



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

Apollo 13 Lunar Landing Mission Scheduled for Launch April 11

Apollo 13, the third U.S. manned lunar landing mission, is scheduled for launch April 11 from Kennedy Space Center, to explore a hilly upland region of the Moon and bring back rocks perhaps five billion years old.

The Apollo 13 lunar module will stay on the Moon more than 33 hours and the landing crew will leave the spacecraft twice to emplace scientific experiments on the lunar surface and to continue geological investigations. The Apollo 13 landing site is in the Fra Mauro uplands; the two previous landings were in mare or "sea" areas, Apollo 11 in the Sea of Tranquility and Apollo 12 in the Ocean of Storms.

Apollo 13 crewmen are commander James A. Lovell, Jr.; command module pilot Thomas K. Mattingly III, and lunar module pilot Fred W. Haise, Jr. Lovell is a U.S. Navy captain, Mattingly a Navy lieutenant commander, and Haise a civilian.

The launch vehicle is a Saturn V. Apollo 13 objectives are:

- Perform selenological inspection, survey and sampling of materials in a preselected region of the Fra Mauro formation.
- Deploy and activate an Apollo Lunar Surface Experiment Package
- Develop man's capability to work in the lunar environment.
- Obtain photographs of candidate exploration sites.



APOLLO 13 MISSION INSIGNIA

The crew of Apollo 13 selected the call signs Odyssey for the command/service module and Aquarius for the lunar module. When all three crewmen are aboard the command module, the call sign will be "Apollo 13." As in the two previous lunar landing missions, an American flag will be emplaced on the lunar surface. A plaque bearing the date of the Apollo 13 landing and the crew signatures is attached to the LM.

Currently 11 television transmissions in color are scheduled; one in Earth orbit an hour and a half after launch, three on the outward voyage to the Moon; one of the landing site from about nine miles up; two from the lunar surface while the astronauts work outside the spacecraft; one at the command service module/lunar module docking operation; one of the Moon from lunar orbit; and two on the return trip.

Experiments emplaced at the Fra Mauro site as part of the ALSEP III will gather and relay long-term scientific data to Earth for at least a year on the Moon's physical and environmental properties. Five experiments are contained in the ALSEP: a lunar passive seismometer will measure and relay meteoroid impacts and moonquakes; a heat flow experiment will measure the heat flux from the lunar interior to the surface and conductivity of the surface materials to a depth of about 10 feet; a charged particle lunar environment experiment will measure protons and electrons to determine the effect of the solar wind on the lunar environment; a cold cathode gauge experiment will measure density and temperature variations in the lunar atmosphere; and a dust detector experiment.

THIRD STAGE IMPACT

The empty third stage of the Saturn V launch vehicle will be targeted to strike the Moon before the lunar landing and its impact will be recorded by the seismometer left by the Apollo 12 astronauts last November. The spent lunar module ascent stage, as in Apollo 12, will be directed to impact the Moon after rendezvous and final LM separation to provide a signal to both seismometers.

Touchdown on the lunar surface is scheduled to take place at 6:55 PST April 15, and two periods of extravehicular activity are planned at 11:13 p.m. PST, April 15 and 6:58 p.m. PST April 16. The LM ascent stage will lift off at 4:22 a.m. April 17 to rejoin the orbiting command module after more than 33 hours on the lunar surface.

Apollo 13 will leave lunar orbit at 10:42 a.m. PST April 18 for return to Earth. Splashdown in the mid-Pacific just south of the Equator will be at 12:17 p.m. PST April 21.

MacKay Receives NASA Award

Outstanding contributions to a presentation on solar powered, electrically propelled manned Mars vehicles have resulted in a NASA Special Achievement Award for John S. MacKay, Propulsion Systems, OART Mission Analysis Division located at Ames. The award was presented by Dr. Hans Mark, Ames Director, during a recent ceremony.

Mr. MacKay was cited for utilizing a recently developed computer program to update trajectory and performance evaluations leading to the analysis of throwaway and reusable systems for a manned Mars mission. Not only was this the first time that an analysis of such a particular system was run extensively, but in addition, Mr. MacKay was able to outline an evolutionary approach to the development of such a technology. He also updated the performance analyses of the more conventional systems such as nuclear propulsion and chemical cryogenic propulsion.

PRESENTATION

The results of the analysis were presented by Dr. Federico Casal, MAD Assistant Director for Propulsion Systems, and Mr. MacKay, to Dr. Wernher von Braun, who at the time was director of Marshall Space

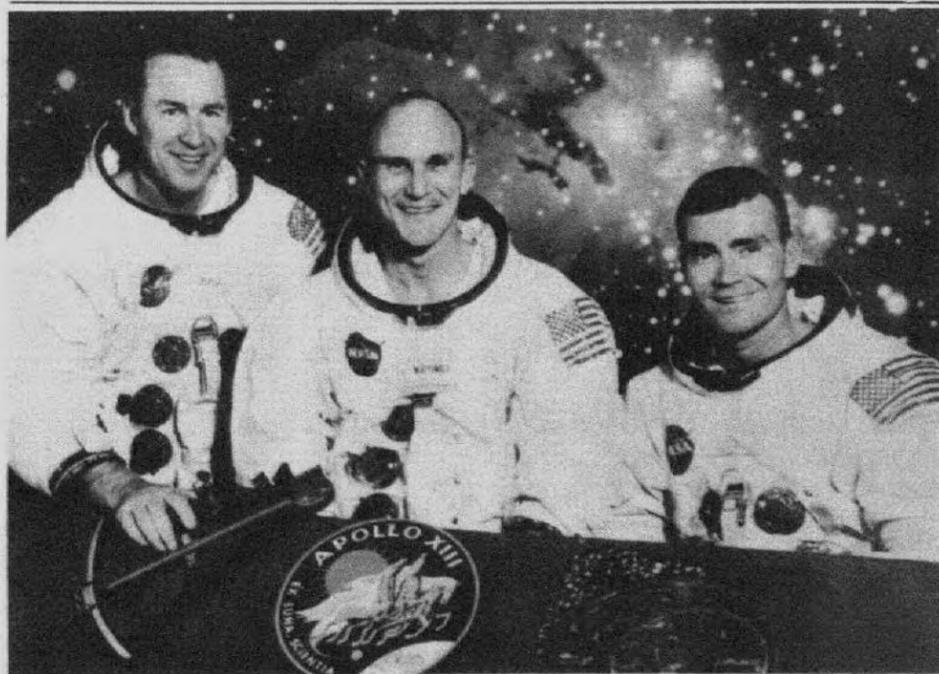
Flight Center. The research was received with great interest and according to a letter from Dr. von Braun the electrically propelled manned Mars vehicle appears to hold much promise.



JOHN S. MAC KAY

A letter of commendation from Dr. Mark read in part, "The Center takes pride in your accomplishment and you are to be commended for your special effort which greatly improved the presentation and your analysis which in itself represents a unique contribution."

Attending the ceremony in honor of Mr. MacKay were David Dennis, Acting Director of the OART Mission Analysis Division, and Dr. Casal.



