to Moscow. There, another group of the flight animals will be sacrificed after 6 days of readaption to earth gravity, and another group after 25 days.

In addition to the animals which actually make the spaceflight, there will be two additional groups of ground controls, identical to the flight animals. One group will simply be kept in their usual cages and fed the flight diet. The other group, the synchronous controls, will be housed in an identical spacecraft on the ground. This group will be exposed to any changes in conditions which occur in the orbiting spacecraft, as telemetered back to Earth. The synchronous control will also be subjected to the same vibration and gravity forces experienced by the flight craft during its launch and reentry. Thus, any differences between the flight animals and those in the synchronous control can probably be attributed to weightlessness.

Employee tours

There are employee tours the second Thursday morning of every month on a space available basis. This is your chance to get even with the tour guides for constantly trooping hordes of people through your work space. Call the tour office at 6497 by the Wednesday preceding the tour for reservations.

Recent NEBA insurance changes

The NASA Employees Benefit Association (NEBA) board of Directors held its annual meeting at Wallops Flight Center on June 6, 1979.

This year, the Board approved a new unit of dependent insurance for employees earning \$30,000, and over. Spouse coverage will be in the amount of \$15,000 with child coverage of \$2,000 for a quarterly payment of \$10.25. The effective date for the new coverage will be October 1, 1979.

The new schedule of dependent insurance will be:

Unit	Spouse	Child	Quarterly Premium
A - Class 1-5 (Employees earning less than \$16,000)	5,000	2,000	3.75
B - Class 6-10 (Employees earning less than \$30,000)	10,000	2,000	7.00
C - Class 11-12 (Employees earning over \$30,000)	15,000	2,000	10.25

Members in classes 11 and 12 who have dependent coverage will receive a new insurance certificate showing the new schedule of insurance, and the increased cost of \$3.25 will be reflected in your next premium due notice.

The association completed its 27th successful year as of April 1, 1979, with a total insurance in force of \$637,123,750 with 12,235 employee members. Claims paid to members in 1978-79 were \$2,078,404.

Claims paid to employees of this Center were:

Employee death claims:	3	Amount: \$115,000
Employee Accidental Death or Dismemberment claims:	0	
Dependent Death claims:	2	Amount: \$ 20,000

For those employees who are not already members of NEBA, it is easy to join the plan. All it takes is an enrollment application, completion of a simple health statement, and payment of a quarterly premium. The health statement is submitted to the Home Life Insurance Company (underwriters of the NEBA plan) for their approval; and if accepted, your coverage would commence on October 1, 1979. Contact the Training and Special Projects Branch for enrollment cards and health statement forms.

Ames Promotion Plan Vacancies

Notice No.	Title	Grade	Org.	Area of Consideration	Closing Date
79-137	Contract Specialist	GS-12/13	ASR	Ames employees only	9-21-79
79-138	Secretary (Steno)	GS-6/7	A	NASA-Ames/ Army/Tenant Agencies	9-21-79
79-139	Aerospace Engineer AST, Flight Systems	GS-13	FVR	NASA-wide and outside	9-28-79
79-140	Mathematics Aid/Technician	GS-4/5	FAX	Centerwide and outside	9-18-79
79-141	Secretary (Stenography) Secretary (Typing)	GS-4/5	DI	Ames/outside	9-21-79
79-142	Stores Receiving and Shipping Attendant Trainee or Stores Receiving and Shipping Attendant	WG-1/3/5	AAS	NASA-Ames/ Army/Tenant Agencies	9-21-79
79-143	Communications Clerk (Typing) or Clerk-Typist	GS-4/5 or GS-3/4	AAC	Ames/outside	9-21-79

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

MERIT PROMOTION PLAN SELECTIONS

Notice No.	Title	Org.	Name
79-98	Wind Tunnel Mechanic Foreman	FAO	Laub, James
79-100	Planner and Estimator	RSTC	Cancelled
79-108	Aircraft Worker/Mechanic	FOS	Boyce, Kit Rendon, Daniel
79-109	Chief, Computer Technology Branch	RKT	Finger, Herbert
79-114	Personnel Clerk (Typing)	APM	Woods, Christine
79-115	Personnel Clerk (Typing)	APX	Beverley McDaris

Want Ads Transportation

1975 Toronado Brougham - A1 condition, many extras, 49,000 mi, air-bag safety, soft green velour interior, \$3700. Call 257-5779 evenings.

1972 Ford LTD Brougham for sale - NRC Associate leaving USA. Excellent condition, \$1250. Call 732-1479.

1971 Toyota Corolla, 60K, \$800. Call X6138.

1970 Ford Galaxy 500, 4 dr. hardtop, auto, PS, PB, new tires, brakes, excellent mechanical condition, \$595/offer. Call 965-0845 evenings.

Lincoln Continental Mark III, 1969, AT, AC, PS, PB, 74,000 mi, immaculate condition, \$3750. Call 253-2748.

1973 Datsun 610 SP coupe, AT, AC, 56K miles, like new, radial tires, \$1750. Call 248-0427 after 6 p.m.

For Sale: 1968 Ford Stationwagon, "Country Sedan", PS, PB, air cond., running condition, uses regular gas! \$225/best offer. Call 967-5660 or 855-6147.

For Sale: 1975 Ford Torino, AT, AC, PS, PB, 4-door, excellent condition, \$1295. Call 268-0467.

For Sale: 1962 Chevrolet Pick-Up, 1/2-ton, runs well, \$450. Call (408)688-9557.

MUST SELL - 175 OSSA motorcycle dirt, good condition, looks good, sacrifice at \$175 or offer. Call Rich at 244-7614.

1962 Triumph TR6R motorcycle (650 cc), last pre-unit made, rare classic, 350 miles on new engine, \$1600 worth of chrome, excellent condition, must see! Tools, extra gas tank, case of oil, and many extra parts. \$1900 or offer. Call Rich at 244-7614.

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 ft from the beach; tennis courts. Reserve now for fall and winter, call J. Lundell, 252-7260.

