the astrogram

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August 5, 1971

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

SPECIAL RECOGNITION . . . for performing assigned duties in a superior manner was extended recently to Computer Technician Miss Virginia I. Polumbo (right) of the Computer Operations Branch. The NASA Special Achievement Award presented by Thomas R. Dines (left), Chief of the Computation Division, cited Miss Polumbo for the continued high quality of her work and expecially for assuming the responsibility for setting up special IBM/360 Time Sharing System reports for distribution to the Systems Branch. A letter of congratulations from the Director, Dr. Hans Mark, accompanied the cash award check Miss Polumbo is pictured receiving from Mr. Dines.

Astronauts Emplace Ames Magnetometer on Moon

The Ames Lunar Surface Magnetometer was emplaced on the Moon's surface by Apollo 15 Astronauts David Scott and James Irwin during the first of their three-day lunar explorations early last Saturday (July 31). The magnetometer was part of the Apollo 15 Lunar Surface Experiment Package (ALSEP) deployed near Hadley Rille.

To sound the Moon's interior investigators at Ames will employ a combination of: the magnetometer itself, two Moon-orbiting satellites, and turbulent solar magnetic field which sweeps out from the Sun and through the Moon at about one million miles per hour.

Work with a virtually identical magnetometer left on the Moon by the Apollo 12 astronauts has suggested an interpretation in which the Moon has a cool core of primordial rock which formed at the origin of the solar system. This large core region appears to be surrounded by a 200-mile-thick mantle of basalt-like rock that apparently underwent extensive melting during the early history of the Moon.

Scientists believe this melting was due primarily to impacts of huge masses of rock raining down on the rapidly forming Moon, as lunar gravity pulled in a very large amount of loose material from the space surrounding the Moon. This is the so-called vacuum cleaner effect.

MEASUREMENTS

The Apollo 15 magnetometer experiment will enable the investigators to check these results of the Apollo 12 magnetometer experiment. And for the next year the magnetometer will measure direction, gradient, and intensity of the magnetic fields on the lunar surface three times a second.

Scientists who will work on the magnetometer data with Dr. Sonett are Drs. Palmer Dyal and David Colburn, Ames research scientists.

APOLLO 15 LUNAR SURFACE MAGNETOMETER . . . Now that the Ames-designed Lunar Surface Magnetometer has been emplaced on the Moon's surface by Apollo 15 Astronauts Scott and Irwin, scientists at the Center can continue their studies of the interior of the Moon. The magnetometer is part of the Apollo 15 Lunar Surface Experiment Package (ALSEP) set up near Hadley Rille on Sunday (August 1). Miss Darlyene J. Moen, Secretary to Dr. Charles P. Sonett, Deputy Director of Astronautics and one of the scientific investigators for the magnetometer experiment, is shown here examining the engineering test model of the lunar magnetometer.

New Life Scientist Program for Ames

NASA is initiating a "Life Scientist Program" in which university faculty and their graduate students from the nation's universities and medical schools will receive appointments to do relevant research at NASA's Centers.

The program, recommended by the National Academy of Sciences, is designed to increase participation between university life scientists and their counterparts within NASA in contributing to the advancements of life sciences disciplines related to the NASA mission.

Also, it is designed to stimulate university life sciences departments to use the unique space-related ground research facilities of NASA. These are principally at Ames, Manned Spacecraft Center, and Langley Research Center.

Initially, the program will support five scientists. Selections will be made at different universities on the basis of scientific evaluation of the proposed investigations and their relevance to NASA's interest and needs.

The principal scientists selected will spend approximately one-third of their time with their graduate students at one of the three named Centers. Each will be awarded a grant for a three-year period on a step-funded basis.

Apollo Splashdown

Splashdown for Apollo 15 is set for August 7 in the Pacific, north of Hawaii, at 1:46 p.m. PDT. There will be no post mission quarrantine for the astronauts. Studies of past Apollo flights show no hazard to man, animal or plants from lunar materials.

NASA Space Technology Aids Public

A brain sensor and radio transmitter system, developed for space medical research with test pilots, is being used effectively in the diagnosis and treatment of schizophrenic mental patients. Scientists at Ames and Agnews State Hospital for the mentally ill, are working together on the project.

A wheel chair directed and controlled solely by movements of the occupant's eyes was developed recently using technology developed by NASA. The electric motor driven chair can achieve mobility for more than 100,000 quadriplegics (persons with no use of their arms and legs) if the device can be made available to them, according to Dr. Howard A. Rusk, Director of the Institute of Rehabilitation Medicine at New York University Medical Center.

The sight switch device is mounted on a conventional spectacle frame worn by the chair operator. The device was originally developed for use by astronauts.

TECHNOLOGY UTILIZATION . . . Researchers Kenneth Hopkins (left), a bioengineer at Agnews State Hospital, and Richard Westbrook (right) of the Ames Instrumentation Division, check data on the Ames EEG sensor unit in use at Agnews. The researchers combined a brain sensor and radio system, developed for space medical research with test pilots, with a computer to devise a new means of diagnosis and treatment of schizophrenic mental patients. This is one of the many examples of the spin off benefits of space technology and its application to the nonaerospace sector.

NASA TECHNOLOGY

NASA research continually produces technology such as this, with potential commercial applications. Every effort is made by NASA to disseminate this new technology into public use, particularly into industrial and commercial use. It is felt that since the taxpayer is the source of research supporting funds, it is the taxpayer who should reap the benefits.

AMES T.U. ORGANIZATION

To this end, the Technology Utilization Program was established in 1963 to provide "the means by which NASA technology is assessed in terms of its secondary (nonaerospace) uses and made readily available." The Ames Technical Utilization Office was also established in 1963. It is presently directed by Bradford A. Evans, Technical Utilization Officer, with research scientists, Horace F. Emerson and Ambrose V. Karpen.

The methods used in this dissemination vary from a one page "Tech Brief", which gives a synopsis of recent technological breakthroughs, to a search through the NASA Technical Information Facility in Maryland and NASA installations for a solution to a problem.

The Tech Brief is primarily an announcement to the public that a new major development in technology is now in existence. It describes the development, what it does and the potential applications for nonaerospace use. The Briefs are available, free of charge, at all NASA installations through the Technical Utilization Office. They are also available through subscription and in a Cumulative Index.

Through subscription Tech Briefs are sent, for the cost of mailing, as they are issued. Each year NASA issues approximately 700 Briefs, with over 4000 published to date.

INDEXES

Cumulative Indexes are available in the Technical Utilization Office of NASA installations and in college and public libraries. The Cumulative Index lists all NASA Tech Briefs that have been printed since 1963, the year the Technical Utilization Program was established. The Index is also sold through Federal book stores.

The Tech Brief is the most concise and simple method NASA uses to communicate major developments in technology. It is effective as a public announcement. To inform on a more thorough level, NASA uses other varied means. These will be explored, in detail, in future articles in "The Astrogram."

NASA Public Affairs Head Named

John P. Donnelly, Vice President for Corporate Communications, Whittaker Corporation, has been appointed NASA's Assistant Administrator for Public Affairs, effective about Aug. 15.

Donnelly will be responsible for the development and direction of NASA's public affairs activities including public information, public services, and educational programs.