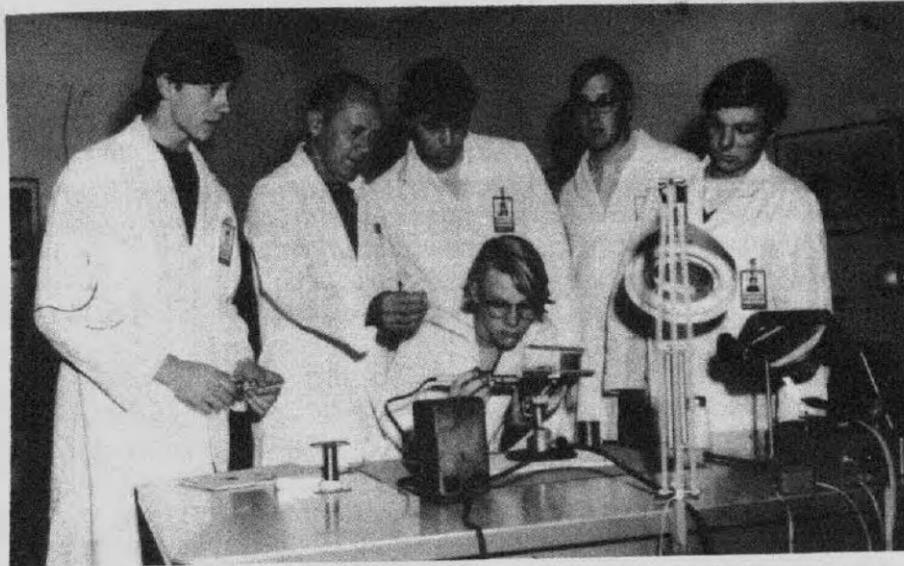
SEVENTH MANNED APOLLO CREW . . . The members of the prime crew of the Apollo 13 lunar landing mission (l to r) are Astronauts James A. Lovell, Jr., Thomas K. Mattingly, II, and Fred W. Haise, Jr. The mission insignia in the foreground (center) represents Apollo, the sun god of Greek mythology, symbolizing that the Apollo flights have extended the light of knowledge to all mankind.



DRAFTING LESSON . . . Akira Mikuni (left), Lynbrook High student works a drafting problem with Ames instructor Max B. Strauss, of the Research Equipment Engineering Branch as part of the high school vocational training program now underway at the Center.



STUDYING A DRAWING . . . with Max Strauss (REEB), is Sidney Weber, Cupertino High School student who is learning drafting under a vocational training program established at the Center.



SOLDERING CLASS . . . Students representing participating high schools in the Fremont Union High School District and Ames work-study program, are learning electronic soldering techniques from instructor Donald Goodsell, of the Electronic Instrument Branch. Pictured here are (l to r) Richard Nebel, Cupertino; Mr. Goodsell; George Demcak and Christopher Leidich, Homestead; Randall Gillespie, Sunnyvale; and Richard Chaillaux, Cupertino.

High School Work-Study Program at Ames

With the beginning of the spring semester some 50 students from the Fremont Union High School District began an experimental work-study program at Ames.

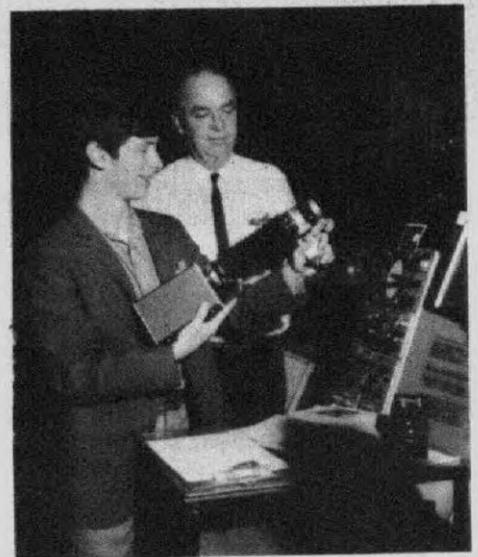
The new program is a cooperative vocational-educational-instructional venture between the School District and Ames. It was organized to enable students to enhance their high school education through learning experience in a research organization, according to John Leveen, Chief of the Employee Development Branch at Ames. Mr. Leveen worked with Edgar Pittman, coordinator of vocational education for the Fremont School District, in developing the program. Carl T. Sodergren, Director of Work Experience Education for the School District, is moni-

toring the progress of the program and visits the Center several times a week to observe the students at their work sites.

Students from six high schools in the School District are enrolled in the vocational training program as part of their regular school curriculum. The training sessions are held at the Center each work day from 1 to 4 p.m. School credits are granted for the work, but there is no pay involved.

Assignments are primarily in the crafts and shops areas, with some of the students working in electronic instrumentation, drafting, and trainee assistants to scientist and engineers.

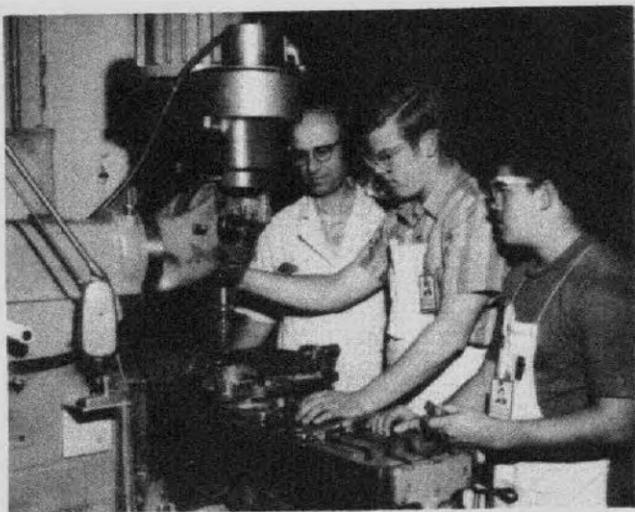
As this cooperative program progresses its developers hope that the involvement of the students in an educational endeavor such as this can become a model for school districts throughout the country.



STUDENT SCIENTIST . . . Neil Spingarn (left), a junior at Fremont High School, and Robert Dannenberg, Ames Fluid Mechanics Branch, work with an abstronics photon detector in the Electric Arc Shock Tunnel. Neil is enrolled in an experimental work-study program at the Center.



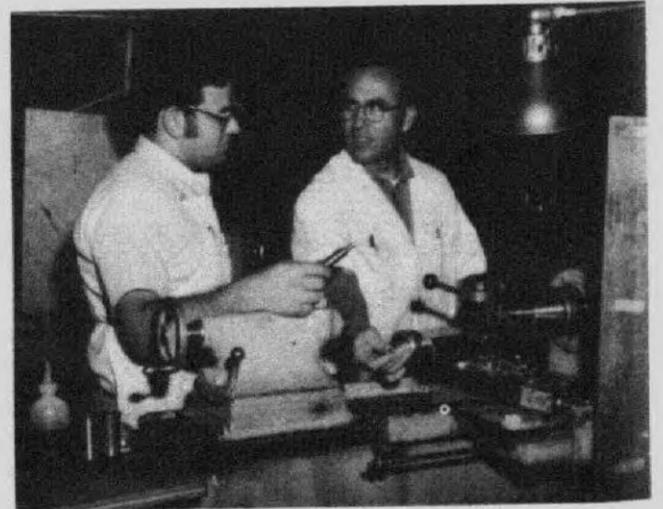
MATH STUDENTS . . . Cecilia Bourland (left) and Sally Buniowski (right), Lynbrook High School, discuss with instructor Dr. David Goorvitch, Physics, the results of a mathematical equation which had been computerized.



THE MACHINE SHOP . . . becomes a classroom as (l to r) Ames machinist Thomas L. Gambucci teaches John K. Emerson and Floyd N. Foreman, Homestead High School, drilling techniques on a milling machine. The students are drilling copper manifolds which will be used in a wind tunnel at the Center. . .



Here, William Melanson, Lynbrook High, is instructed in the use of a lathe by machinist Robert Avila, Ames Machine Branch. . .



Learning to turn threads on a lathe in the Machine Branch is Randy Friedberg, Fremont High School. His instructor is Louis Flores, Ames machinist.

Personnel Corner

Cost differences in employing men and women are not significant, according to a newly revised publication issued by the U. S. Department of Labor.

The report, prepared by the Women's Bureau, summarized the latest available data on certain factors that affect labor costs—absenteeism, labor turnover, job tenure, and labor mobility.

The data include, for example, Public Health Service Statistics on worktime lost because of illness or injury, which averaged 5.6 days for women and 5.3 days for men in 1967. On the other hand, earlier PHS data showed fewer sick days per year for single women (3.9 days) than for single men (4.3 days).