FOR RENT: House to share in Los Altos, 6 mi from Ames, \$200, utilities included. Call 948-9072 after 5 p.m.

For Rent: 3 bdrm deluxe house, 1800 sq.ft., separate FR & DR, 2 fireplaces, all new carpeting, Solarian floors, and drapes, microwave/self-cleaning electric combination oven. Cupertino/Saratoga area. Call 257-0583 after 6 p.m.

Squaw Valley Condo - Reserve now for Christmas, New Years, spring vacation. 3 bdrm, 2 ba, fireplace, cable TV, w/w carpets, deck with view. Call 968-4155 evenings.

Los Altos Duplex, 2 bdrm, 1 ba, yard, 5 mi to Ames, \$400 per month. References and deposit required. Call 967-1502.

Miscellaneous

FOR SALE: 12-ft sailboat, Koralie Jr., with trailer, \$750. Call 967-9230.

Water Bed frame and headboard, padded pedistal, satin sheets and pillow cases, and filling and emptying accessories, must sell, \$99 or offer. Call Rich at 244-7614.

NRC Associate leaving USA, must sell 1978 GE 25" color TV, \$350; dining table and six chairs, \$100; Queen-size bed, \$80; Kenmore vacuum cleaner, \$35; floor lamp, \$20; two hanging lamps, \$6 each; Has-sock, \$6. Call 732-1479.

80-quart chest cooler (Gott), \$25. Call J. Lifshitz, X6138.

FOR SALE: Fender Bass Guitar and case (like new) and Bassman Amplifier, \$250. Radio Shack 40-channel CB radio and station antenna (used once), \$59. Call 738-2948.

WANTED: Loving home for Norwegian Elkhound. Spayed female, 7-yr old. Must give up because of allergies. Call 738-2948.

Books, clothes, records, stained glass supplies, FOR SALE. Call 968-3307 after 6:30.

FOR SALE: 3 lecture series tickets at Flint Center (DeAnza College) Cupertino for each of the following: General Alexander Haig, Thur., Sept. 20, 8:00 p.m.; Gene Roddenberry, Creator of "Star Trek," Sat., Sept. 29, 8:00 p.m.; \$6 each. Call C. Macon, X5669.

CAR POOL WANTED: From Santa Clara near Univ. of Santa Clara. Call X6608 or 296-0620 evenings.

Frigidaire - Yellow "all" refrigerator, 13.6 cu.ft., 64" high, 32" wide, 29.5" deep, 20-lb ice cube freezer section, excellent condition. Call 226-3315 after 5:00 p.m.

A few Friday evening S.F. Opera tickets available, 5th row center, orchestra. Call J. Smith at 961-5993.

FOOTHILL MATH 71 (Math. for Electronics). No prereqs. I will teach the above course starting on Sept. 19, 1979, 5 units, transferable to any 4-yr state college or university as free elective units towards a degree. This will be taught at Fairchild, 441 Whisman Rd., Bldg. 13, Mountain View. Open to the public, on Monday through Friday from 7 to 7:50 a.m. If you want to enroll call Art Gobets at Ames, X6217.

WANT TO BUY a drafting table. Call 735-7664.

(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.

Editor Meredith Moore
Associate Editor Marcia Kadots
Reporters NASA Employees

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Space Administration
NASA-451



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

SEP 17 -	SEP 18 -	SEP 19 -	SEP 20 -	SEP 21 -
		National Federation of Federal Employees (NFFFE) Monthly Meeting Time: 12:00 - 12:30 p.m. Location: N-213, Room 261	Bible Study for Ames and Navy People Coordinator: Dr. Dewey Hodges, EXT. 5835 Time: 12:00 Noon Location: Bldg. 48, Navy Side (Sunday School Building)	Happy Hour!!! Sponsored by Northrop Time: 4:30 - 6:30 p.m. Location: N-235, Ames Cafeteria
SEP 24 -	SEP 25 -	SEP 26 -	SEP 27 -	SEP 28 -
		Ames Photo Club Monthly Meeting Time: 4:45 p.m. Location: N-245, Auditorium Ames Stamp Club Meeting Time: 11:30 a.m. Location: N-241, Room 113	Bible Study for Ames and Navy People Coordinator: Dr. Dewey Hodges, EXT. 5835 Time: 12:00 Noon Location: Bldg. 48, Navy Side (Sunday School Building)	
OCT 1 -	OCT 2 -	OCT 3 -	OCT 4 -	OCT 5 -
Computational Fluid Dynamics Branch Seminar Speaker: Prof. Koichi Oshima, Institute of Space and Aeronautical Science, Univ. of Tokyo, Tokyo, Japan Topic: Flow Patterns Around an Oscillating Airfoil - Experimental and Numerical Evidence of the Kurita Condition and the Vorticity Distribution in the Wake Time: 10:00 a.m. Location: N-229, Room 215	Ames Scuba Club Monthly Meeting Time: 11:30 - 1:00 p.m. Location: N-235, Ames Cafeteria Private Dining Room		Bible Study for Ames and Navy People Coordinator: Dr. Dewey Hodges, EXT. 5835 Time: 12:00 Noon Location: Bldg. 48, Navy Side (Sunday School Building)	If you wish to have an event announced on this calendar, please notify Linda Mackey, Visits Coordinator, Ext. 5546, M/S 253-1. The next calendar will cover the period October 1 - October 19.