Donnelly has been in charge of public relations and advertising policies at the Whittaker Corporation since early 1970. Whittaker is a large diversified Los Angeles based company. Prior to that he had been director of corporate communications for A-T-O, Inc., a Cleveland based company.

His previous experience in public relations includes a year with F.W. Dodge Corporation, New York City (now a division of McGraw-Hill) and eight years in the public relations division of Texaco, Inc.

Donnelly was graduated from Long Island University with a B.A. in Journalism in 1958 after military service in the U.S. Navy.

Space Shuttle Engine Contract

NASA has selected the Rocketdyne Division of North American Rockwell Corp., Canoga Park, Calif., for negotiations leading to the award of a cost-plus-award-fee contract for the Space Shuttle main engine.

The contractor's proposed cost for the design, development, and delivery of 36 engines by 1978 is approximately $500 million.

This program will be managed by the Marshall Space Flight Center and will support Space Shuttle orbital flights beginning in 1978.

The selection follows a 12-month Phase B competition during which three contractors conducted preliminary design studies and produced program definition documents for this ensuing phase. Proposals for this program were received by NASA from the three firms on April 21, 1971.

The Space Shuttle main engine is a hydrogen-oxygen engine employing a high-pressure staged combustion cycle in which all of the fuel is used in the main combustion process to produce the highest possible impulse.

The engine, producing 550,000 lbs. of thrust at sea level, is to be used as the primary propulsion for both the booster and orbiter of the reusable Space Shuttle. The engine and the shuttle vehicle itself will be designed for multiple reuse as in airline operations.

In addition to being reusable for 100 missions, the engine will be easily maintained and supported by ground operations. It will be throttleable to accommodate vehicle flight requirements, including emergencies.

SKI CLUB MEETING

The Ames Ski Club will meet August 10 at 12, noon, in the private dining room of the Ames Cafeteria. The purpose of the meeting is to elect officers and plan this season's activities.

Anyone interested in skiing is encouraged to attend this first meeting of the season.

For further information call Jeanne Richardson, ext. 2973.

the astrogram
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Editor . . . . . Dot Evans
Reporters . . . . . NASA Employees

Deadline for contributions:
Thursday between publication dates

PRICE INCREASE

Cost of Living Hits Cafeteria

A general price increase in the food served at the Ames Cafeteria has been approved and will take effect Tuesday, August 10, by the Ames Exchange Council.

Rising costs have made it necessary to increase prices for many of the luncheon items. These include some entrees, the diet special sandwiches, some salads, soup, and some beverages. The breakfast items and dairy products will remain the same.

Foster Homes Needed

A pilot program to provide better care at a more reasonable cost for troubled children of all ages is being undertaken by the Santa Clara County Department of Social Services.

The foster home bureau supervisor is trying to find couples who will take one child into their home for special care. He is also attempting to establish a group home for six adolescent girls.

Couples who wish to be foster parents for these troubled children will be enrolled in a training program by the Social Services staff. This will consist of 16 hours of class time in the first two weeks, with further schooling on a continuing basis at a later date.

For further information call Social Workers Robert Battig or Tom O'Brien, 299-2761 or 299-2764.

Calendar of Events

TECHNICAL PAPERS TO BE PRESENTED

Aug. 2-4 -- Dr. Bill A. Williams Man-Machine Integration, American Society of Animal Sciences Meeting, U.C. Davis.

Aug. 3-13 -- Ernest J. Iufer, Vehicle Systems Design Branch, XV General Assembly, International Union of Geodesy and Geophysics, Moscow, USSR.

Aug. 9-13 -- Nancy J. Symmes, Biological Adaptation, 29th Annual Meeting of the Electron Microscopy Society of America, Boston, Mass.

Aug. 9-11 -- Dr. John Billingham, Biotechnology Division, AIAA/ASMA Weightlessness and Artificial Gravity Meeting, Williamsburg, Va.

Aug. 21-30 -- Katherine L. Pering, Chemical Evolution, 24th International Geological Congress, Montreal, Canada.

X-24A Lifting Body to be Reshaped

The experimental X-24A lifting body has completed its flight test program and will be converted to a markedly different shape with a new designation, X-24B.

Decision to cease flight operations and begin conversion of the wingless research vehicle was made by the joint NASA-Air Force flight research team. Both agencies will fund the changes.

The X-24A is one of three lifting bodies flown in a joint program managed since 1967 by NASA's Flight Research Center. The other two are the Langley-designed HL-10 and the Ames-designed M2, designated M2-F2 and M2-F3 after modifications.

With NASA and Air Force pilots at the controls, the lifting bodies have been investigating the subsonic and supersonic handling qualities, maneuverability and flight problems associated with promising configurations that derive aerodynamic lift from their body shape alone.

The vehicles are air launched from a B-52. Initial flights with each were glide flights. On subsequent missions, a rocket engine was used to reach higher speeds and altitudes.

Notary Public

Is there a Notary Public located at Ames? This is a question often asked of "The Astrogram" staff and the answer is "Yes". As a matter of fact, there are two employees at Ames who are authorized to notarize documents. If such services are needed, either Edie Watson, Administrative Assistant to the Director, ext. 2160, or Carroll Werner, Legal Clerk in the office of the Chief Counsel, ext. 2666, can be of assistance. Please call in advance to set up an appointment.

Page from the Past

"The Page from the Past", a summertime feature in "The Astrogram", continues to interest members of the Ames staff - - so we have decided to add to our collection and have planned a new series of pictures for a forthcoming issue.

Any recognizable photograph (no baby pictures, please) taken during the period 1940-55 would be appreciated. It can be a picture taken anywhere in the world - - employment at Ames during that period is NOT a requirement. (N 241-4)

AMES VOCATIONAL DAYS . . . attracted more than 600 young people from surrounding communities, as well as those participating in youth programs at the Center, during the three days of activities held here recently. Group discussions, led by experts in various fields from Ames, and tours of selected facilities were highlights for the attendees. Pictured above during a tour of the Flight and Guidance Simulation Laboratory are Mary Perez (left), a Summer Aid in the Ames Security Branch, and Jerald K. Dickson (right) of the Simulation Experiments Branch, who explained the flight simulator to the group. (Photo by Dennis Fleming, Summer Aid in the Ames Photo Technology Branch)

Three Vocational Days Held at Ames

The Training Office staff with members of the Equal Employment Opportunity Program presented three vocational days at the Center recently. The purpose was to encourage students from the surrounding communities to complete their education.

Over 600 youths participated in the program, including those in the Ames Summer Aid and Neighborhood Youth Corps (NYC) programs. Morning sessions were spent in discussion groups led by Ames specialists in such professions as electronics, the sciences, mechanics, computer operations, photography, illustrations and secretarial.

The second half of each day was spent touring Ames facilities, including the Data Reduction Building, the Structural Dynamics and Flight and Guidance Simulation Laboratories, the 40-by 80-Foot Wind Tunnel, the Airplane Hangar and Shop Building, and the Life Sciences Research Laboratory.

Willie L. White and Dennis Cunningham, both of the Training Office, planned and coordinated the Ames Vocational Days. They would like to thank the many Ames employees who gave so generously of their time and efforts to make the program a success. Mr. White extends a special note of appreciation to the group discussion leaders and the NYC Counselors for their cooperation.