The report states that women workers have favorable records of attendance and labor turnover when compared with men employed at similar job levels and under similar circumstances.

Detailed analyses indicate that the skill level of the job, the marital status and age of the worker, length of service, and record of job stability provide better clues to differences in work performance than does the mere fact that the worker is a man or a woman.

Studies on labor turnover show that overall job-changing rates are about the same for women and men. In 1968, 2.6 percent of women workers and 2.2 percent of men workers quit their jobs voluntarily, according to a Bureau of Labor Statistics study.

But men are more frequent occupation changers than women, another BLS study showed. Only 7 percent of the women but 10 percent of the men held a different occupation in January 1966 than in January 1965.

Foster Homes Needed

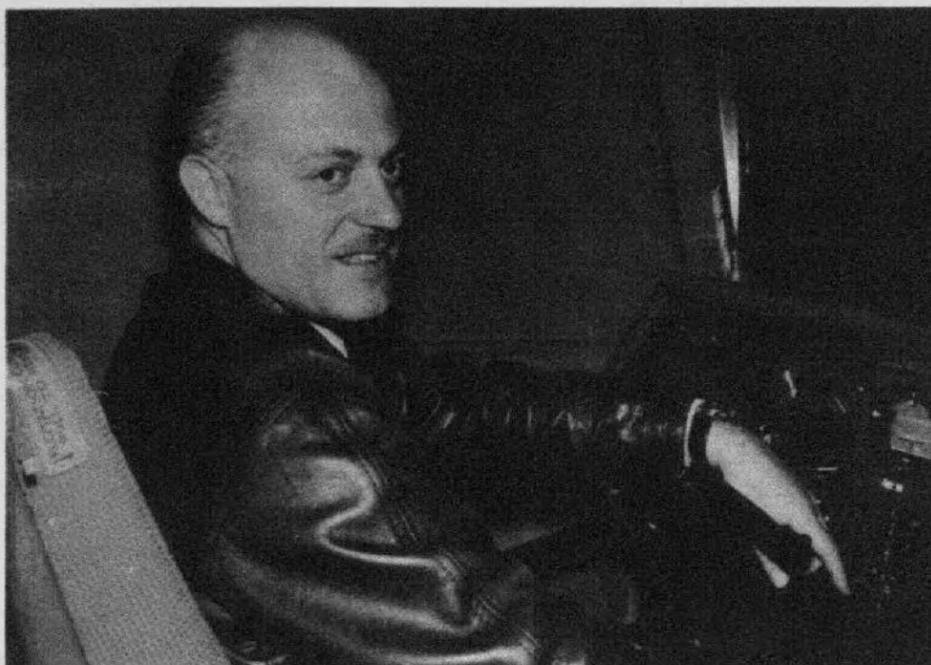
Foster Homes for children of all ages are needed by the Santa Clara County Department of Social Services. There are meetings every Friday afternoon from 1:30 to 3 p.m. for all those who want to learn more about this important program. The meetings are in the main building at 55 W. Younger Avenue, San Jose. No appointment necessary. For more information call 299-2981.

The Astrogram
 Room 134
 Admin. Mgt. Building
 Phone 2385

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 Reporters NASA Employees

Deadline for contributions:
 Thursday between publication dates



CONCORDE TEST PILOT . . . Monsieur Jean Pinet, representing the Societe Nationale Industrielle Aerospatiale (SNIAS), formerly Sud-Aviation, visited the Center recently and assisted in the preparation and initial check-out of the Concorde aircraft simulation on the Ames Flight Simulator for Advanced Aircraft (FSAA). Mr. Pinet is pictured in the cockpit of the FSAA as he prepared to pilot the simulation. In general the dynamic response of the simulated aircraft satisfied him and he was obviously impressed by the lateral motion cues provided by the FSAA motion system. The FSAA, believed to be the most capable aircraft flight simulator yet developed, became fully operational last November.

Services of Ames Libraries Expanded

Services of the Ames libraries have been expanded and effective May 1 the facilities will be officially open to others besides Ames employees. This has been made possible by the separation of classified and unclassified materials and procedural changes.

Researchers or individuals from companies, universities and colleges, or other government agencies who have need for library material in the performance of their work will be admitted during regular hours to both the Main Library and Life Sciences Library. The libraries will not be open to the public on an unlimited basis, however, because the available materials are not of general interest or value. Also, some of the material, although not classified, is limited to use by individuals who meet various qualifications as specified by agencies and companies who allow it to be included in the Ames collection.

Unrestricted materials will be available to an "outside" visitor for use in the libraries or they may be borrowed through the normal inter-library loan facilities of the individual's place of business.

An additional service for Ames employees will be the out-of-hours use of the Main Library. The build-

ing will be locked for normal security precautions, but employees anticipating need for use of the library during evening or weekend hours may check out a building key at the library desk. Those with an unanticipated need for such library use may be admitted by the Ames guard. The Life Sciences Library will be open to use on the same basis.

A procedure for self-service checkout of some library materials by out-of-hours users will be initiated shortly. It should be noted that Xerox machines will not be available during hours when the libraries are unattended. Other changes to extend the services of the library facilities are also underway and will be made known as they occur.

The Main Library has resumed service for a full working day and employees are welcome to call or visit the library from 8 a.m. to 4:30 p.m.

For details on library services call the Main Library, ext. 3312, or the Life Sciences Library, ext. 2141.

Navy Reserve to Promote Gerdes

Ames aerospace engineer and pilot Ronald M. Gerdes, Flight Operations Branch, has been selected for the rank of Captain in the U.S. Naval Air Reserve. Mr. Gerdes, currently a Commander, drills one weekend each month at the Naval Air Reserve Training Unit, Alameda Naval Air Station.

Mr. Gerdes first joined the Naval Air Reserve in July 1953 after five years of active duty with the U.S. Navy. He was permanently assigned to Ames as an aeronautical research engineer in 1957 after graduating from the University of California at Berkeley.

DEADLINE EXTENDED

FPC Scholarships

The deadline for filing student applications for the 1970 Scholarship Award Program sponsored by the Federal Personnel Council of Northern California has been extended to April 15.

At least two \$350 scholarships will be awarded and the selections will be announced at a luncheon in June.

To be eligible, the applicant must be a son or daughter of a career civilian employee presently employed in a Federal agency located in Northern California; or a son or daughter of a retired or deceased employee who had been a career civilian employee of a Federal agency in Northern California; or must be currently employed in a Federal agency in Northern Calif. under the Stay-in-School program; or must have been employed during the summer of 1969 under the YOC program; and must be a high school senior graduating in January or June 1970.

Application forms may be obtained by contacting Mrs. Evans or Mrs. Kohler, Room 134, Admin. Mgt. Building, ext. 2385.

USCS Announces Apprentice Exam

The San Francisco Interagency Board of U. S. Civil Service Examiners has announced an Apprenticeship-First Year Examination, \$2.94 an hour, for career opportunities at various Naval Installations in the Bay Area. The closing date for this announcement is April 27.

Anyone interested in obtaining more information about this examination may call Mrs. Menges, Employment Branch, ext. 2021.

**Take stock in America
 Buy U.S. Savings Bonds**

Special Discounts Offered to Personnel at Ames

Membership cards, mail order discount coupons, and other special offers are available without charge for all Ames employees, tenant organizations at the Center, and retired Ames employees. Contact The Astrogram Office, Room 134, Administration Management Building.

DISCOUNT CARDS

DISNEYLAND: Magic Kingdom Club cards for special benefits at Disneyland.

FRONTIER VILLAGE: Frontier Wonderland Club Cards for special benefits at Frontier Village.

SANTA CRUZ BEACH and BOARDWALK: Beachcomber Club cards for a 30 percent discount.

ABC MARINE WORLD: Membership cards offering a 10 percent discount at Marine World, Redwood City.

DISCOUNTS

FURNITURE: Cards are available for the House of Karlson, San Francisco.

