

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

It's May-Savings Bond Time

It's May, that saving time of year. When division canvassars merrily appear and give each staff member an opportunity to subscribe to U.S. Savings Bonds or to increase his present allotment.

Ames' Savings Bond Drive will be conducted May 15 through May 26. Dr. Hans Mark, Ames Director, has appointed Donald B. Kornreich, of his staff, coordinator for the campaign.

Kornreich stated that the Center's goal this year is 80 per cent participation or better. The Center's current percentage of participation is 58.

In a recent memorandum to all NASA employees NASA Administrator, James C. Fletcher said, "Savings Bonds are a liquid asset and an anti-inflationary factor in management of the national debt. There are also built-in tax advantages which endow these Bonds with added attraction as nest eggs with added attraction as nest eggs

(Continued on Page 2)



WOULD YOU BUY A SAVINGS BOND FROM THIS MAN?... Donald B. Kornreich, Staff Assistant to the Director, has been appointed coordinator for Ames' 1972 U.S. Savings Bond Campaign by Dr. Hans Mark, Director. Speaking of the campaign, Kornreich said, "I'd like to see the Center take full advantage of the Bond Drive this year. Especially at this time, Savings Bonds, which have an interest rate of 5 1/2 per cent when held to maturity of five years and ten months, are an attractive way to save." The two-week drive will begin May 15 and end May 26.



FIRST FLIGHT . . . of the NASA-Ames Buffalo C-8A augmentor wing research aircraft as it flew over the Seattle area on May 1. The new wing concept could have use in future short take-off and landing (STOL) aircraft.

First Augmentor Wing Aircraft Flight

The NASA-Ames Buffalo C-8A augmentor wing research aircraft made its first flight at the Boeing Company's Seattle plant on May 1 in a successful initial demonstration of a new wing concept which could have use in future short take-off and landing (STOL) aircraft.

The "Buffalo" Augmentor Wing Jet STOL Research Aircraft became airborne at 10:21 a.m. after less than a 2000 foot takeoff run. During the 51 minute flight it reached an altitude of 6500 feet and landed at the Everett facility, north of Seattle. The initial takeoff was conducted with the augmentor flaps set at 25 degrees, engine power at 95 per cent rpm and the maximum gross weight of 45,000 lbs. The primary objective of the first flight was to conduct a functional checkout, evaluate systems operation, structural integrity and initiate evaluation of the airplane's flight characteristics.

Thomas E. Edmonds, the Boeing test pilot on the first flight, said the flight went according to plan and all of the approximately 30 test conditions scheduled for the first flight were achieved. Edmonds stated that the airplane's handling characteristics were a lot like the simulations performed on the Ames Flight Simulator for Advanced Aircraft.

The flight marks the initiation

of a short flight test program at the Boeing Everett facility to demonstrate basic structural, systems, and aerodynamic airworthiness. Delivery will be made to Ames late this spring, according to David D. Few, manager of the STOL Research Aircraft Office in the Aeronautics and Flight Systems Directorate. Hervey C. Quigley, Project Technical Manager, George Cooper, chief of the Flight Operations Branch, and Robert C. Innis, the Ames C-8A project pilot, participated in the flight operations at Seattle. Only after the aircraft is received at Ames will it be operated to its full STOL potential and then only after it has been thoroughly documented in its flight test program here.

The flight research program at Ames will explore, at low speeds, the augmentor wing concept's interrelationships between aerodynamics, handling qualities and performance and will provide data to verify wind tunnel research results. STOL avionics and operations requirements will also be evaluated.

The aircraft is a de Havilland of Canada C-8A Buffalo turboprop modified to incorporate the new augmentor wing system by The Boeing Company and de Havilland of Canada for the National Aeronautics and Space Administration and the Can-

(Continued on Page 2)

Peterson Named MIT Sloan Fellow



VICTOR L. PETERSON

Victor L. Peterson, Chief of the Aerodynamics Branch, has been selected to participate in the Sloan Fellowship Program for a year of study at the Massachusetts Institute of Technology beginning in June.

Mr. Peterson is the first Ames nominee to take part in the MIT-Sloan Program since 1962 when Merrill H. Mead, Deputy Director of Administration, was selected for this honor.

The Sloan Fellows program is designed to broaden and develop outstanding young executives in business and government for senior management responsibilities in the future. From 45 to 50 Sloan Fellows are selected each year. They come from abroad as well as from the United States and range in age from 32 to 38 years with ten to fifteen years of successful experience behind them.

An important and integral part of the curriculum is the opportunity offered Sloan Fellows to correlate classroom work with field work and observation throughout the entire year. Beside management seminars at MIT and municipal government studies in the Boston area, three important field trips are scheduled: a one-week Financial Management Trip to New York City; one week in Washington, D.C. meeting officials of the Federal government, and a Foreign Management Field Trip. During the latter, the Sloan Fellows will meet informally with senior government and industry leaders in Western Europe, Moscow and Leningrad in the USSR, and Tokyo, Japan.