MAKE RESERVATIONS

Chinese Banquet

The third Gourmet Chinese Banquet will be held at the Golden Pavilion in Los Altos on Friday, August 20. No host cocktails 6:45 p.m., dinner 7:45, $5.50 per person including tax and tip.

Cocktail hour hors d'oeuvres: 1000 year eggs with pickled ginger and chicken, the earth, the sea and the sky in harmony, abalone and black mushrooms, beef julienne, filets of duckling, fried rice, watermelon delights, cookies and tea.

Call G. Wong, ext. 2479 for reservations. Cut off date for payment, or refund, is on Wednesday, August 18.

Ames Airings

. . . by Jeanne Richardson

I recently received the one hundred and sixth suggestion that this column be turned into an honest-to-grapevine gossip column. (Like who was caught in the Xerox closet with whom.) Unfortunately, Ames is at a disadvantage, grapevine-wise. At last count we had 1888 men as opposed to only 304 sources of good hard-core gossip. Until Women's Lib sees to it that things are evened up a bit, we will have to make-do with vacations, birth announcements and weddings. Sorry fans.

Speaking of weddings, it's been a romance-filled summer for two Ames men. ALBERT A. PUCCINELLI (POOCH), Simulation Systems Operation, wooed his bride Mary Ann to the alter last May in Reno. July 24 Mr. and Mrs. GEORGE HOLDEN, Simulation Experiments, feted the happy newlyweds at a dinner party in the Holden home.

The day before the Holden's dinner party the ASTROPHYSICS Branch was celebrating another union. The branch honored Dr. JAMES L. REGAS with a bachelor party at Andy's Chinese Restaurant in Mt. View. As his field of study is Venus and "she" was his first love, the group presented him with a statue of Venus to grace his home. The bride is the former Miss Janean Schwab. They were wed at the home of the bride's sister in San Jose in a garden wedding. The new Dr. and Mrs. Regas are now honeymooning on the Kona Coast of Hawaii.

Astrophysics is certainly a busy but happy branch! With members of the Planetology Environment Branch they gave a farewell luncheon July 30 for GARY C. GOODMAN at the Black Forest Inn. Gary is off to Kansas City for training - he will work as a VISTA (Volunteers in Service to America) for one year.

"Just so he wouldn't forget his friends in California" he was given a package of Orange-scented incense to burn as a reminder.

JOHN B. WALLACE, Machine Branch, became a father for the first time July 27. His wife Sue presented him with a son, 6 lbs. 10 oz., at Kaiser Hospital in Hayward. They are calling him James.

TENNIS

Welcome to new Club members Denery and Owens. A late score: Glynn over Bozeman, 7-5, 6-4. Send results of matches to Snetsinger, 245-5.

ALL-AMES INDUSTRIAL LEAGUE SOFTBALL TEAM . . .
Back Row (l to r) - Jim Myers, Bob Corbett, Phil Wilcox, Emmett Lampkin, Frank Steinle, Roger Hedlund, Bob Randle, Steve Kanally, and Bruce Ganzler, mgr.
Front Row (l to r) - Dave Banducci, Bob Bell, Barry Scott, Don Kornreich, assistant mgr., George Alger, and Mike Green.

FASTPITCH SOFTBALL

The all Ames Industrial League Softball team has completed its 1971 regular season of play. The end of regulation play saw Ames take second place in the Mt. View League. The team completed a record of 13 wins against 11 losses for both Mt. View and Sunnyvale.

SEASON AVERAGES

PLAYER	AB	H	AVG.
George Alger	28	11	.393
Bruce Ganzler	69	22	.373
Emmett Lampkin	49	18	.367
Mike Green	35	12	.343
Don Kornreich	47	16	.340
Bob Corbitt	21	7	.333
Jim Myers	64	19	.297
Bob Bell	53	15	.283
Roger Hedlund	39	11	.282
Phil Wilcox	34	9	.265
Dave Banducci	27	7	.259
Barry Scott	60	14	.233
Bob Randle	15	2	.133
Steve Kanally	19	2	.105

BOWLING

. . . by Dennis Riddle

The Ames Mixed Fives Thursday night league will start its season September 16. We will be bowling at Moonlite Lanes in Santa Clara at approximately 6:15 p.m. The weekly charge will be $2.75 per bowler. This includes prize money.

There are teams that have already stated their bowling desires with us. So get your team or individual names to Bob Zeisser, 3285, Gil Morehouse or Cathy Byrne, 2991, or a written word to 215-1. After last year's fun season we look forward to the up-coming '71-'72 league bowling. Join the Ames Mixed Fives, the growing Thursday night league!

SOFTBALL

. . . by Grantland Wheat

RFE topped MFB in a 15 to 14 slug fest. A walk given up to RFE in the sixth inning proved to be the "straw that broke the camel's back" for MFB.

In other games, the Pumas dunked T & GD 6 to 0 and Space Science 10 to 8. MFB turned the blinking I's over 8 to 3. This was the third loss in a row for the once mighty Instrumentals.

SECOND HALF STANDINGS

	W	L	GB
RFE	3	0	-
Pumas*	2	1	1
SpaceScience	2	1	1
T & GD	1	2	2
MFB	1	2	2
Instrumentals	0	3	3

* FIRST HALF WINNERS

JOGGERNEWS

. . . by Jim Woodruff

Anyone interested in running a relay race around Lake Tahoe on August 14 call Paul Sebesta, 2378, or Jim Woodruff, 2066. Seven man teams run a total distance of 72 miles, each man running nine and a half to twelve miles.

History of Ames

Copies of the paperback edition of the "History of Ames" by Edwin Hartman are still available in "The Astrogram" Office. The price is $4.

WANT ADS

AUTOMOBILES

For Sale-1966 Mustang Conv. PS, R/H, power top, excel. mech. cond. $1000. Call G. Suffork at 493-1616.

For Sale-Alfa Romeo, 1967, $2000. Charles Boitnott, 941-4419.

For Sale-1954 Cadillac 60, special Fleetwood. Full power, original throughout. Interior mint condition. Exterior and mechanically excellent. May be seen at Ames. Van Etten, 274-2736.

For Sale-1969 VW Bug, Dark blue, auto., stick shift, excellent condition, only 26,000 miles. Call Bob Taylor, 948-4941.

For Sale-1963 Pontiac 4-dr. h.t., radio, P.S., P.B., A.T. very clean, $350. Call Frank Thompson, 379-2385.

For Sale-1970 Fiat 850 Spyder, excellent condition, 13,000 miles. $1600. Call Nancy Smith, 266-2390.

For Sale-1963 Chevy II, 2-door. In good condition. All brand new tires. Front-end reworked. $400 or best offer. Call 591-6210.

HOUSING

For Rent-Small 1-bedroom house, with garage on 1/2 acre lot. Furnished. Los Altos Country Club area. 948-8002.

For Sale-3-bedroom, 2-bath home in Willow Glen area, like new! Carpeting and drapes throughout, plus appliances and family room. Beautiful yard. Inquire: 269-8749.