TIRES: Peninsula General Tire Company, Mt. View and Burlingame, Gerard Tire Service, Inc., for Dunlop, Michelin, and Seiberling; and Keith's Tire and Brake Service, Sunnyvale and Campbell, 35 to 50 percent discount.

JEWELRY: Michael's Jewelry, Moonlite Shopping Center, Santa Clara, and Princeton Plaza, San Jose.

CATALOG: Service Exchange Distributors of San Francisco, offering a variety of merchandise at discount. Catalog in "The Astrogram" office.

SEA WORLD: Ames employees can now receive reduced rate tickets to Sea World, on Mission Bay, San Diego, through Sea World's Dolphin Club plan.

DINNER CLUB: International Dinner Club coupon books for \$5, order forms available.

AUTOMOBILES: Buy on lease any new automobile at fleet prices from Rancar Inc., Los Altos. All makes available.

NEW ITEMS:

CAMPING: The City of San Jose owns and operates San Jose Family Camp located on the middle fork of the Tuolumne River near Yosemite National Park. Registration for residents and non-residents is now underway for the coming season which runs from June 22 through Sept. 4. A brochure with further details is available for review in "The Astrogram" office.

BEACHCOMBER CLUB: Unlimited rides at Santa Cruz Beach and Boardwalk for \$2.50 per person any Saturday during April with Beachcomber Club card.

EXPO '70 TOUR: The Blue Saints of Explorer Post 36, Los Altos, in cooperation with the Bay Area Council of Boy Scouts, are offering Ames employees an opportunity to join their round trip Oakland to Tokyo tour July 25 - August 16. Additional information in "The Astrogram" office.

MICHAEL'S JEWELRY: Special through June-Diamonds all sizes and qualities cost plus 10%.

SJSC To Hold Open House and Airlift

The Flying Twenty Club of San Jose State College will hold its third annual Airlift and Open House April 18 and 19 at the college's Department of Aeronautics located at San Jose Municipal Airport.

The purpose of the Airlift is to acquaint the general public with the pleasure and safety of flying and to give interested spectators an opportunity to fly over the local area at a reduced rate. The cost of the ride will depend on the passenger's weight and will be computed at two cents per pound. For example, if a person weighs 155 pounds the cost of the ride will be \$3.10.

"Open House" activities will endeavor to inform the community of the work being accomplished in aeronautics at the college. The facility is nationally known and is considered one of the best in the field. Besides exhibits and continuous movies which will include the Apollo 11 Moon landing and a series on learning to fly, there will be a static display representing more than a million dollars worth of aircraft from many facets of flying. Several outstanding antiques, experimentals, gliders, and helicopters will round out the display.

The Flying Twenty Club is a non-profit corporation fully sanctioned by the Federal Aviation Agency. Only commercial pilots will fly the aircraft during the Airlift. Proceeds from this event will be used to fund the San Jose State College Airmeet Team which won the 1969 National Intercollegiate Champion Flying

BOWLING

... by Clark White

Current standings of the All-Ames Bowling League are:

DIVISION I	WON	LOST
Comets	31	13
Keggers	30	14
4NI	29	15
Glitches	19 1/2	24 1/2
Machine Shop	19	25
Road Runners	17 1/2	26 1/2
Owls & Pussycats	15	29
Splitters	15	29
DIVISION II		
Woodchoppers	27	17
Double Trouble	26	18
MAD	25	19
Timber Topplers	25	19
Sterling Engineers	23	21
Hit and Mrs.	20	24
Wal-Nut-O's	15	29
Killers	15	29

Bowled April 1:

Men's high series: Roger Hedlund, 603; Gino Pucine, 587.

Women's high series: Jan Konrath, 528; Ina Rathert, 481.

Men's high games: Roger Hedlund, 236; Gino Pucine, 222.

Women's high games: Ann Teshima, 198; Jan Konrath, 198.

Team in competition with St. Louis University and Southeastern State University. This competition, sponsored by the 114 colleges and universities of the National Intercollegiate Flying Association, is attended by many of the major schools across the nation. During the past four years the San Jose State Team has won the National Championship three times (1966, 1968 and 1969), posting the finest record of victories ever accomplished in the twenty-two-year history of the association.



THE "FIGHTING PUMAS"...took first place again this year in the All-Ames Basketball League with a 53-46 win over BCA in the playoff. Winning team members are (l to r, front row) Jim Connolly, Pete Haro, Tom Carson, and Dave Sinnott; back row (l to r), Terry Gossett, Marnell Smith, Len McCulley, and Roger Hedlund. Not shown, Ken Sousa.

WANT ADS

For Sale-1968 Corvette, call 245-6972.

For Sale-1963 Olds Starfire hardtop, good general condition with minor dents. Call C. Conley, 327-6688.

For Sale-Pontiac Catalina wh/red interior, V-8, \$500. Call Dave, 968-5697.

For Sale-1962 Chrysler Newport, very good condition. Push button trans. \$400 or best offer. Call 969-0514.

For Sale-1961 Cadillac 4-door, low mileage, good condition w/'70 lic. \$450. Call 293-7960.

For Sale-1956 T-Bird, new automatic transmission, brakes, tires & radiator. \$1800. Call 245-0073.

For Sale-1968 Honda Mini-Trail. Skid plate, good condition, not street equipped. \$150. Call Bill Ogles, 241-8722.

For Sale-Utility-10 sailboat, length 9'10", beam 47", disp. 75, dacron sail 50 sq. ft., like new. \$175. Call Bill Cameron, 266-2872.

For Sale-2 Sears lawn mowers. Gas-powered reel-type-\$50. Hand-type-\$15. Call 867-2408 after 6 p.m.

For Sale-Stereophonic Hi Fi headphones, Model V-815, \$6. Call Cliff Jern, 248-7634.

For Sale-Accordian, 120 bass Galanti, professional model with case. Make offer. Motorola B&W TV, 21-inch console, VHF and UHF, 1968 model but used very little. \$75. Call C. Conley, 327-6688.

For Sale-2 olive green naugahyde recliners. Three positions, both in excellent condition, almost new. Will sell for \$60 each. Call 379-6836 after 4:30 p.m.

For Sale-Norge refrigerator, 12 cu. ft., freezer across top, good condition. \$40. Call 948-5988.

For Sale-Penncrest automatic washer. Good condition. \$25. Call 269-3172.

For Sale-Two bar stools, sturdy wood construction, padded vinyl-covered seat, tan color, very good condition, \$25 for both. Call Bud Hult, 356-2693.

For Sale-Silver chest, tarnishproof lining, holds service for 12. Call 739-8731.

For Sale-One 3-ft. wagon wheel, \$15. One 4-ft. wagon wheel, \$20. Call Paul Traghi, 295-8293.

For Sale-Five 8.00 x 19 1/2 tires and 8 lug hole wheels. Very reasonable. Call 253-0169.

For Rent in Sunnyvale-3 bdrm, 2 bath, fireplace, large family room, plus free use of cabana pool. No lease required. If interested, phone 245-2796, after 5 p.m.

For Sale-American Eskimo pups. 1 male and 1 female - UKC registered, 6 weeks old, pure white. Call 225-8914.

Wanted-Microscope for medical student, 10x w/ binocular, oil immersion slides, magnification up to approx. 1000X. Weyers, 377-1010.

Wanted-2 stereo speakers, 40-50 watts. Call 969-0514.

Wanted-Ping pong table, 2-part. Player piano, 85-key, variable pitch mechanism. C. Conley, 327-6688.

Needed-Home for friendly dog. Halfpoodle, half-wire hair terrier. Has had all shots and is licensed. He is good with children and is housebroken. A good dog indoors or out. Free. Call Ray Sargis, 379-3206.

Personal Contact-Sister Theresa would like to get in touch with the Ames employee who took pictures at the West Valley graduation last June of both his daughter and Sister Theresa. Please contact The Astrogram Office, ext. 2973 for further details.