While discussing his plans for

(Continued on Page 4)

A Dozen Good SPARCS Launches

Astronomers have speculated about solar phenomena and how they affect the Earth for centuries. Scientists today want to know more about the rays that emanate and affect life on Earth, including radio transmission and weather. Someday it may be possible to understand what causes solar flares, bright eruptions from the Sun's surface which cause radio fadeouts and other disturbances.

These are among the reasons for studying the sun. And, this is the value of a slim rocket called Aerobee.

The NASA Aerobee is launched to over 135 miles above the Earth, where the view of the sun is relatively clear of the obscuring atmosphere. During the first two minutes after launch, coarse sun sensors survey the position of the sun and roughly point the rocket's nose in the correct direction. At the same time, jets are stopping the ballistic spin of the rocket.

Also, the two-stage rocket sheds its nose cone so the fine sun sensors can finish the job of properly pointing and locking onto the sun so the instrument payload can perform its mission. The lock on the sun is maintained with hardly a quiver.

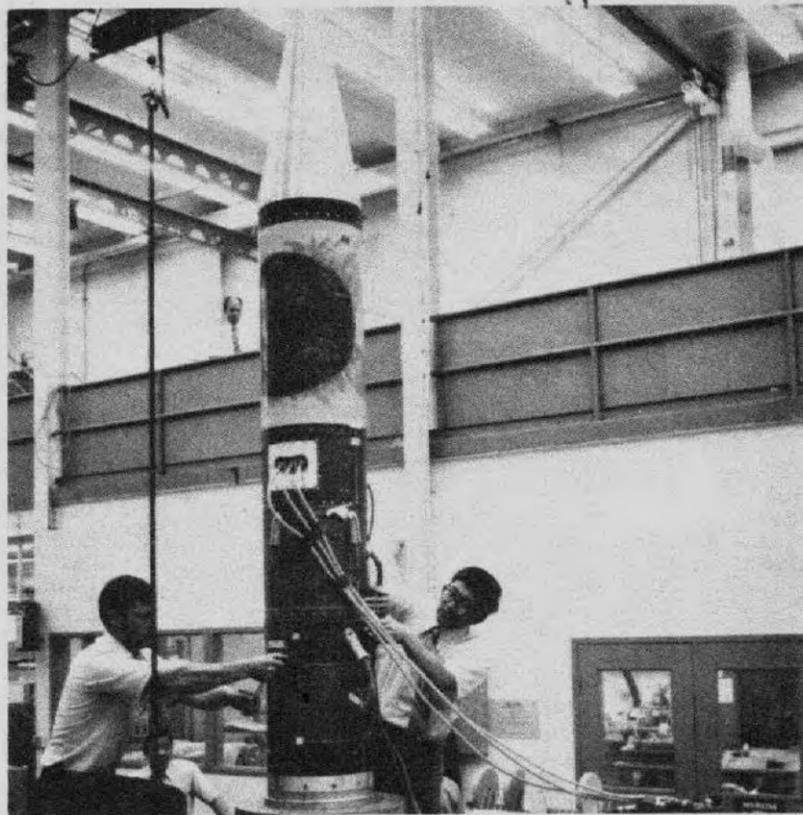
The extent of this quiver is demonstrated by the following. The nose of the Aerobee swings only four arc-seconds, which means it can hold in view a 10-inch bullseye on a target 100 nautical miles away.

All the guidance for the Solar Pointing Aerobee Rocket Control System, SPARCS, is done electronically without the use of gyros or other mechanical devices. Electronics control the amount and rate of impulse jets emitted from ports in the rocket to control its flight attitude.

An analog computer is used to program the maneuvers SPARCS will perform while aloft. The amount of information collected during the mission's short trip through space is great enough to keep solar astronomers busy evaluating it for months afterward.

As the payload begins to fall back to Earth parachutes open and it lands gently enough to be recovered, refurbished and usually reused.

The most recent Aerobee was launched April 24 from White Sands Missile Range, New Mexico. It was the second flight for the rocket. Purpose of the flight was to map sun temperatures that range from 1



FOLLOW THE SUN . . . SPARCS, the Solar Pointing Aerobee Rocket Control System, is pictured above as it is prepared by David C. Gowan, W.V. Sterling, Inc. and Robert Fujimoto, Lockheed, for its successful April 24 launch. A large yellow and orange sun, a rendition of what the sun looks like through a hydrogen alpha filter, was painted on the solar experiment section (just below the nose cone) as part of the preparation. Heat resistant paint was used, so the art work has remained intact during both of the rocket's round-trip missions to 135 miles above the Earth and back. The integration and assembled payload testing including nose cone and payload separations devices was conducted at Ames.

to 10 million degrees centigrade, and to obtain information on the processes that take place in the hot gases present above the solar active regions.

Of eight solar instruments carried, three obtained 100 per cent of the data expected, four were 50 per cent successful and one instrument, an ultra violet spectrograph, suffered a high voltage breakdown and did not operate.