WEEKEND ACTIVITIES:

SEP 22 - ARC Golf Tournament
Riverside Golf Course
Time: 11:00 a.m.
Co-Chairmen: Wayne Harry
and Stu Johnson
Official Deadline: Sep. 19
Send money to Dave Banducci, M/S 226-3

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

SEPTEMBER 11, THRU SEPTEMBER 17, 1979

A LA CARTE MENU

TUESDAY	Veal Pot Roast with Spaghetti.....	1.60
	Turkey Au La King on Biscuit.....	1.40
	Choice of One: Snowflaked, Hased O'Brien Potatoes, Green Beans Savory Style, Buttered Corn or Salad	
	Soup - Tomato and Rice.....	.35 & .50
WEDNESDAY	Chicken Fried Steak & Cream Gravy.....	1.60
	Sweet and Sour Cabbage Roll.....	1.40
	Choice of One: Mashed Potatoes, Buttered Rice, Succhini & Tomatoes, Lima Beans or Salad	
	Soup - Beef & Noodle.....	.35 & .50
THURSDAY	Roast Veal and Dressing.....	1.60
	Lasagna Baked.....	1.40
	Choice of One: Whipped Potatoes, Rissole Potatoes, Brussel Sprouts, Celery & Bacon or Salad	
	Soup - Green Split Pea and Croutons.....	.35 & .50
FRIDAY	Smoked Ox Tongue over Spinach with Raisin Sauce.....	1.60
	Seafood Crepes and Newburg Sauce.....	1.40
	Choice of One: Snowflaked, Hased O'Brien Potatoes Peas & Corn, Italian Beans or Salad	
	Soup - Borscht or Cony Island Clam Chowder.....	.35 & .50
MONDAY	Roast Cross Rib of U. W. Choice Beef Au La Natural.....	1.60
	Spaghetti Tetrazzini.....	1.40
	Choice of One: Whipped, Creamed Potatoes, Stewed Tomatoes, Peas & Mushrooms or Salad	
	Soup - Cream of Onion.....	.35 & .50
DAILY SPECIALS	INCLUDES: A \$1.40 ENTREE, VEGETABLE OR POTATO, SALAD ROLL & BUTTER, AND A .30¢ BEVERAGE.....	2.00
	(CHEF'S CHOICE) HOT SANDWICH AND LARGE BOWL OF SOUP...	1.20

National Aeronautics and
Space Administration
Ames Research Center
Moffett Field, California 94035

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NASA

The Astrogram

VOLUME XXI NUMBER 25

September 20, 1979

New plans for SETI

Studies and preliminary planning activities for a program to Search for Extraterrestrial Intelligence (SETI) have been underway in NASA for some years. In 1975-77, the Ames Research Center organized a series of Science Workshops chaired by Philip Morrison of MIT to address all questions related to SETI. The report is available as NASA Special Publication No. 419.

The group reached the following conclusions:

1. It is both timely and feasible to begin a serious search for extraterrestrial intelligence.
2. A significant SETI program with substantial potential secondary benefits can be undertaken with only modest resources.
3. Large systems of great capability can be built if needed.
4. SETI is intrinsically an international endeavor in which the United States can take a lead.

The report also recommended the initiation of a SETI program now.

A SETI Project Development Office has now been formed at the Ames Research Center. It will be responsible for the development, during FY 80 and FY 81, of a complete plan for the SETI Project and for other preparatory activities. The Project Office staff is composed of scientists and engineers from Ames and JPL. The Project Manager is John Billingham of Ames, and his Deputy is Robert Edelson of JPL.

The SETI Project Development Office activities will be handled by three teams: The Science Team, led by John Wolfe of Ames, will establish the scientific requirements including the search strategy observational plan and data analysis; the Operations Team, led by Nick Renzetti of JPL, will develop the operations plans; and the Instrument Systems Team, led by Rick Green of JPL, will handle all aspects of engineering systems design of the data processing system.

The SETI Project Development Office will report to a Program Office at NASA Headquarters and will be a part of the Life in the Universe concept now being developed within the Office of Space Science. The SETI Project Development Office will work closely with a Science Steering Group composed of experts from the scientific community, and will report to a Management Working Group composed of Bruce Murray from JPL, A. Thomas Young from Ames, and Bernard Oliver of the Hewlett-Packard Corporation.

It is expected that the SETI Project will begin in FY 82.

Instructions for employees resigning

Employees resigning from their positions or transferring to another Government agency should notify their supervisors of their intention to leave as soon as possible and preferably with a minimum of two weeks advance notice. After notifying their supervisor, they should report to the Records and Reports Branch, Bldg. 241, Room 145, to initiate Standard Form 52 (Request for Personnel Action) and receive further instructions on resignation and clearance procedures.

NASA selects 40 investigations

NASA has selected 40 scientific investigations — 33 from the U.S. and seven from four foreign nations — to be studied and developed for a series of Spacelab/Shuttle flights planned for the period between 1983 and 1985. Costs of the U.S. investigations are expected to total about \$100 million over the next five-year period.

The foreign countries involved are Canada, France, Japan, and Belgium, and each will be responsible for funding its own experiments and investigations.

The investigations will be in the disciplines of astronomy, upper atmospheric physics, space plasma physics, solar physics and high energy astrophysics.

Forty principal investigators have been selected from 16 universities, four private organizations or companies and seven different government agencies. Over 250 coinvestigators are associated with the selected investigations.

Spacelab will be carried to and from orbit by the Space Shuttle and remain attached to the Orbiter throughout the flight where it will serve as a platform for investigations in near-Earth orbit for a period of about one week.

Almost 200 responses were received by NASA from the world scientific community in reply to an Announcement of Opportunity for Spacelab science investigations sent out by the space agency last June.

With the advent of the Space Shuttle and the availability of standard space qualified hardware

Two histories published by NASA

A history of the cooperative space flight between the United States and the Soviet Union during the summer of 1975 has been published by the National Aeronautics and Space Administration.

Concurrently, a history of the Apollo launch facilities and launch operations at the Kennedy Space Center has been issued.

The Partnership: A History of the Apollo-Soyuz Test Project is the official NASA history detailing the international cooperative effort of two major space-faring nations and their collaborative mission to rendezvous and dock manned spacecraft in Earth orbit.

Moonport: A History of Apollo Launch Facilities and Operations is a publication in the NASA history series that tells of the Apollo launch facilities at the Kennedy Space Center, Fla.