For Sale-Hiking-rook climbing boots, Couette (Le Trapeur), size 9 medium, worn once, pd. \$30, sell for \$18.50; intercom system, \$20; girl's desk, \$20. Call 323-2080.

For Sale-J. B. Lansing oiled walnut speaker enclosure, 23x14x12 inches deep, takes 10 or 12 inch speaker plus tweeter, new \$54, price, \$40. Call 323-2080.

SOFTBALL

Anyone interested in playing for the NASA Ames Softball team which competes against various industries from the surrounding communities, please contact Bruce Ganzler, ext. 2747.



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Ames Scientists to Take Part In NTC Conference

"Telemetry in Transition" will be on display in Los Angeles April 27-30, when the 1970 National Telemetry Conference (NTC) presents 14 technical sessions, a half-dozen "live" scientific demonstrations and an advanced equipment expo. All sessions and exhibits will be held in the Los Angeles Hilton Hotel.

Ames research scientists taking part in the technical sessions are Thomas B. Fryer, Assistant Chief of the Electronics Research Branch, and Robert R. Nunamaker, Chief of Flight Operations, Project Pioneer. Mr. Fryer will give a paper entitled "Implantable Biotelemetry Systems"; Mr. Nunamaker's paper, which was coauthored by Lewis W. Dickerson and Charles F. Hall, discusses Project Pioneer 1965-70.

Two pioneers in modern technological management, Dr. George Mueller and Gen. Bernard A. Schriever (Ret.), will deliver major addresses, and a special showing of lunar rock and Surveyor III accessories, returned to Earth by Apollo 12, will be presented by NASA and JPL.

Dr. Mueller, longtime NASA administrator of the manned space-flight program, will keynote a special general session on Tuesday morning, and General Schriever will discuss applications of aerospace technology to civil problem-solving in the principal address at Wednesday's NTC Awards Luncheon.

A series of "dynamic exhibits" will be operating on the exhibit floor, featuring a variety of "live" and simulated projects. Included are instrumented-animal demonstrations, an out-patient telemetry system, actual management of the Pioneer spacecraft from the exhibit floor, and signals from the North Pacific Buoy Experiment. Norman Martin, Project Pioneer, is operations chief for the dynamic exhibit and an abbreviated Pioneer Mission control which will be set up.

NTC/70 is sponsored jointly by the IEEE Groups on Aerospace and Electronic Systems, Communication Technology, and Geoscience Electronics.



AN AWARD FOR BRAVERY . . . Milton W. Alberry (center) of the Army Aeronautical Research Laboratory (AARL) was recently awarded the Meritorious Civilian Service Award for Bravery, the Army's second highest civilian award, as a result of an accident in the 40- by 80-Foot Wind Tunnel last September. Paul F. Yaggy (left), Director of the AARL, is pictured congratulating Mr. Alberry following presentation of the award by Dr. Hans Mark (right), Ames Director.

Alberry Receives Top Army Award

The U.S. Army's Meritorious Civilian Service Award for Bravery was presented recently to Milton W. Alberry of the Army Aeronautical Laboratory for exhibiting unusual courage and competence during a wind tunnel accident at Ames last September.

The award is the second highest civilian honor and was presented by directions of the Secretary of the Army to Mr. Alberry for distinguishing himself while assigned as an Engineering Technician in the control room of the Center's 40- by 80-Foot Wind Tunnel.

Mr. Alberry distinguished himself during a full scale test of the Army's "Cheyenne" helicopter when an accident occurred. The citation made note that, "the helicopter being tested experienced a sudden, catastrophic divergence throwing parts into the control room. Amid flying debris, he immediately shut off the fuel and electrical supplies to the aircraft, and rendered first aid to a seriously injured co-worker, possibly saving his life. His initiative, skill, courage, and sound judgement were in the highest tradition of the United States Army

and reflect great credit upon himself, the U.S. Army Aeronautical Research Laboratory, and the U.S. Army Materiel Command." The citation accompanying the award was signed by General F. J. Chesarek, Commander of the U.S. Army Materiel Command.

Dr. Hans Mark, Ames Director, presented the award to Mr. Alberry at a recent ceremony attended by Paul F. Yaggy, Director of the Army Aeronautical Research Laboratory, and members of his staff.

Civil Defense Alert Apr. 24

Ames employees are advised by the Santa Clara County Office of Civil Defense that the next regular testing of the Civil Defense alert and warning system occurs at 11 a.m. on Friday, April 24.

SIGNAL

The test consists of a steady siren tone for one minute, a minute of silence, then a warbling tone or series of short blasts for a minute.

Results of the ARA Election

The first annual election to form the Executive Board of the Ames Recreation Association (ARA) was held recently. A total of 1262 Ames employees (63.5%) cast ballots for the candidates of their choice. In addition to the 51 candidates listed on the ballot 100 persons received at least one write-in vote. The nine persons elected to the Board and the number of votes each received are:

Armando E. Lopez	534
Frank A. Lazzeroni	532
Andre T. Bogart	515
Dr. Seymour N. Stein	415
Barbara B. Perryman	408
Albert A. Puccinelli	377
Janet E. Konrath	370
Emerson N. Shaw	345
Dr. John E. Greenleaf	328

Officers will be elected at the first meeting of the new board.

Further news of the ARA and plans for the future will appear in forthcoming articles in "The Astrogram".

Seminar for Pre-Retirees

A Retirement Seminar for employees who are seriously considering retirement will be held at Ames on May 6. The time and place to be announced to attendees on an individual basis at a later date.

The one day program will include talks by guest speakers who will discuss a variety of subjects which should be of special interest to those contemplating retirement. The program will include such topics as:

- Federal Retirements Benefits
- Social Security
- Financial Planning
- Leisure Time
- Housing
- Part-time Employment

Seating space will be limited, therefore those planning to attend should be approaching retirement eligibility in the not-too-distant future. Interested personnel may submit their name to the Training Office, ext. 2033, no later than May 1. The approval of the supervisor should be obtained before making plans to attend the Seminar.

Annual Secretaries Week Proclaimed

"Better Secretaries Mean Better Business" is the theme of the nineteenth consecutive annual Secretaries Week being held this week (April 19-25).

Governors and mayors throughout the United States have officially proclaimed Secretaries Week, and their counterparts in Canada have done the same.

The purpose of Secretaries Week is to bring recognition to secretaries for the vital role they play in business, industry, education, government and the professions. Secretaries Week was originated in 1952 by The National Secretaries Association (International) in cooperation with the U.S. Department of Commerce to draw attention to the secretary's contribution to the educational, professional, and civic growth of the community. It also serves to remind secretaries of their responsibilities to their employers and to their profession.

JOGGERNAUTS

The Joggeronauts will meet Friday, May 1, at 12 noon in the conference room of the Instrument building (213). The program will include a display of running shoes and related equipment. For information call Jim Woodruff, 2066.

AMES JOGGERNEWS

Bruce Castle ran the 7.6-mile Searsville Lake Cross Country Race on Feb. 21 in 50:37. Other Ames runners at Searsville: Paul Sebesta, 51:46; Vito D'Aloia, 54:14; Mike Green, 55:29; Ted Passeau, 56:29; Jim Woodruff, 1:02:28.

Dora Willoughby came in third in the Road Runners Club one-mile cross country race at Foothill in 7:58 on March 8; and Vito D'Aloia completed the 15,000 meter run in 64:51.

Ted Passeau and Vito D'Aloia completed the El Dorado 14-mile race, April 11, in 1:59:00 and 1:52:22 respectively.

HAM OPERATORS

Any ham operator interested in joining AMSAT, the Radio Amateur Satellite Corp., please contact Dan Hegarty for further information, ext. 3149 or 252-2346.

HANDBALL

Men! Women! All employees interested in playing handball or learning the game are asked to call Bruce Castle, ext. 2964. He needs to know the number of people interested in participating, so please respond.