For Rent-Tahoe City cottage near lake and private beach area. Sleeps 6. Autumn rate $70. wk or $30/wknd. Post-Labor Day reservations only. 328-4642.

MISCELLANEOUS

For Sale-Koralle Jr., Family Sailboat. All fibreglass moulded construction. Unsinkable. Main and Jib sail. Aluminium mast. Length 12', width 5'. Hardly used. Completely ready to sail. Boat $570. Trailer $80, total $650. Phone 326-8690.

For Sale-Stereo Sys.-Scott 342-B tuner/amp., two AR-2a x spkrs, Dual 1019 rec. chger. Exc. cond. $400. Complete 110 lb. Barbell-Dumbell set, like new. $15; Brownie 8 mm movie camera, inst. manual and book on home movies. exc. cond. $15. Also: MOTOR's auto manual for all '63-'69 U.S. cars. $4.50. V.W. shop manual for '62-'67 Bugs. $3.25., 738-3665.

For Sale-Great Dane puppies (AKC): fawn or black. Born July 22, reserve one now, call 251-3458.

For Sale-Solid Brass andirons and matching fireplace tool set in stand. $45. 274-2736.

For Sale-Choice dried apricots, call 243-7750 after 5 p.m.

For Sale-Dried apricots 75¢ lb., call Joe Quartucco, 274-0728.

Attention-Rhodoendron enthusiasts! There is a means to purchase new small plants at a large savings if we pool our purchasing power. All varieties and colors. If interested contact Bob George at 257-4110.

For Sale-Tire -Goodyear 650 x 14. Has been used for less than 500 miles. Excellent for a spare. $7. Call 257-6658.

For Sale-Camping. $14 will buy a backpack. Lightweight nylon bag with zipper pockets on a sturdy welded aluminum frame. Total wt. 60 oz. Used only twice. Call 257-6658.

For Sale-Camper shell for 6 ft. bed pickup. Call at 227-2651 after 6 p.m.

For Sale-12,500 BTU GE air conditioner $40. Fedders de-humidifier $20. 961-3385.

Free-9 mo. old Cocker-poodle. Solid black. Has had shots, needs family with children. Call 257-0144 after 5 p.m.

Wanted-3/4 h.p. 110 or 220 motor, single phase. 948-4074.

For Sale-Dinette, Oval no-mar table, one leaf, 6 high back chairs gold and white, $70. Call 369-8847 after 5:30.

For Sale-Stereo Hi Fi system, 2 AR 3 speakers. Scott tuner, Scott amplifier (60 watt/channel) AR turntable $500. Charles Boitnott, 941-4419.

For Sale-Gibson Commercial 16 cubic foot upright deep freeze. Excellent condition - 4 years old. Asking $125, but any reasonable offer will be considered. 263-1812.

For Sale-Bowling ball for sale, undrilled blank, Ebonite Tornado, 16 pounds, dark blue with white swirls. $12.50. Harry E. Blomquist, 252-6229.

For Sale-Moeck Viola Da Gamba $200; Reynolds student flute, recently repadded and adjusted $100; 10 ft. over cab, homemade camper, lots of storage, lots of extras, on 3/4 ton 1961 6 cylinder chevy pickup, $1000 for all; Girl's 3-speed bike, like new, $30. Call M. Kussoy at JO 7-3270.

For Sale-1955 Chevrolet, new brakes, tires, battery generator, radiator. Condition, seeing is believing $300. Call John B. Klein, 967-9543 after 4:30.

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Scientists Take a New Look at Mars

When the planet Mars made its close orbital approach to Earth in early August, scientists aboard a high altitude astronomical laboratory had a rare opportunity to investigate the Red Planet's invisible infrared light radiations while flying above 99 percent of Earth's occluding atmospheric water vapor.

The laboratory was the specially equipped Convair 990 jet aircraft operated by Ames. Called the "Galileo" after the pioneer astronomer and inventor of the telescope, the aircraft carried scientists and 10,000 pounds of instruments on midnight research flights near Hawaii to seek new information on Mars' atmosphere, surface water content and temperature.

The flights originated at Hickam Air Force Base in Honolulu and continued from August 4 to August 13. The flight path was about 540 miles south of Hawaii along the 13 degree north latitude meridian. During the close Mars approach to Earth, the planet was about 35 million miles away. The last time Mars was this near Earth was in 1671.

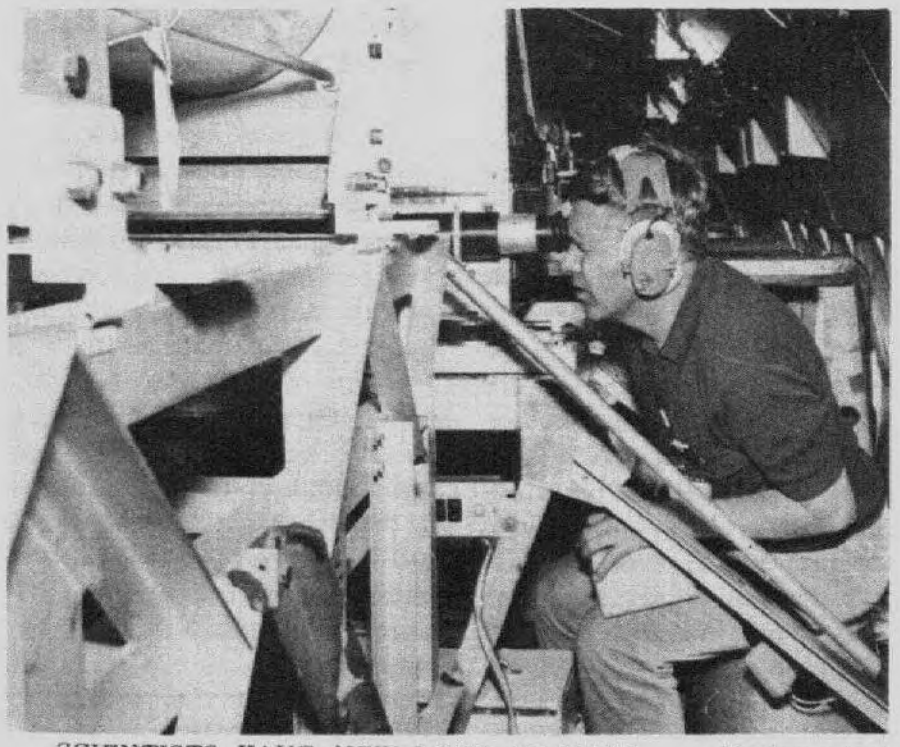
In addition to the airborne expedition, ground-based observatories around the world took advantage of the Mars position to make a variety of observations and measurements.

The new investigations, together with the results of NASA's successful Mariner Mars probes in 1969, will greatly enhance man's store of knowledge about its neighbor planet.