Both publications may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402, by specifying:

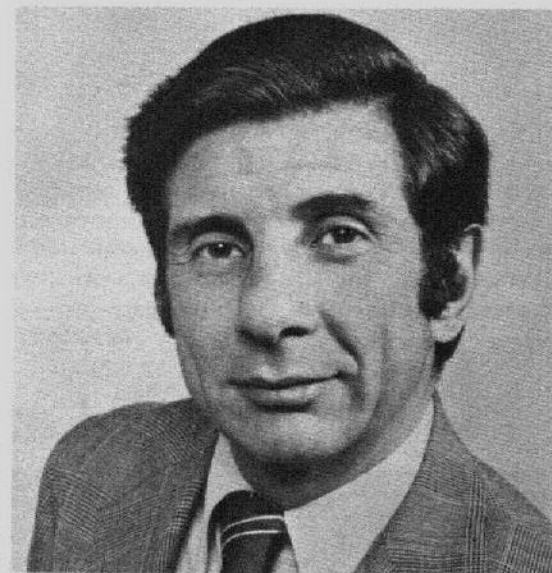
The Partnership: A History of the Apollo-Soyuz Test Project (NASA SP-4209), by Edward Clinton Ezell and Linda Neuman Ezell. Paperbound. 580 pp. Price \$8.30.

Moonport: A History of Apollo Launch Facilities and Operations (NASA SP-4204), by Charles D. Benson and William Barnaby Faherty. Paperbound. 656 pp. Price \$8.00.

which can be placed in orbit, repaired, retrieved or replaced, NASA plans to exploit this capability and reduce the cost of such payloads while making space flight more accessible to a wider range of users.

It is intended that these investigations will be covered by new procedures which no longer require the investigator to adhere to the strict performance characteristics that had to be demonstrated prior to flight in former years. Now investigations must comply only with flight safety requirements and good engineering and management practices as provided in NASA policy guidelines. Investigations selected for development are expected to be assigned to a flight by NASA when it is determined that the investigators can meet their planned objective and a specific flight delivery date.

Jules Bergman speaks at Ames colloquium



Jules Bergman, ABC News Science Editor, spoke in the Ames Auditorium on Thursday, August 30, at the first Ames Director's Colloquium series. Bergman directed his comments to the progress and activities of the space program, in general, and more specifically to how NASA is perceived by the public.

Earlier in his career, Bergman covered all 30 manned spaceflights in the U.S. space program and even completed much of the same rigorous training NASA puts its astronauts through, including weightlessness, centrifuge rides, and heat exposure. Bergman has just recently participated in pilot landing training for the space shuttle. He hopes to fly on the shuttle in the early 1980's.

Bergman became the first full-time network science editor in the country in 1961. His ability to experience a story personally and to combine it with knowledgeable reporting gives his news stories extra strength and depth. In the field of medicine, he covered the beginnings of the transplant era, witnessing numerous open heart, valve and heart transplant operations, becoming somewhat of a medical expert in his own right.

AIAA Congressional fellowship

The September 27th AIAA Dinner Meeting will feature a report on the Congressional Fellowship experience of our AIAA Congressional Fellow, Dr. Louis D. Friedman. Three major topics will be covered, representing his year with the Senate Committee on Commerce, Science, and Transportation; Subcommittee on Science, Technology, and Space. They are:

- The Congressional Experience; impressions gained while working on a staff concerning the Congress, legislation, and the political process.
- Space policy issues including NASA and other space programs, their budgets, policy legislation, and operational remote sensing system legislation.
- The Fellowship as a professional experience for an aerospace engineer, its implications and value to personal career objectives, the AIAA, and the aerospace community; and thoughts on the impact of national considerations of science and technology.

The details for attending the meetings are below. Readers may also want to refer to the report from Dr. Friedman in the July/August 79 issue of *Astronautics & Aeronautics* commencing on page 20.

Date: Thursday, September 27, 1979.

Place: Ming's Restaurant, 1700 Embarcadero Road, Palo Alto.

Time: 6:30 p.m. - No Host Cocktails. 7:30 p.m. - Dinner. 8:30 p.m. - Speaker, Dr. Louis D. Friedman, AIAA Congressional Fellow.

For reservations, please call before noon on Tuesday, Sept. 24, 1979: Betty Berkstresser (415)965-5434; Lynne Barlowe (408)742-1597; Philip Le Blanc (408)739-9615.