FIVE YEARS OF SAFE DRIVING

Awards for Safe Drivers

SAFE DRIVING CITED . . . Six Ames drivers from the Mechanical Services Section were cited recently for the safe operation of motor vehicles and mechanical equipment. The awards were given ". . . in recognition of the excellent record achieved in the performance of duties without a preventable accident during the past five calendar years and the last calendar year." Loren G. Bright (shown above left), Director of Research Support, is pictured as he officiated at a ceremony and presented commendation certificates and emblems for five years of safe driving to (l to r) Joe Rebollo, Donald J. Robert, and Gerald A. Johnson. In the photograph below one-year safe driving commendation certificates and emblems are presented to (l to r) Charles R. Sigala, Percy Puckett, and Raymond H. McCrorey.



ONE YEAR OF SAFE DRIVING

Wanted: Coupons For Kidney Machine

The Deb's Club of Lynbrook High School is sponsoring a project to collect 800,000 coupons from General Mills products to be used for the purchase of an artificial kidney machine.

Coupons are found in or on cake mixes, flour, Bisquick, cereals, pancake mixes, snacks, treats, etc., and are redeemed for cash by

General Mills. The Deb's Club will turn this money over to the Northern California Kidney Foundation which in turn will purchase the kidney machine.

Deadline for donating coupons is May 10. They may be sent either to Toby Gonzales, Ames Mail Stop 233-12, or Lynbrook High School, P. O. Box F, Sunnyvale.

Personnel Corner

RIGHT OF ACCESS

The U.S. Civil Service Commission has requested all Federal agencies to publicize again the rights of access of Federal employees to their Personnel Offices and to management personnel.

An employee has the right to communicate with:

- (a) the Personnel Office;
- (b) the Equal Employment Opportunity Officer;
- (c) a supervisory or management official of higher rank than his immediate supervisor;
- (d) the counselors on matters of standards of conduct (in the Legal and Personnel Offices).

Employees are encouraged to discuss problems with their immediate supervisors and to seek solutions through informal means and personal contact with their supervisors. The rights of access noted above are not intended to diminish or interfere with good supervisory-employee relationships.

Employees wishing to talk to these officials should make arrangements for appointments which are convenient for the employee but which do not unduly disrupt the work schedule as established by the supervisor. The employee is not required to explain his reasons for wishing to talk to any of the above officials.

An employee has the right to file a complaint, a grievance, or an appeal under the procedures of his agency or the Commission without interference or threat of reprisal. An employee acting in an official capacity for an agency shall not interfere with or attempt to interfere with the filing of such a complaint, grievance, or appeal, or take or threaten to take any act of reprisal (including, but not limited to, discharge or other disciplinary action, denial of promotion, or adverse performance evaluation) against an employee because he has filed, or expressed an intention to file, a complaint, a grievance, or an appeal under the procedures of his agency or the Commission.

Frolich Elected To City Council

Donald Frolich of Research Engineering was elected to the Cupertino City Council for a four year term on April 14. Mr. Frolich was one of five persons running for the two open positions on the five-man council.

Mr. Frolich has lived in the city of Cupertino for 11 years and was on the City Planning Committee for nine years prior to his election to the City Council.

ASTROGRAM Room 134
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Phone 2385

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Deadline for contributions:
Thursday between publication dates

The 1970 Solar Eclipse as Seen by Three Vacationers from Ames

... by Jane Kohler

The attention of the world was focused on 210 seconds of darkness early last month as professionals and amateurs alike converged along the pathway of the 1970 solar eclipse --the last in the area until August 21, 2017.

Days of preparation and planning preceded the event as viewers from the Yucatan peninsula to the New England coast and beyond, arranged to be in just the right location at the right time for a grandstand seat at one of nature's most awesome phenomena.

Although billed as "the last solar eclipse of the century," a total eclipse actually occurs somewhere on Earth about every 18 months, but it takes 360 years for a total eclipse to reoccur in the exact same place.

The path of totality for the solar eclipse of March 7 began in the Mid-Pacific Ocean south of the equator, crossed the Isthmus of Tehuantepec, Mexico, the Gulf of Mexico and Northern Florida, the Eastern Seaboard of the United States, Nantucket Island, the eastern parts of Nova Scotia and Newfoundland and terminated in the North Atlantic.

All of these facts were carefully considered by three members of the Space Sciences Division who took annual leave to join observers in one of the best earthbound viewing spots along the path of the eclipse--Mexico.

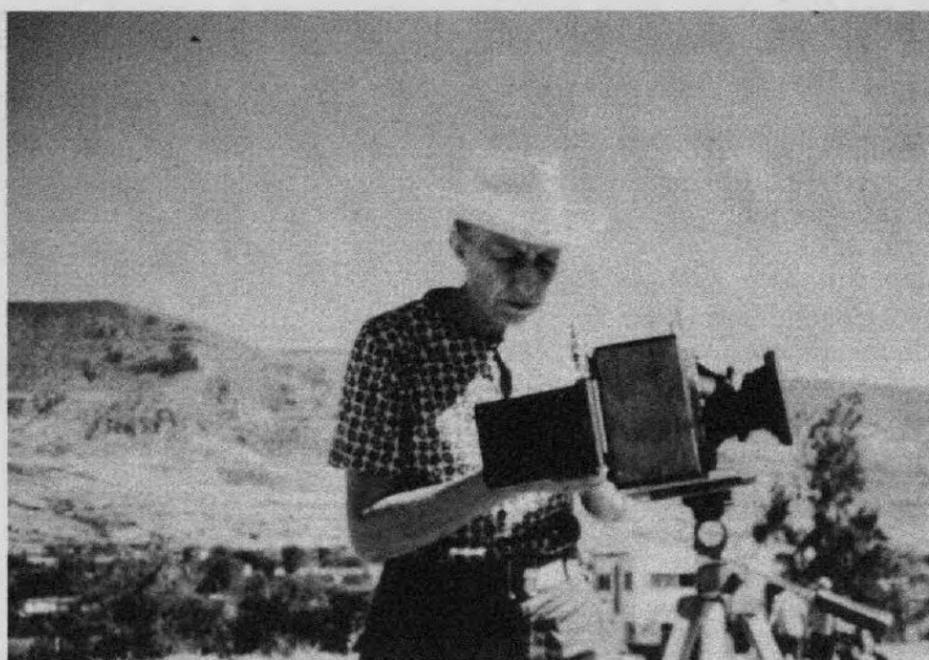
ALBERTA ALKSNE

Alberta Alksne was with some 20 members of an expedition from Foothill College who went to Mexico to photograph comets and the eclipse. Hal Collard joined the Astronomical Society of the Pacific to be among the viewers and Dave Colburn planned his family's vacation in Mexico to coincide with the event.

All arrived within a 25 mile area at varying times before the eclipse; Alberta in the small village of Mitla, and Dave and Hal both in an area outside of Miahuatlan, a town of approximately 7,000.

Alberta and members of the Foothill expedition flew to Oaxaca, Mexico, a week before the eclipse and headed for the village of Mitla which was to be in the path of totality. They made camp in a nearby field and began preparations for the coming event.

While awaiting the big day telescopes were set up and adjusted and then the villagers of Mitla were invited to view the astronomical wonders of nature's evening ceiling. Although there was a language barrier (the people of the village are Zapotec Indians to whom Zapotec is the native tongue, with Spanish as a second



SQUINTING UNDER THE BRIGHT SUN . . . Alberta Alksne, Theoretical Studies Branch, adjusts her camera so that she can obtain pictures of the solar corona. Alberta was in Mitla, Mexico, with the Foothill College Expedition to study the 1970 solar eclipse.

language), it wasn't insurmountable, and planets, globular clusters, and double stars were pointed out to the natives, giving them a completely different idea of what exists in the night sky above them.