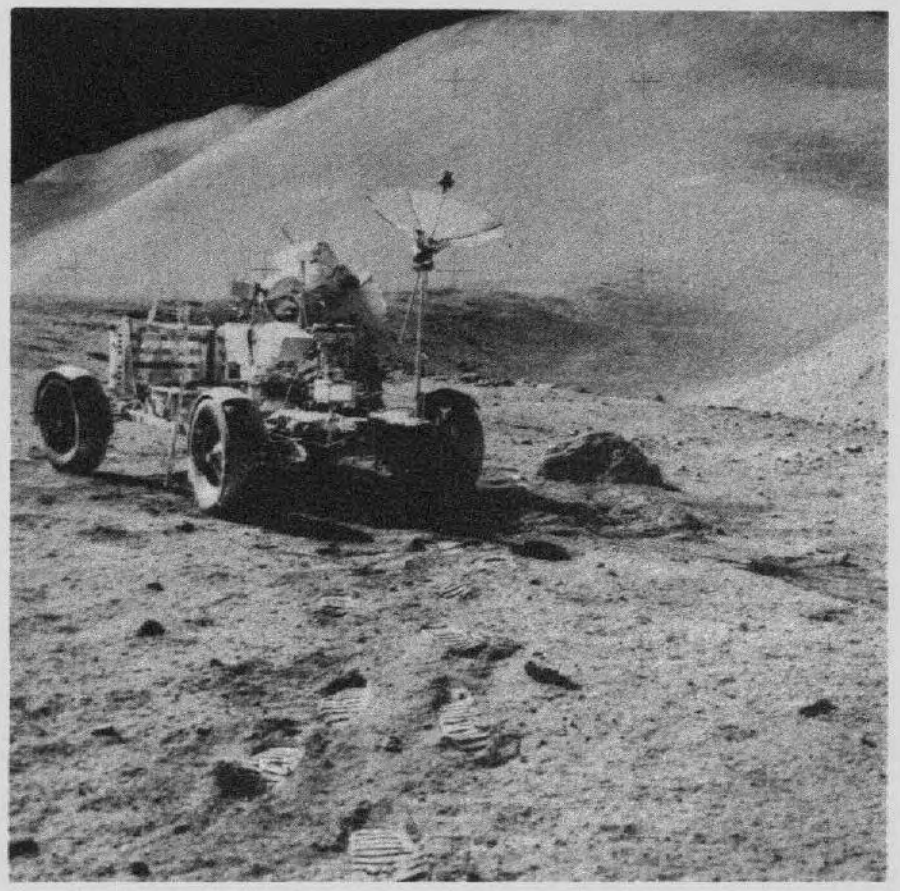
Several on-board experiments utilized the "Galileo" for purposes not connected with Mars. Among them was a vector magnetometer to aid investigations of continental drift and sea floor spreading.

Principal investigator for this experiment was Ames research scientist Ernest J. Iufer of the Vehicle Systems Design Branch. However, because Mr. Iufer was attending a conference in Russia, the Ames experiment was conducted by Dr. Gerald J. Miatech of the Ames Planetary Environment Branch, who has been collaborating with Mr. Iufer on the experiment.

The Mars Expedition was sponsored by the Airborne Science Office at Ames under the direction of Donald R. Mulholland. Project Manager for Ames was Robert Cameron.

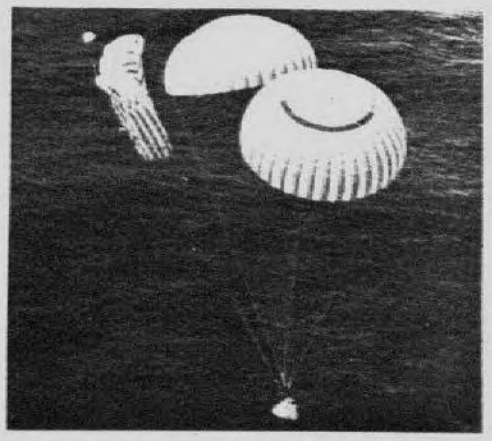


SCIENTISTS HAVE NEW LOOK AT MARS . . . During a test flight in preparation for an expedition to obtain infrared data on the planet Mars, Dr. Ewe Fink of the University of Arizona calibrates an interferometer and telescope aboard the NASA-Ames Convair 990 flying laboratory called the "Galileo." Flights near Hawaii from August 4 to 13 carried an array of instruments to take advantage of the closest approach of Mars to Earth in three hundred years.

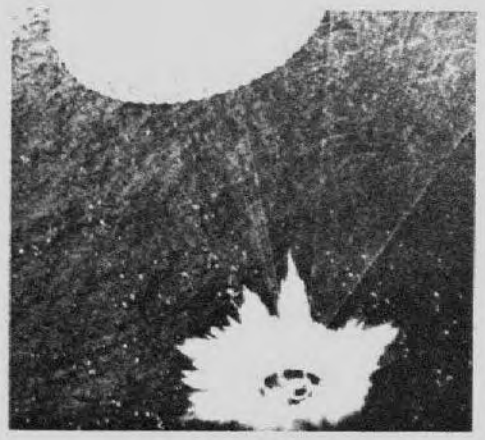


APOLLO 15 MOON PHOTO . . . Hadley Delta forms the background for this scenic view, looking almost due south, with Irwin at Rover which is parked near Hadley Rille (right center background), St. George Crater is partially visible at upper right edge.