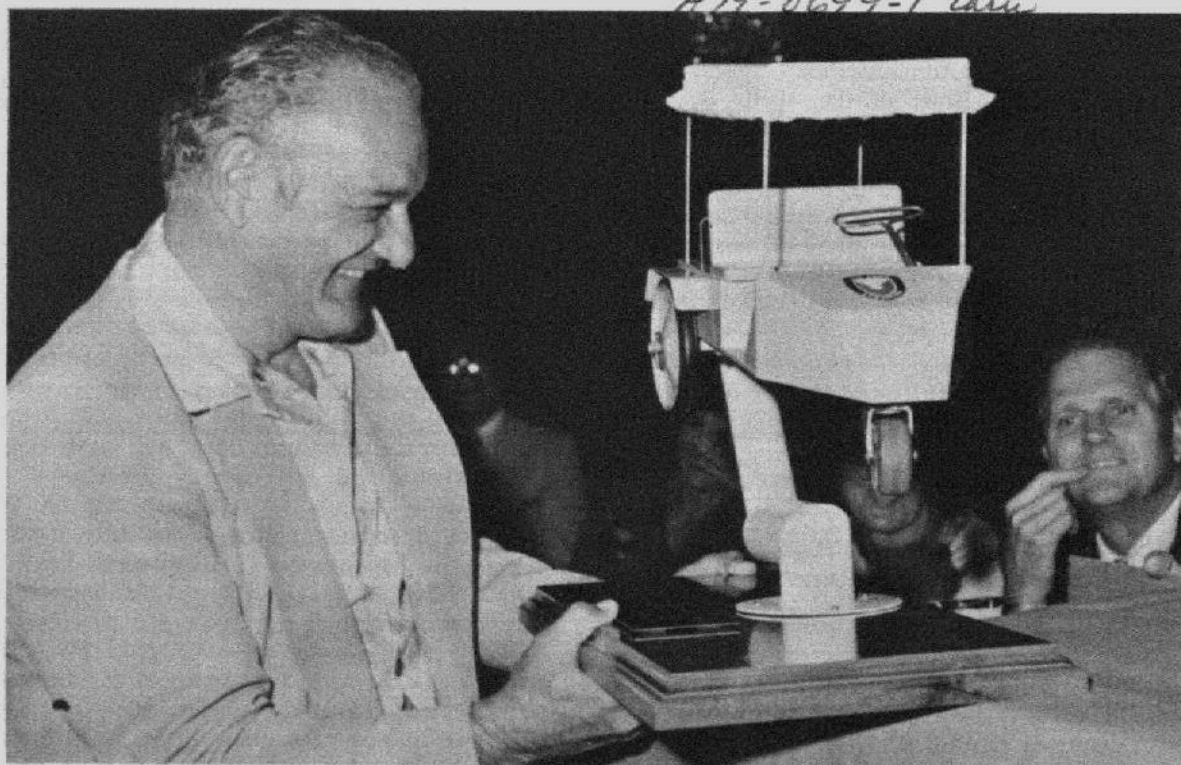
Wildlife nature photographer

Rachel Lamoreux, internationally noted photographer, writer, and P.S.A. (Photographic Society of America) diamond star contributor in nature, will feature a slide show presentation on birds from the South Pacific, Galápagos Islands, and other parts of the world. She will also demonstrate a novel self-constructed bird blind. Her experience and keen interest will be focused to cover key points to help

you improve your nature photography. Ms. Lamoreux has traveled extensively in her attempts to capture the elusive and unusual birds of many continents. Her presentation promises to be interesting and stimulating.

Place: Space Science Auditorium, Bldg. 245.
Time: Wednesday, September 26, 1979, 4:30 p.m.

Frank Lazzeroni retires



Frank Lazzeroni receiving a gift at his retirement luncheon - Andy Morse assisting.

Lt. Col. Merrill promoted at Army Lab



Lt. Colonel Robert K. Merrill, a test pilot assigned to the Aeromechanics Laboratory of the Army Research & Technology Laboratories (RTL, AVRADCOM), was promoted to his present rank during special ceremonies held recently here at Headquarters of the Laboratories, NASA Ames.

Lt. Colonel Merrill serves as Project Pilot on the Rotor Systems Research Aircraft, RSRA, a joint Army-NASA program. A Senior Army Aviator, his flight experience includes over 3100 hours in 23 different types of aircraft.

Golf/Retirement

August 23rd was a "punishing" but beautiful day for Frank Lazzeroni as over 200 friends and family turned out to see him roasted. The occasion... his retirement luncheon at Dinah's Shack.

From Irving Statler and Andy Morse of Aeromechanics Laboratory, we learned that Frank had been an Ames employee for 33 years, ever since NACA, and that soon he would be moving to Pine Mountain Lake, California. Also, Ruben Ramos, Golf Club President, who couldn't have been any funnier or more entertaining at the speakers podium, honored Frank in a very left-handed fashion, and then thanked him on behalf of the club for having lent such dignity to the Office of Handicap Chairman for the last 16 years. Adios Frank!

It was also a punishing day for 55 Ames Golf Clubbers on September 8th, but a "beautiful day," nevertheless, as The Spyglass Hill Monster came up from the depths and thrashed the Club all over the sand, water, woods and ice-plant, and virtually scored a one-round knockout. But we'll be back!?!?

Under any circumstances, it is a course that grudgingly gives away low scores. However, there were some clouds with silver linings; namely, good net rounds by G. Falkenthal (really the best effort of the day) 73, Les Collins at 74, and a hard-earned gross 85 shot by Owen Koontz. Congratulations, guys!

The winners of this point-bogey tournament are:
1st Flight - 1, Odneal; 2, Koontz; 3, Ramos; 4, Matthews; 5, D. Banducci.

2nd Flight - 1, Collins; 2, Horstman; 3, D. Dust; 4, H. Brem; 5, V. Oyama.

3rd Flight - 1, G. Falkenthal; 2, G. Rathert; 3, Ross; 4, Menefee; 5, Scott.

4th Flight - 1, C. Banducci; 2, B. Quattrone; 3, Holzhauser; 4, Silver; 5, C. McCloskey.

See you all at Riverside on September 29th! Collect Spyglass prizes there.

And thanks to Larry Hochstein and Jack Lee, co-chairmen at Spyglass Hill, for running such a fine tournament - and so far from home.

CH-47B "Chinook" arrives at ARC

The newest addition to the Ames aircraft fleet is the CH-47B "Chinook" helicopter, designated NASA 737, which arrived here from Langley Research Center on the afternoon of 22 August. The crew, consisting of Bob Merrill (pilot), Vic Ross (co-pilot), and Mike Boyer (flight engineer), departed Langley Air Force Base, Virginia, in NASA 737 for the 2500-nautical-mile journey.

A new record of sorts may have been established — the trip required 26 refueling stops due to limited fuel tank capacity. The flight lasted 9 days and was blessed with near-perfect flying weather from coast to coast. A fourth crew member, Ed Hoffman from Langley Research Center, accompanied the Ames crew as an additional flight engineer.

The "Chinook" is the Army's medium-lift helicopter. It has a normal cruise speed of 120 knots and maximum speed of 160. The aircraft, as presently configured, weighs about 33,000 pounds; maximum gross weight is 40,000 pounds. Manufactured by Boeing-Vertol, the CH-47 is a tandem-rotor, twin turbine engine aircraft with two three-bladed, fully articulated rotor heads and five transmissions. This modified version features one set of conventional flight controls on the left side and a fly-by-wire, variable stability control system on the right. A research console is mounted in the cargo compartment for in-flight changes in flight control response.

The "Chinook" will engage in flight research during the next several months involving side-slip performance, with future plans for variable stability flight and hover performance.