The participants in this exchange of knowledge were many and the ages were varied. There was a definite feeling of comradeship as children and adults wandered freely throughout the camp examining instruments and asking as many questions as they could make understood. One evidence of the good relationship was the fact that with all the freedom and lack of security, no equipment was lost or even mislaid. On one occasion, in the early hours of the morning, after the weary experimenters had become exhausted pointing out phenomena of the constellations and the equipment had been put away, the Zapotec people stood around the tents and serenaded the experimenters to sleep in apparent appreciation of the exchange of knowledge.

DAVE COLBURN

Meanwhile, Dave Colburn, his wife, Katherine, daughter, Caroline, 17, and sons, Gregory, 12, and Nicolas, 5, were on their way to Miahuatlan and arrived the morning of the eclipse. Their observation post was a local farm where Dave planned to watch the reaction of the farm animals during the eclipse. Very often during such an event animals react as if night was coming on, or they show other signs of confusion. The Colburn's became friendly with the men and boys of the farm and prepared a device so that all could watch the eclipse without injury to

their eyes. . . But what about the women of the farm, where were they? They were afraid of this unknown event and insisted on staying hidden in the house.

HAL COLLARD

Also arriving in Miahuatlan on the morning of the eclipse was Hal Collard. He joined the Astronomical Society of the Pacific in Oaxaca and bused to the viewing site, arriving to find the roads into town overflowing with observers who had been turned away to protect the many experiments which had been set up. Hal and his group made it, though, and jumped from the bus just as the first shadows began to fall.

The observers report that darkness set in about ten minutes before

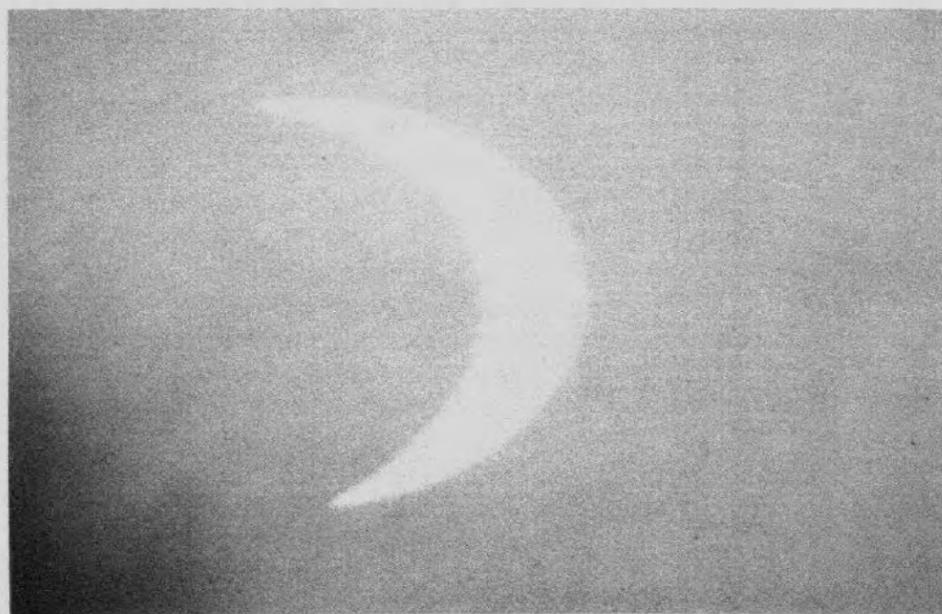
totality and the remaining light from the Sun was diffused as it escaped around the Moon. The sky and surrounding landscape assumed strange colors and quivering, ripple-like shadow-bands of the Moon appeared on every white surface.

As the total phase waned a narrow crescent of the Sun reappeared. This enlarged for about an hour until the Moon had moved off and the Sun again shone with its usual brilliance.

VIEWING

Alberta's group viewed the eclipse by means of a telescope set up with a mirror at the end of a large tube which projected the image of the Sun onto a large screen; Dave Colburn and his family watched the eclipse with the men and boys of the farm as it was projected through a circle cut in cardboard and reflected on another sheet, keeping one eye on the farm animals.—It is interesting to note that there was no reaction from the animals, the eclipse didn't phase them--"they didn't do anything"; Hal Collard and friends found just the right spot along the roadside even though they were late arrivals.

The results of the viewing, other than the scientific data, were personal satisfactions at being present to observe a once-in-a-life-time sight, and sharing such a moment with people of a different culture. Not all the data have been compiled, nor all the photographs developed, but Alberta, speaking for her group, said, that if nothing was gained scientifically, enough in international relations was accomplished with the people of Mexico to more than justify the expedition.



DARKNESS COMES ON . . . as the image of the Sun is cut off by the Moon during the total solar eclipse on March 7. This picture, taken shortly before totality, is a reflection of the eclipse as seen on a screen set up by the Foothill College Expedition in Mitla, Mexico. With this device the experimenters and natives alike were able to view the eclipse without eye injury.

Ames Airings

... by Jane Kohler

If anyone was visiting Disneyland Easter Week and thought they saw someone who looked familiar it may have been a fellow Ames employee as we had many reports of people heading in that direction. A few of the people we knew were planning to go were ANGELO MARGOZZI (Measurement Sciences), BRUCE SMITH (Electrodynamics), JANOS K. LANYI (Biological Adaption), GEORGE ARMSTUZ (Wind Tunnels), ED HARMON (Cost Analysis and Special Projects), and there were many more. We hope everyone had a fine holiday... BEN ZEITMAN (Biochemical Endocrinology), his wife, Ginger, and sons, Marty, 9, and Danny, 7, recently spent two days in Palm Springs visiting relatives and then went to Las Vegas where their son, Marty, competed in a swim meet. Their next stop was Grand Canyon where they had rented a cabin on the rim. They hiked a quarter of the way down the Bright Angel Trail where three weeks earlier there had been a good snowstorm leaving 6 or 7 inches of slush on some parts of the trail. A few snowball fights resulted but these did not occur on the narrow parts of the long winding trail. Leaving the Grand Canyon they returned thru Palm Springs where they again visited relatives. Their timing was good as they just missed the 80 mile-an-hour sandstorm coming into Palm Springs. The next day they drove to L.A., driving on the day between two sandstorms. . . .

During the early part of his vacation CHARLIE MIDDAUGH (Classification) was sailing with a friend and managed to get himself dumped into the Bay. After this soggy experience Charlie decided to try the other extreme, so he put his wife, SUSIE (formerly of Electronics Research), son Dallas, 15 months, daughter, Gabrielle, 14 years, and dog, Rip, 3 years, in the car, hitched a 16-foot trailer behind and took off for Death Valley, a much drier choice. They had beautiful weather and the youngest member of the troop showed every indication of becoming a true desert rat. The only accident while they were in Death Valley was that 6-foot Charlie tried to stand up in a 4-foot mine and gained an additional bald spot from the effort. While traveling through Tonopah, Nevada, they were whipped to a standstill in a windstorm but made it to Reno, which they toured and then returned to the Bay Area. . . . LORETTA VICE (Technical Information Division) was honored with a baby shower-

BOWLING

... by Clark White

The standings of the All-Ames bowling league with one week of competition remaining in the regular season are:

DIVISION I	WON	LOST
Keggers	37	15
Comets	34	18
4NI	33	19
Glitches	25 1/2	26 1/2
Splitters	22	30
Road Runners	20 1/2	31 1/2
Machine Shop	19	33
Owls & Pussycats	17	35
DIVISION II		
Woodchoppers	34	18
Double Trouble	33	19
Timber Topplers	31	21
MAD	26	26
Sterling Engineers	25	27
Killers	23	29
Hit & Mrs.	21	31
Wal-Nut-O's	15	37

Bowled April 15:

Men's high series: Dennis Riddle, 566; Hank Cole, 561.

Women's high series: Jan Konrath, 506; Jeanne Clemson, 500.

Men's high games: Dennis Riddle, 231; Ray Sutton, 223.

Women's high games: Jan Konrath, 204; Winnie Malloy, 202.