Apollo 15 Astronauts Return

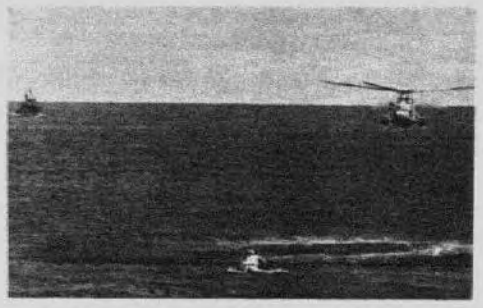


ONE CHUTE FAILS TO STAY OPEN



SPACECRAFT SPLASHES DOWN SAFELY

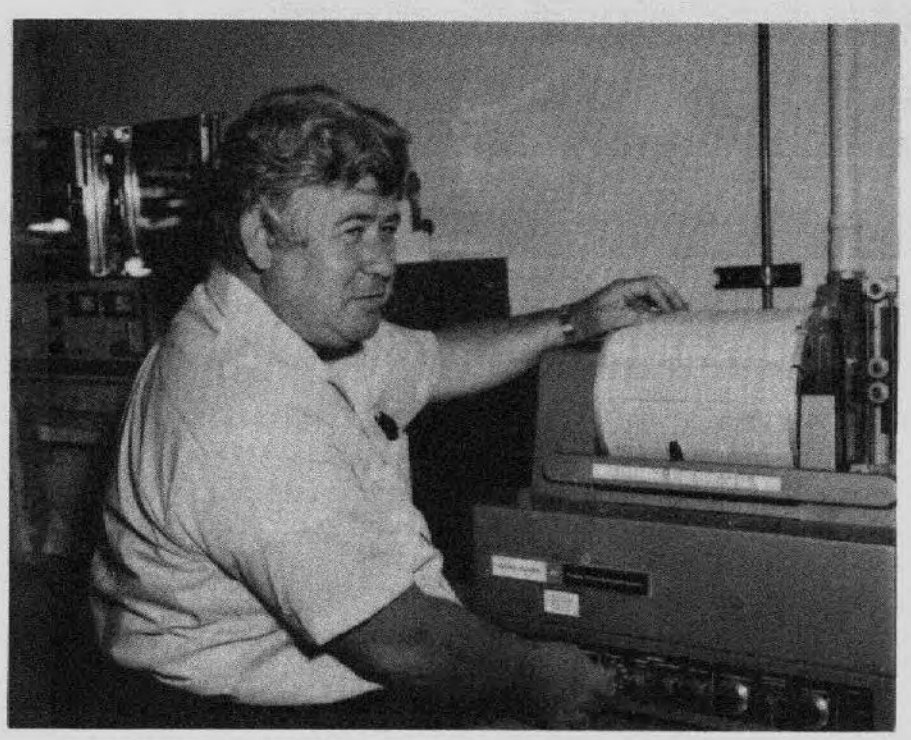
CREW GREETED ABOARD USS OKINAWA



RUSSIAN TRAWLER AT RECOVERY SITE

RETURNING TEACHER FROM EL PASO . . . Miss Yvonne Lozano, is pictured above with her research supervisor, Dr. Jaime Miquel, Chief of the Experimental Pathology Branch, as they examine the results of her research at Ames. Miss Lozano through the Stanford-Ames Summer Institute, has worked with Dr. Miquel for the past two summers on an experiment to investigate the effects of weightlessness on the biology of fruit flies. Specifically, Miss Lozano has contributed in the development and testing of a nondeteriorating food medium to support fruit flies during a space flight of approximately 50 days duration.

According to Miss Lozano, the Summer Institute has provided her with experience in professional research which she has implemented in her classroom. Her classroom efforts were generously repaid last year when each student in a special class she was teaching won at least one science competition. Some won as many as five competitions with research projects pursued in her class. (Richard Clayton photos)



BROTHER WALTER DOYLE . . . a Biology teacher from Queens, New York, is pictured above in the Ames laboratory in which he conducted research this summer. As a participant in the Stanford-Ames Summer Institute for Research in Space Biology, Brother Doyle tested a tool for possible application in a Mars probe. Working with his research supervisor, Dr. Rodney W. Ballard, Biological Adaptation, he used the Infrared Spectrophotometer to test soil samples for life-support molecules.

Brother Doyle, during a recent interview, said the Institute was an excellent means of "keeping the mind inquisitive." He particularly enjoyed "the exchange of educational ideas with teachers from so many different parts of the country."

Thirty Teachers at Stanford-Ames Institute

Thirty high school science teachers came to Ames this summer to participate in a nine-week "Summer Institute." Conducted by the Ames Life Sciences Research Laboratory and the Stanford Biological Sciences Department, the program included general instruction in space biology and independent research projects.

The teachers came from all parts of the country, some returning for a second summer to continue research begun last year. They worked in several of the Center's laboratories with Ames scientists acting as research supervisors.

The program began with an introduction to space biology consisting of lectures, seminars, and tours of aerospace facilities by the Life Sciences staff. Members of the Stanford staff presented lectures which were preparatory or supplementary to areas treated under the broad discipline of space biology.

The participants' research was pursued in five general areas; Biochemical Evolution, Biological Adaptation, Life Detection Systems, Environmental Biology, and Life Support Systems. Their projects ranged from "Data communication and computer systems" which was investigated by returning teacher Paul Abbott of South Kent, Connecticut, to the "Measurement of high altitude contaminants and associated photochemistry" researched by Kent Freeland of Croswell, Michigan.

STANFORD UNITS

For their work at the Institute the teachers received 12 quarter units from Stanford University. The University also offered housing to the participants for the duration of the program.

Throughout the program small group discussions were lead by Milton R. Heinrich, Chief of the Biological Adaptation Branch, and Charles Baxter, Co-Director for the Institute, Stanford University.

The institute was originally conceived by Dr. Cyril A. Ponnamperuma, Chief, Chemical Evolution Branch. Working as Co-Director with Charles Baxter, Stanford University and Garth Hull, Educational Services Officer in the Public Affairs Office, Dr. Ponnamperuma organized and established the Summer Institute at Ames and Stanford.

Ames Tours Popular With Public-Schools

Approximately 300 people tour Ames each month. They come in groups of 10 to 30 and are often students. Although some groups come from as far away as southern California, most are from the Bay Area.

In April the Public Affairs Office organized a Tour Program at the NASA Audio Visual Facility at 2902 Scott Boulevard in Santa Clara to accomodate these groups. Since its establishment 1500 people have visited the Center under the guidance of Tour Director, David A. Wilson, a contract employee with Filmline Production Associates.

When a tour group enters the Administration Building they are greeted by Mr. Wilson, issued Visitor's Badges and given a brief introduction to Ames. The introduction includes a movie or slides illustrating Ames' facilities and major projects.

The group is then shown through the 40- by 80- Foot Wind Tunnel, the Flight Simulation Laboratory and the Flight Operations Hangar. At each of the facilities a spokesman from Ames explains the research going on and the equipment used there.

Research scientist Victor C. Stevens, Flight and Systems Research Branch, greets the tours at the Wind Tunnel and describes the wind tunnels and their uses. At the Flight and Guidance Simulation Laboratory, George R. Holden, Chief of the Simulation Experiments Branch, explains the work of the simulators. And, in the Flight Operations Hangar, Ames research pilot, Fred J. Drinkwater of Flight Operations, shows the groups Ames' aircraft and the experimental work in progress.

If the group represents a special interest such as the Engineers Club from the Alameda Naval Air Station which recently visited Ames, it is shown through the facilities working in that interest area.

A tour from start to finish takes between one and one half to two hours. During that time the purpose of the Tour Program is usually accomplished. That is, the members of the group have learned the nature and location of Ames Research Center, its purpose, and in part its accomplishments.

The astrogram
Room 134
Admin. Mgt. Building
Phone 2385

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Editor . . . . . Dot Evans
Reporters . . . . . NASA Employees

Deadline for contributions:
Thursday between publication dates

T.U. Program Aids Private Investors

Three unemployed aerospace engineers visited Ames recently. They had just formed a company and were seeking, through the Ames Technical Utilization Office (TUO) a product to manufacture.

After describing their interests and development capabilities to Ames' TU Officer, Bradford A. Evans, they asked if NASA had any new technology which could be made available for their use. Then began a search through NASA Tech Briefs and the data bank located at the NASA Technical Information Facility in Maryland.

The search of the Tech Briefs paid off and a suitable product was found; an electroencephalogram (EEG) device developed originally at Ames for space medical research with test pilots and now used for the diagnosis and treatment of mental patients.

Next, the Ames TU Office was able to provide the three engineers with a Technical Support Package, complete with design specifications. They obtained a license application from the Ames Patent Counsel as they left the Center. All was available without charge.

Searches such as this are conducted continually by NASA Technical Utilization Offices and NASA Dissemination Centers located throughout the country. Often someone is seeking a solution to an existing problem and wants to know if NASA's research can help. Or, as in the above case, private citizens are looking for a new product to place on the market.

Supported by tax dollars, NASA makes every effort to make its newly developed technology available to the taxpayers and is particularly interested in giving its technology to interested commercial and industrial organizations.

Initially the public is notified of new technological developments through a Tech Brief. This one-page "quick-look" of the item includes its development and potential applications. When detailed information is requested the Technical Support Package is provided.