Nielson to present Wright Brothers lecture

On September 28, Dr. Jack Nielson will present the Wright Brothers lecture at 10 a.m. in the Ames Main Auditorium. The lecture topic will be "Missile Aerodynamics — Past, Present, Future."

Books surplus

The Life Sciences Library, building 239 (basement) is preparing to surplus books no longer needed in the library or division library collection.

Before instituting formal surplus procedures, the staff wants to be certain that all local needs are being met; therefore, the items being surplus will be available for examination by Ames employees. They may select any title pertinent to their work for retention in offices or laboratories.

Stop by the Life Sciences Library B71 anytime beginning Monday, Oct. 1, 1979. The materials will be on display shelves in the hallway at the far end of the library outside Room B71.

Persons selecting materials are reminded that the material remains government property and may not be appropriated for addition to private libraries or collections.

ARA store clerk needed

The Ames Recreation Association, in cooperation with the NASA-Ames Exchange Council, is creating a position of Manager for the ARA Store. This position will be temporary for 6 months. A permanent position will be established if this 6-month experiment proves successful.

The incumbent will be directly responsible to the Ames Recreation Association. Duties involve selling, maintaining records, and controlling inventory. It is estimated that 4 to 6 hours per day, five days a week will be required. This position could be held by two or more people working alternate days or weeks, ideal for Ames retirees.

Anyone interested in this position, please contact A. E. Lopez, Extension 5568, Mail Stop 210-10.

1979 Combined Federal Campaign begins October 9th

This is the time of year again when we begin planning for the combined Federal Campaign (CFC), the once-a-year solicitation in all Federal Agencies to support local, national, and international human services agencies. The Santa Clara Valley CFC encompasses over 70 United Way service organizations and projects, twelve national health agencies, and six international service agencies. This year the campaign will be conducted during the week of October 9th through the 15th. Each employee will be contacted by a campaign solicitor either in a 30-minute group meeting or individually and is encouraged to make a payroll deduction gift to support the work of these worthy agencies.

The campaign coordinator is Knapp A. Tomberlin, Chief, Office of University Affairs. Fredric A. Baker of the Avionics Systems Branch will serve as co-coordinator, and is the coordinator-designate for the 1980 CFC. Edward Castle of the Financial Systems Office will represent the Fiscal Services Division to manage the necessary detailed accounting of pledges.

Ames is providing a Loaned Executive to the Santa Clara County United Way for the fifth year in a row to assist in conducting the CFC in the more than 50 federal agencies and offices in the County. This year, Mary Connors of the Search for Extraterrestrial Intelligence Office is our Loaned Executive.



Dody Moffat of the Palo Alto Red Cross Chapter tells about the training programs provided by the Red Cross. From left to right, they are: Knapp Tomberlin, Robert Barnett, Thomas Young, David Reese, Moffat, and Susan Murie, Program Coordinator.



ARC and Army tourees listen to Martha Macias discuss the programs at the Community Association for the Retarded. Pictured from left to right are: Fredric Baker, Q. Marion Hansen, Thomas Young, David Reese, Henry Lum (partially in view), Jana Coleman, Irving Statler, Macias, Knapp Tomberlin, Robert Barnett, Phillip Quattrone, and Frederick Styles.

Ames Promotion Plan Vacancies

Notice No.	Title	Grade	Org.	Area of Consideration	Closing Date
79-84	AST Technical Management	GS-11/12/13	LB	NASA-wide & Outside	Extended 10-12-79
79-143	Stores Receiving & Shipping Attendant Trainee, or Stores Receiving & Shipping Attendant (Extends Closing Date)	WG-1/3	AAS	NASA-Ames/Army/Tenant Agencies	10-10-79
79-144	Secretary (Typing)	GS-4/5	RKO	Ames/Outside	09-28-79
79-145	Research Assistant to the Director AST Technical Management	GS-14/15	D	NASA-wide	10/26/79
79-146	Freight Rate Assistant or Freight Rate Specialist (GO position)	GS-4/5/6 or GS-7	AAS	Ames employees only	10-10-79

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

MERIT PROMOTION PLAN SELECTIONS

Notice No.	Title	Org.	Name
79-94	Assistant Chief, Technical Services Division	RS	Joe Piazza
79-101	Secretary (Typing)	FAX	Cancelled
79-109	Chief, Computer Technology Branch	RKT	Herbert Finger
79-112	Secretary (Typing)	FAE	Theodora Kennedy
79-116	Research Aircraft Mechanic (Crew Chief)	FOS	Monte Hodges
79-141	Secretary (Typing), Secretary (Stenography)	DI	Cancelled
Y-17-79	Aircraft Control and Instrument Mechanic	FOS	Thomas J. Kalaskey

Want ads

Transportation

For Sale: '75 Pontiac Firebird, PS/PB, low mileage, yellow w/black interior, excellent condition. \$3850/offer. Call 734-2282.

'78 Toyota Celica, very low mileage, AC, PB, sunroof, 5-spd, AM-FM stereo, louvers, pinstriping. \$6,950. Call 923-2710

FOR SALE: 1977 Datsun truck, longbed, 5-spd, air cond., shell, AM-FM, 17,500 miles, push bar, heavy duty Barden bumper, excel. cond. \$4,100. Call 257-0386.

FOR SALE: '74 Chevrolet Vega, 32 mpg on reg. gas, 41,000 miles, disc brakes, radial tires. \$2,000 or best offer. Call 964-5488 eves. and weekends.

HONDA Express motor-driven cycle, 3 mos. old. 150 mpg - cut commute costs. Better and cheaper than a Moped. \$350/offer, warranty. Call 738-2948.

1970 Ford LTD Squire wagon - new tires, carb., alternator; needs head gasket. \$300 or offer. Call 738-3689 after 5 p.m.

For Sale - 1973 Chevy Impala 8-pass. station wagon, PS/AT, 85K miles, good condition. Leaving country, must sell. \$1,150/offer. Available Sept. 28-30. Call 494-6492.