SUMMER BOWLING

ALL-AMES LEAGUE

FREE BOWLING!

Nice thought, is it not? Sorry we can't make such an offer, but we do still need bowlers for the All-Ames Summer Bowling League. The league will run from May 12 through August 18, bowling Tuesday evenings, 6:30 p.m., at Moonlite Lanes in Santa Clara. The tariff is \$2.50 per bowler each week. Free trophies and banquet at the end of the season. Individuals and teams are invited to sign up NOW with Dennis Riddle, ext. 2241 or Clark White, ext. 3132.

luncheon at Qui Hing Low's on April 3. About 18 people from Technical Information and Services and Supply Divisions attended. . . . GEORGE WHITE (Safety Office) and his wife, Virginia, just returned from a trip to Hawaii. George and Virginia were one of six couples in a group of friends from the Bay Area. The group visited four islands, Maui, Kauai, Oahu, and Hawaii with a complete tour of the Island of Hawaii starting at Hilo. Some of the highlights of the trip were visits to the Polynesian Cultural Center, Dole Pineapple Corporation of C. and H. Sugarcane plants and a complete trip around Pearl Harbor through the "Arizona" aboard a Navy boat.

SOFTBALL

The NASA-Ames Fast Pitch Softball schedule for the first half is as follows:

DATE	PARK	TIME
April 29	M	8:30 p.m.
May 7	F	7:45 p.m.
May 11	M	7:00 p.m.
May 14	F	9:15 p.m.
May 20	M	7:00 p.m.
May 21	F	9:15 p.m.
May 27	M	7:00 p.m.
May 28	F	9:15 p.m.
June 1	M	7:00 p.m.
June 4	F	7:45 p.m.
June 8	M	8:30 p.m.
June 11	F	9:15 p.m.
June 17	M	8:30 p.m.
June 18	F	9:15 p.m.
June 24	M	8:30 p.m.

M - McKelvey Park, Mountain View
F - Fair Oaks Park, Sunnyvale

GOLF

... by Kay Bruck

The Santa Teresa tournament of the Ames Golf Club on April 4 was played in two flights. The best three net scores out of a foursome was taken for the team's score; however, the kicker was that the foursomes were scrambled so that partners were unknown. This ingenious tournament was masterminded by Chairmen Roger Hedlund and John Mulkern who reported the results as follows:

First flight: first place went to Frank Lazzeroni, Herb Hoy, Ron Denison, and Debby DeBevoise; second place went to Al Petretti, Ray Einberger, Roy Griffin, and Jack Lee; third place went to Bill Fietzer, Joe Quartuccio, Ruben Ramos, and George Falkenthal.

Second flight: first place went to Larry Hochstein, Yvonne Sheaffer, Ben Tyson, and Sal Tardio; second place went to Bill Page, Bill Thompson, and Ed Tischler; and third place went to Lee Seegmiller, Jim Silver, Edie Watson, and John Estvanik.

Prizes were also awarded for Low Gross, Frank Lazzeroni; Low Net, Larry Hochstein; and Closest-to-the-Pin, Ruben Ramos.

The next Ames Golf Club Tournament will be at Sunol (Cypress Course) on May 9.

SUMMER BOWLING

MIXED FOURS LEAGUE

Bowlers are wanted for the Ames Mixed Fours Summer League which begins play Thursday evening, May 14, 6:30 p.m., at Moonlite Lanes. Call Phyllis Camm for details, ext. 2329.

WANT ADS

For Sale-1965 MG 1100, 4 dr., sunroof, valve job, Abarth exhaust, tach, \$495. Call 323-7026.

For Sale-1964 Dart, V-8 stick shift, low mileage, good condition, \$600. Call 344-9579 after 6 p.m.

For Sale-1966 Barracuda, stick shift, \$1000. Call 344-9579 after 6 p.m.

For Sale-1960 English Ford Wagon, good running condition, very economical, \$100. Call 257-5492.

For Sale-'57 Ford Fairlane, automatic trans., good parts and motor, runs well, takes you there and back, \$100. Call 969-3618 after 5 p.m.

For Sale-1955 Chevrolet, 4 dr., 6 cylinder, radio, heater, new tires, \$150. Call 252-6070.

For Sale-1960 Rambler American, 29000 miles, original tires, radio, heater, automatic transmission (3 speed), light blue, best offer. Call 257-7681.

For Sale-One-half ton 6 cyl Ford pickup, needs work, will trade for good transportation car, \$275. Call P. Nelson, 375-0806 after 5 p.m.

For Sale-'67 Chev. pickup, 283 V-8, 4 spd., custom cab, tinted glass, radio, heater, equip. for camper, extra set of tires mounted on wheels 9 in. wide, \$1695. Will take older truck in trade. Call Mr. Brooks, 356-9695.

For Sale-Home furniture, leaving the country, complete bedroom set with queen size bed, chests of drawers, etc., small desk; dining room set, large couch, 2 single beds complete, small table, playpens, etc. Call 344-9579 after 6 p.m.

For Sale-1967 Aristocrat-LoLiner, 17 ft., shower, toilet, frigidare, stove, oven, sleeps 6, \$2195. Call 292-7725 or 248-3065.

For Sale-Cougar XR7, 67, 19,500 miles, P.S., P.B., show room condition, new Goodyear Polyglas custom wide tread tires, \$2,250. Call John Millard, 948-0777.

For Sale-'61 Falcon, 2 dr., white, in very good cond., 6 cyl. 170 engine, 6000 miles since major overhaul, manual trans, \$250. Call J. Brown, 253-0265.

For Sale-4 bedroom, 2 1/2 bath, townhouse, F. R., A.E.K. Coop pool, prime Santa Clara area, near all schools, assume 5 1/4% of FHA loan. Full price \$28,000. Owner will help finance. Call 248-4690.

For Sale-Small couch, good condition, excellent for patio or cabin, \$10. Men's sport coat, wool, green plaid worn very little, size 38, \$15. Call 253-4475.

For Sale-Avocado and gold pillow-back sofa bed, and gold chair. Very good condition, \$125 for both. Call 272-2599 after 5 p.m.

For Sale-Man's watch, Unisonic (battery), like new, worn less than a month, real value at \$100. Call Diane Rittenberg, 241-7916 evenings.

For Sale-Old heavy wooden desk; 3 drawers on each side and top converts for holding typewriter. Call 227-6453 after 7 p.m.

For Sale-1960 Westinghouse refrigerator, 16 cu. ft. w/150 lb. freezer, looks like new and in good running condition, yellow w/left-hand door, ideal for cabin, asking \$75. Call Virginia Hughes, 968-8436.

For Sale-Motorola B&W 21" console VHF and UHF. 1968 model but used very little, \$75. Call 327-6688 C. Conley, evenings.

For Sale-Accordion, 120 bass Galanti, professional model with case. Also Olds Starfire hdtop., good general condition with minor dents, \$300. Call 327-6688, C. Conley, evenings.

For Sale-Window frame, metal, 27"x61", for louvered windows with 17 glass louvers. Includes separate window screen, \$5. Also bathroom sink, porcelain, 21x19", white with mounting bracket, faucets & drain, \$5. Call 739-8973.

Wanted-Used baby playpen, high chair, stroller. Call Courtney Stephens, 257-2664 after 5:30 p.m.

Wanted-GMC Suburban, Chev. Travelall, or similar vehicle; about 3 years old, with power steering. Call J. Salas, 837-6982.

Wanted-One used school bus, need only run for 600 more miles. Cheap. Call Sam Burch, 245-6805 after 4 p.m.

For Sale-Hiking-rock climbing boots, Couette (La Trapeur), size 9 medium, worn once, pd, \$30, sell for \$18.50; intercom system, \$20; girl's desk, \$20. Call 323-2080.

For Sale-J. B. Lansing oiled walnut speaker enclosure, 23x14x12 inches deep, takes 10 or 12 inch speaker plus tweeter, new \$54, price, \$40. Call 323-2080.