The Technical Support Package is a collection of all the written material pertaining to the item; complete with drawings, graphs and specifications needed for a complete description. The package is free of charge to any interested individual or group, and usually provides enough information to produce the item without further research. If more information is required, however, the producer is free to call the original inventor or researcher.

There are over 4000 NASA Tech Briefs now available to the public They are stored in the NASA data bank in Maryland, the central and major memory bank for the space agency and at each NASA Center. The support packages are located at the Center of Tech Brief origin.

In a more aggressive way NASA disseminates its new technology through Technical Application Teams and Biomedical Application Teams, called TAT and BAT teams. These will be examined in the next issue of "The Astrogram".

TOURING THE CENTER . . . prior to the launch of Apollo 15 were Mr. and Mrs. James Irwin (left) of San Jose, the parents of Astronaut James B. Irwin, lunar module pilot for the recently completed Apollo 15 lunar landing mission. After being welcomed to the Center by the Director, Dr. Hans Mark, the Irwins toured several facilities, including the 40- by 80- Foot Wind Tunnel, the Flight Simulator for Advanced Aircraft, and the Life Sciences Research Laboratory. Pictured with Mr. and Mrs. Irwin is Phillip D. Quattrone, Chief of the Environmental Control Research Branch, as he demonstrated part of the Advanced Concept Hard Suit, a research project presently under study at Ames. (Emerson Shaw photo)

Calendar of Events

TECHNICAL PAPERS

Aug. 16- 18 -- James A. Franklin, Flight and Systems Research, AIAA Guidance Control and Flight Mechanics Conference, Hemstead, New York.

Aug. 9- 13 -- Delbert E. Philpott and Robert L. Corbett, both of the Experimental Pathology Branch and Gladys A. Harrison, Biomedical Research; 29th Annual Meeting of the Electron Microscopy Society of America, Boston, Mass.

Aug. 16- 19 -- Ho Lee Young, Biomedical Research, 22nd Autumn Meeting of the American Physiological Society, Lawrence, Kansas.

AMES FAMILY NIGHT AT FRONTIER VILLAGE

Frontier Village is offering a special "Ames Family Night" on Saturday, August 21, from 5 to 10 p.m. Admission and unlimited rides for just $1.50. Identification to show employment at Ames is the only requirement for admission.

EUROPEAN VISIT

Dr. Golub Presents Invited Paper

Ames scientist Dr. Morton A. Golub, Chemical Research Projects Office, recently attended the International Conference on Chemical Transformations of Polymers in Bratislava, Czechoslovakia, where he presented an invited paper, "Photochemistry of Unsaturated Polymers."

Dr. Golub also presented his paper at the University of Le Mans and at the Macromolecular Research Center in Strasbourg. Included in Dr. Golub's itinerary were visits to the Natural Rubber Producers' Research Association, Welwyn Garden City, England; the French Institute of Rubber, Paris; the Radiation Chemistry Laboratory (CNRS), Bellevue, France; and the French Institute of Petroleum, Rueil-Malmaison.

Dr. Jaime Miquel Named to Editorial Board

Dr. Jaime Miquel, Experimental Pathology, was recently appointed to the editorial board of the new international journal "Mechanisms of Aging and Development." Dr. Bernard L. Strehler, professor of Biology at the University of Southern California at Los Angeles is editor-in-chief for the new publication.

A GOOD GROUP . . . deserves recognition and the continued high performance of the Records and Reports Branch staff was rewarded recently with a NASA Special Achievement Award. It is obvious that Ames' Personnel Officer, W.L. "Bill" Williams (center), is pleased with the efforts of his staff, as this photograph testifies. With Mr. Williams are award recipients Linda S. Fowler, Linda J. Mackey, Betty H. Thomsen, Chief of the Branch, and Doris M. McMahon. The group shared a $400 award and received congratulatory letters from the Director, Dr. Hans Mark. (Emerson Shaw photo)

Ames Airings

by Jeanne Richardson

PUT IN A GOOD WORD FOR ME:

GARTH HULL, Public Affairs Office, while vacationing in Colorado heard astronaut Joe Engle speak. Garth was so impressed that he asked Joe for his autograph. Joe said "sure" but had nothing to write on. Garth pulled a dollar out of his wallet, Joe wrote a nice message and signed it.

Garth got up the next morning, went to church and put the dollar in the collection plate.

Director of Langley Army Facility Named

Thomas L. Coleman, formerly Technical Assistant to the Director for Aeronautics at Langley Research Center, has been named Director of the newly established Langley Directorate, U.S. Army Air Mobility Research and Development Laboratory.

The Langley Directorate is one of two subordinate elements of the U.S. Army Air Mobility Research and Development Laboratory with Headquarters at Ames Research Center. Paul F. Yaggy is director of the Laboratory.

NASA Film Catalog

A NASA-Ames Film Catalog is now offered through the Ames Public Affairs Office and the Ames Film Library on Scott Boulevard in Santa Clara. The catalog lists over 300 films available to any bonafide representative of educational, civic, industrial, professional, youth activity, and Governmental organization.

The films deal with such diverse subjects as "Apollo Mission Highlights"; "Eagle Has Landed: The Flight of Apollo 11"; "How Did Life Begin" and "The Woman's Touch."

Each listing in the catalog gives the film's running time, whether or not it is color and a brief synopsis of the story. The catalog also includes order forms and instructions on how to borrow the films.

A new film, not included in the catalog is now available at the Film Library. It tells the story of Ames Research Center, emphasizing the Center's major projects and developments. A pictorial tour of the various facilities is given with a brief history of the Center. The film, which runs 11 minutes, was edited by the Ames Public Affairs Office.

Page from the Past

"The Page from the Past", a summertime feature in "The Astrogram", continues to interest members of the Ames staff - - so we have decided to add to our collection and have planned a new series of pictures for a forthcoming issue.

Any recognizable photograph (no baby pictures, please) taken during the period 1940-55 would be appreciated. It can be a picture taken anywhere in the world - - employment at Ames during that period is NOT a requirement.

The response to the first call for pictures has been excellent, but there is space for a few more and we'd like it filled. Send prints or snapshots to "The Astrogram" office, Mail Stop 241-4.

FASTPITCH SOFTBALL

by Grantland Wheat

The Ames slow pitch softball league has only one week left of playing. Last week RFE showed their dominance by trouncing T & GD 13-2. MFB put their talents together and came out victors in their last two games; a 13 to 12 win over the first half winners, the Pumas, and a 10 to 3 win over the Spacemen. T & GD is in a real slump this half by losing to the Instrumentals 20 to 7.

SECOND HALF STANDINGS

	W	L	GB
RFE	4	0	-
MFB	3	2	1 1/2
Pumas *	2	2	2
Space Science	2	2	2
Instrumentals	1	3	3
T&GD	1	4	3 1/2

*First half winners

NAS Moffett Traffic Control Tightens

Ames employees are reminded that traffic and parking violations committed on the premises of the Naval Air Station Moffett Field are cause for a "Notice of Violation" (ticket). When cited, violaters must post bail in an established amount or appear before the U.S. Commissioner.

The speed limit at Ames and the Naval Air Station is 15 mph at intersections and on Bush Circle, and 25 mph except as other wise posted. Parking is controlled by painted markings. No marking- no parking.