MOPED: Demm-Smiley; exc. cond, low miles. \$375. Call 493-6519.

For Sale - 1971 Plymouth Fury wagon, good cond. \$850. Call 965-6138.

FOR SALE: 1974 Saab LE, A/C, AM-FM stereo, radio and 8-track. \$2,800 or offer. Call 296-3724 or 241-1679.

For Sale: 1971 Nova (8 cyl.), auto trans., 65K mi, good condition. \$1,400. Call 257-7759 after 5 p.m.

Housing

FOR RENT - Lovely 3 br/2 ba house w/fireplace, some carpets, 2-car garage, lg. garden with fruit trees, dishwasher, Cupertino schools. Available Sept. 19. Call 296-3724.

For Rent: Deluxe 3-br/2 ba apartment w/fireplace, dishwasher, enclosed patio, Cupertino schools, 8 mi to Moffett Field. Available Oct. 12. Call 296-3724.

Miscellaneous

For Sale: Sears Portable Dishwasher, top loading. \$30. Call 225-4024 or ext. 5877.

3 tickets for "Chorus Line," San Jose Center for the Performing Arts, Fri., Sept. 28, 16th row, \$15 each. For sale or exchange for another date. Call aft. or eve., 968-4624.

DINING ROOM Table with 6 chairs, \$125. Pole lamp, \$35. Call 965-0845 evenings.

PAINTER - Interior and exterior painting done at very low prices. No job too small. Work guaranteed by expert painter. Call for free estimates and ask for Jay: 733-8471.

CAR POOL: Currently commuting from San Francisco to Ames. Need 2 additional drivers. Work hours 7:30 to 4:00. Contact Tom Stark or Noel Tan at ext. 6162 or 6422.

FOR SALE: Membership in Ames Flying Club. C-120 aircraft. Dry cost to fly is only \$3/hr. Call 356-3829.

WANTED: 8-mm projector with sound. Cheap. Call bet. 5-6 p.m., 966-8437.

For Sale: Girl's bedroom set - French provincial, high quality wood: night stand, 5-drawer chest, twin bed, headboard, footboard, frame, mattress, spread, vanity, and settee. Make offer. Call 734-2282.

FOREIGN Exchange student from Ecuador needs permanent home. Youth For Understanding high school program. Contact ext. 6586 or 253-2687 after 6 p.m. for more information.

WANTED: Counterperson/cashier for very short (2) hours per day, 5 days per week in Ames cafeteria. Call Mr. C. Keith after 2 p.m. at 968-3838.

FOR SALE: Men's golf clubs. 8 irons, 3 woods. \$20. Call 255-7479.

CLASSIC POWER BOAT, 14' Wolverine, wood, 25 yrs. old, 4 seats, excellent condition, 4-cyl. Mercury 55 engine, like new - with trailer. \$999. Call ext. 5181 or 851-7066.

Four United Airlines half-fare coupons for sale. Will sell all four for \$190 or two for \$100. Please call eves. or weekends: 374-8142.

FOR SALE: Used 2x4's - some 8', some 12', 32" door w/frame and knob. Call 356-2368 after 4:30.

CALLIGRAPHY LETTERING: Notes and stationery, bookmarks, Christmas notes, special orders, frame-ables, etc. Most printed onto parchment. Reasonable. Large selection of scriptural and inspiration notes. Call 243-8465.

For Sale: Penncrest compact convertible (apt. size) washer and dryer, 12-lb size, 120 volt. Avocado green. \$100 each. For Sale: Beautiful genuine Norwegian blue fox stole, silver grey color, never worn, brand new - 6 mos. old. Asking \$600. Call 732-5410.

FOR SALE: Microcomputer system: Processor Technology's SOL-20, w/50K RAM, Northstar Mini-disk Drive, 9" CRT and A-J 841 I/O Printer; software and documentation included. Perfect condition. Call 735-9127.

Santa Clara County Historical and Genealogical Society presents a 1-day-long seminar, Saturday, Oct. 6, for the study of our histories at St. Justin's Church School, 2655 Homestead Rd., Santa Clara, CA. Classes for the beginner and advanced. Call 253-7577 for further information.

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Give to
1979 CFC

NASA/Ames Research Center CALENDAR OF EVENTS

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

If you wish to have an event announced on this calendar please notify Linda Mackey, Visits Coordinator, ext. 5546, M/S 253-1. The next calendar will cover the period October 15 - November 12. The deadline is September 25.

(POST ON BULLETIN BOARD OR MAIL TO INTERESTED PERSONS)

<p>Oct. 1 - Computational Fluid Dynamics Branch Seminar Speaker: Prof. Koichi Oshima, Institute of Space and Aeronautical Science, Univ. of Tokyo, Tokyo, Japan Topic: Flow Pattern Around an Oscillating Airfoil - Experimental and Numerical Evidence of the Kutta Condition and the Vorticity Distribution in the Wake Time: 10:00 a.m. Location: N-229, Room 215</p>	<p>Oct. 2 - 1979 Aircraft Flight Test/Systems Workshop Dates: Oct. 2 - Oct. 11 Contact: Bill Larsen, FAA/Ames Office Ext. 5049 Ames Scuba Club Monthly Meeting Time: 11:30 - 1:00 p.m. Location: N-235, Ames Cafeteria Private Dining Room</p>	<p>Oct. 3 - 1979 Aircraft Flight Test/Systems Workshop continues</p>	<p>Oct. 4 - Bible Study for Ames and Navy People Coordinator: Dr. Dewey Hodges, Ext. 5835 Time: 12:00 noon Location: Bldg. 48, Navy side (Sunday School Building) 1979 Aircraft Flight Test/Systems Workshop continues</p>	<p>Oct. 5 - 1979 Aircraft Flight Test/Systems Workshop continues</p>
<p>Oct. 8 - Columbus Day - Holiday! 1979 Aircraft Flight Test/Systems Workshop continues</p>	<p>Oct. 9 - 1979 Aircraft Flight Test/Systems Workshop continues</p>	<p>Oct. 10 - 1979 Aircraft Flight Test/Systems Workshop continues Physical Sciences Branch Seminar Speaker: Prof. M. J. Yacamán, Instituto de Física, U.N.A.M., Mexico Topic: Dynamical Electron Diffraction Calculations for Small Particle TEM Applications Time: 10:30 a.m. Location: N-230, Room 230 Ames Stamp Club Meeting Time: 7:30 p.m. Location: N-241, Room 237</p>	<p>Oct. 11 - 1979 Aircraft Flight Test/Systems Workshop continues</p>	<p>Oct. 12 - Physical Sciences Branch Seminar Speaker: Prof. M. J. Yacamán, Instituto de Física, U.N.A.M., Mexico Topic: Dynamical Electron Diffraction Calculations for Small Particle TEM Applications Time: 10:30 a.m. Location: N-230, Room 230</p>
<p>Oct. 15 - Physical Sciences Branch Seminar Speaker: Prof. M. J. Yacamán, Instituto de Física, U.N.A.M., Mexico Topic: Dynamical Electron Diffraction Calculations for Small Particle TEM Applications Time: 10:30 a.m. Location: N-230, Room 230</p>	<p>Oct. 16 -</p>	<p>Oct. 17 - National Federation of Federal Employees (NFFE) Monthly Meeting Time: 12:00-12:30 p.m. Location: N-213, Room 261 Physical Sciences Branch Seminar Speaker: Prof. M. J. Yacamán, Instituto de Física, U.N.A.M., Mexico Topic: Dynamical Electron Diffraction Calculations for Small Particle TEM Applications Time: 10:30 a.m. Location: N-230, Room 230</p>	<p>Oct. 18 - Bible Study for Ames and Navy People Coordinator: Dr. Dewey Hodges, Ext. 5835 Time: 12:00 noon Location: Bldg. 48, Navy side (Sunday School Building)</p>	<p>Oct. 19 - Physical Sciences Branch Seminar Speaker: Prof. M. J. Yacamán, Instituto de Física, U.N.A.M., Mexico Topic: Dynamical Electron Diffraction Calculations for Small Particle TEM Applications Time: 10:30 a.m. Location: N-230, Room 230</p>

WEEKEND ACTIVITIES:

ARC Golf Tournament
San Jose Municipal Golf Course
Time: 11:00 a.m.
Co-chairmen: Phil and Betty Quatrone
Official deadline: Oct. 3
Send money to Dave Banducci, M/S 226-3

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

SEPTEMBER 25, THRU OCTOBER 1, 1979

A LA CARTE MENU

TUESDAY Baked Chicken with Dressing.....
Spaghetti and Meat Balls.....
Choice of One: Whipped Potatoes, Rice Pilaf, Mixed
Vegetables, Buttered Hominy or Salad
Soup - Scotch Barley (Lamb & Vegetables).....

WEDNESDAY Yankee Pot Roast
Bratwurts and Sauerkraut.....
Choice of One: Mashed, Country Fried Potatoes,
Zucchini & Tomatoes, Mixed Beans or Salad
Soup - Cream of Broccoli.....

THURSDAY Sauted Pork Chop over Rice.....
Beef Paprikash over Noodles.....
Choice of One: Snowflaked Potatoes, Yams, Beans & Mushrooms,
Creamed Spinach or Salad
Soup - Chicken Broth and Rice.....

FRIDAY Shrimp Creole and Rice.....
Zucchini and Beef Casserole.....
Choice of One: Whipped, Baked Potatoes, Green Beans,
Cauliflower Au Gratin or Salad
Soup - Fulton's Market Clam Chowder.....

MONDAY Home Style Beef Stew.....
Turkey Pot Pie Pastry Crust.....
Choice of One: Snowflaked Potatoes, Rice Pilaf, Butter
Peas, Glazed Carrots or Salad
Soup - Fresh Vegetable with Spaghetti.....

DAILY SPECIALS INCLUDES: A \$1.40 ENTREE, VEGETABLE OR POTATO, SALAD
ROLL & BUTTER, AND A .30¢ BEVERAGE.....

(CHEF'S CHOICE) HOT SANDWICH AND LARGE BOWL OF SOUP...

HEALTH FOOD SPECIAL

(Chef's Choice) - Vegetarian Plate: 3 Vegetables, 1 Jello or
Cottage Cheese or Poached Egg or Baked or Poached
Fish & Vegetable or Salad..... 1.60

OCTOBER 2, THRU OCTOBER 8, 1979

A LA CARTE MENU

TUESDAY Chicken Cacciatore.....
Baked Corned Beef Hash and Poached Egg.....
Choice of One: Whipped, Parmesan Potatoes,
Steamed Cabbage, Corn O'Brien or Salad
Soup - Cream of Spinach or French Onion.....

WEDNESDAY Baked Home Styled Meat Loaf.....
Chicken Liver Saute.....
Choice of One: Mashed Potatoes, Rice Pilaf, Peas,
or Salad
Soup - Navy Bean.....

THURSDAY Baked Veal & Dressing.....
Turkey Pot Pie.....
Choice of One: Mashed Potatoes, Candied Yams,
Buttered Corn, Green Beans or Salad
Soup - Philadelphia Pepper Pot.....

FRIDAY English Fried Sole Almondine
Turkey Cream Cheese & Macaroni Casserole.....
Choice of One: Whipped, German Fried Potatoes, Buttered
Celery, Cauliflower Au Gratin or Salad
Soup - Seafood Gumbo.....

MONDAY HOLIDAY - COLUMBUS DAY

DAILY SPECIALS INCLUDES: A \$1.40 ENTREE, VEGETABLE OR POTATO, SALAD
ROLL & BUTTER, AND A .30¢ BEVERAGE.....

(CHEF'S CHOICE) HOT SANDWICH AND LARGE BOWL OF SOUP...

HEALTH FOOD SPECIAL

(Chef's Choice) - Vegetarian Plate: 3 Vegetables, 1 Jello
Cottage Cheese or Poached Egg

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