To enforce the speed limit regulations the Navy Internal Security Patrol vehicles are radar-equipped and monitor vehicle speed from vantage points that are not always obvious. So, slow down and avoid a traffic ticket!

Bicycle Club Forming

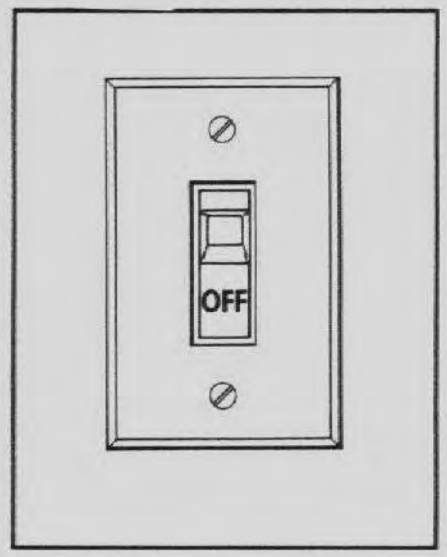
All those employees and their families that are interested in forming a bicycle club please meet at noon in building 245, Room 202 on August 26.

The purpose of the club will be to plan various bike outings, establish bike trails, try and establish discounts in bike stores, form bike teams, etc.

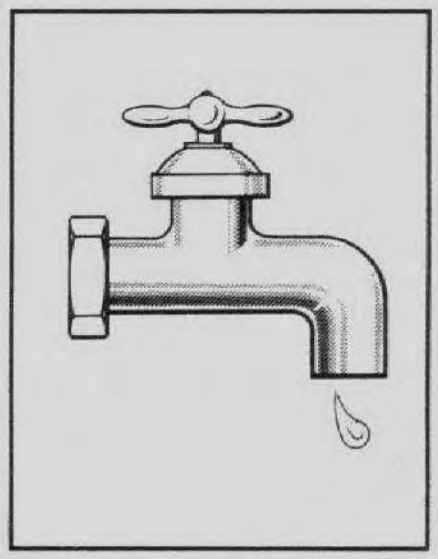
TENNIS

Recent scores: Bozeman over Snetsinger: 7-5, 4-6, 6-2; Maynard over Atencio 6-0, 6-2. Interested in joining the Club? Send name and mail stop to Snetsinger, 245-5.

CONSERVE UTILITIES



LIGHTS



TAPS

OFF

In recent years the maintenance costs of fluorescent systems have decreased due to lower prices for the lamps and longer lamp lives. However, studies conducted at Ames have shown that additional costs savings can be realized if all employees will take time to turn off all lights when not in use. This not only reduces costs but conserves electrical energy, as well. Help save your money!

WANT ADS

The Astrogram's ad section is provided as a personal, non-commercial service to Ames employees. Advertiser must be identified by name, extension and organization. The name may be left out of the ad but is needed for records. Ads must be submitted in writing to The Astrogram, N 241-4, by Thursday, a week before publication. The advertiser's home telephone number must be provided as a point of contact except in carpool notices.

AUTOMOBILES

For Sale-1968 Chev. Caprice, 4-dr., hdtp, black Landau top, disc brakes, 327 ci., 275 hp engine, delux interior virtually new tires. Call 327-5280.

For Sale-Buick 67 Wildcat, 2-dr., hard top. Auto. Trans., radio, heater, air Cond., power steering and brakes. Exc. condition, one careful owner. Call 327-3678 after 6 p.m.

Must Sell-Mustang 66, automatic, p.s., r/h, convertible, power top, excellent mechanical cond., $900. G. Suffolk, 493-1616.

For Sale-68 VW, black bug. Straight stick. Excellent condition. $1150. E. Hedstrom -296-2844.

HOUSING

For Sale-1 YR. OLD nr. Alm. Fashion Plaza, S.J. 4-br. 2-ba., tile ent., sunken liv. and din. r., fam. rm, frplce, AEK, 1/3 ac. cul-de-sac lot, 1 scpd, sprink, lg. patio. Nr. schools. 1818 sq. ft. $33200. 269-6305. Eve-wknds.

For Rent-House, unfurnished. 3-bdrm, 2-bath, double garage, hardwood floors, patio, redecorated, $225 plus deposit and last month. No pets. Call 736-2625.

For Rent-Tahoe City cottage near lake and private beach area. Sleeps 6. Autumn rate $70/wk or $30/wknd. Post-Labor Day reservations only. 328-4642.

For Rent or Sale-($12,000) 4-bedroom apartment overlooking beach Fuengirola, near Malaga, Spain. Call C. Davies, after 5 p.m., 732-2231.

MISCELLANEOUS

For Sale-Dried apricots, $1 per pound. 948-4096.

For Sale-Westinghouse frost free refrigerator-freezer. $100. 493-1638 after 5 p.m.

Attention-Antique collectors. Rare brass crib, superb condition. Fred Martin, 379-3617.

For Sale-Rollaway bed, double size, new $40. 967-4110.

For Sale-Koralle Jr., Family Sailboat. All fibreglass moulded construction. Unsinkable. Main and Jib sail. Aluminium mast. Length 12' width 5'. Hardly used. Completely ready to sail. Boat $555, Trailer $70, total $625. Phone 326-8690.

Wanted-Roommate (girl) to share expenses in an apartment. If interested, please call 353-1822.

For Sale-Easy Delux washer and dryer; 7 ft., beige Nagahyde sofa and matching chair, custom stereo, 30w amp/FM tuner, Sony tape deck, Garrard changer, twin shelf speakers. Sylvania 18" color TV. Drapes 88" x 63". Tennis racket. 8.50 x 15" tire chains, large electric roasting pan, used once. Clock radio, double fan. Golf shoes - size 9 1/2 men's. Yamaha music kit (children's). Wall shelf w/sliding doors, about 7" deep x 10" high x 36" long. call 327-5280.

For Sale-For tall man- Fibreglass poles, laminated wood skis, boots 12n, ski jacket, all for $40 or will sell separately. $45 ladies boots for $18, size 8 1/2 n. All used only once, bought in Europe. Phil La Fantasie, phone 964-6431.

For Sale-Newfoundland puppy, show quality, AKC champion stock. Sired by top winning Newfoundland for 1969. Call 961-8315 evenings; 941-5653 days.

Rhododendron buffs!-Now's your chance to obtain a new array of colors and types. At great savings due to pooling purchasing power. If interested contact Bob George at 257-4110.

For Sale-Honda 70, Trail 70. Excellent condition, low mileage, extras. Call 293-7201, $250.

For Sale-Sears/Kenmore washer, model 800 - Heavy duty avacado green, new 5 mo.s old, sell $225. Sears/Kenmore Gas dryer, model 800-heavy duty avacado green, new $270 - 5 mo.s old, sell $175. Penncrest/GE Hotpoint refrig/freezer, Imperial model 16.6 cu. ft., avacodo green, new $350. 5 mo.s old. Sell $250. Magnavox 1971 Deluxe color TV, 25" screen dark oak, 2 speakers, new $650. 5 mo.s old, sell $500 with 1 yr. service contract. Call 374-4611 after 5 p.m.

For Sale-White wrought iron glass top dining table with four chairs, excellent condition. $75, call 327-5119, after 5:30 p.m.