SPARCS was programmed to scan across the sun at one third arc minutes per second (There are 60 arc minutes in a degree), roll 55 degrees, and scan back across the sun. These maneuvers were carried out as planned.

SPARCS is designed and built by Lockheed at Ames. Ames is responsible for the testing and field operations of the instrumentation, payload and nose cone separation systems and SPARCS.

Edward A. Gabris, Ames' Vehicle Guidance and Control Branch, is Project Manager. Stanley J. Rusk heads the Lockheed organization. Ames Project members are: Norman Yetka, James VanEss, Morton Bradski, and William Van Ark, all of Vehicle Guidance and Control.

C-8A BUFFALO

(Continued from Page 1)

adian Department of Industry, Trade and Commerce (DITC).

The modifications were made under contracts awarded 21 months ago, with funding of about nine million dollars by NASA and DITC. The engine nacelles and Rolls Royce Spey powerplants were delivered from Canada to The Boeing Company in Seattle. Boeing shortened the original C-8A wingspan, removed the original turboprops, built the augmentor wing system, and extensively modified the flight control

The C-8A Buffalo is the first aircraft to use an augmentor wing, a concept which integrates the aircraft engine, wing and flap to increase aerodynamic lift. As part of the system, engine fan thrust is augmented and vectored by the way in which it is directed through the augmentor flap, and the hot thrust can be directed downward to provide increased lift.

At the present stage of the research program, no significant noise reduction treatment has been incorporated in the engines used on the modified aircraft. The augmentor wing concept itself, however, has great potential for effective noise reduction.

In its current configuration for flight research at Ames, the test airplane is designed specifically for research and is not a prototype of any proposed aircraft. It is not intended for commercial service. After the current program concludes, the airplane may be gain converted for other STOL research.

In addition to marking the first flight of an augmentor wing aircraft, the flight also delivered the first "mail by Buffalo", carrying a packet of approximately 75 letters autographed by team members.

U.S.C. Course

The University of Southern California offers, world-wide, a unique program of multidisciplinary studies leading to a master of science degree in Systems Management.

Courses in Systems Technology, Human Factors as well as Systems Management comprise the curriculum and are offered in the late afternoon at Lockheed and the Naval Air Station, Moffett Field. The summer quarter begins June 12. For further details call John Leveen, Ames Training Office, ext. 5623.

SAVINGS BONDS

(Continued from Page 1)

for a more comfortable retirement or to underwrite college education for the youngsters.

"In addition, Savings Bonds are safe, pay a high 5.5 percent interest, and it is easy to participate. All you have to do is sign a pledge card and your payroll office does the rest."

Kornreich will be assisted during the drive by Robert A. Cooper, Financial Systems and Analysis, and Barbara F. Busch, Public Affairs Office.

NFFE Meeting

The regular monthly meeting of NFFE Local 997 is held on the third Monday of the month in Building 213, Room 261 from 12 p.m. to 12:30.

THE ASTROGRAM Room 134
Admin. Mgt. Building
Phone 965-5422

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A PROUD MOMENT . . . for Darrell E. Wilcox (right), Aeronautical Missions and Technology Branch of the Advanced Concepts and Missions Division, OAST, as he reads a letter of congratulation from Dr. Hans Mark, Ames Director. This accompanied a NASA Special Achievement Award presented by Richard H. Petersen (left), chief of the branch. Mr. Wilcox has established a noteworthy reputation in the field of program cost estimation and in the past several months has participated in four major programs. His outstanding contributions in aerospace cost estimating and economic studies have been recognized not only within NASA but at the highest level of government. Attesting to this were letters of appreciation incorporated in the award nomination, including one from William Magruder, Special Consultant to the President, expressing thanks on behalf of Mr. Nixon for his efforts on a new Technology Opportunities project.

Ames Explorer Post In Scout-O-Rama

More than 50,000 Boy Scouts, Cubs and Explorers are participating this month in 20 Scout-O-Rama shows throughout the San Francisco Bay area. A participant in the Stanford Area Council's show to be held at Foothill College on Saturday, May 20, from 12 to 6 p.m. will be the Ames Astronautics Post No. 12.

The shows are of the general booth-demonstration type with Cub, Packs, Scout Troops and Explorer Posts presenting a wide variety of skills, demonstrations, special interests and various items in the achievement and advancement fields.

Ames Post Advisor, Warren Winovich of the High-Enthalpy Branch, said the theme selected by his group is one of the Post projects. There will be an earth resources display with instruments developed to make observations of algae growth in lakes and river beds. Also on display will be a scale model of the lunar rover which the Explorers developed as part of projects on space technology spin-offs.

Earlier this month a successful

Chinese Musical

The Stanford Area Chinese Club is presenting the musical "Damn Yankee" with a Chinese cast on Saturday evening, May 27 at 8:30 p.m. in Spangenberg Auditorium, Gunn High School.

This educational benefit for Chinese youth organizations is produced under the sponsorship of the San Francisco Chinatown Optimist Club. Tickets are \$3 and \$4.50 (unreserved) and \$7.50 minimum for sponsor (reserved). For further information and tickets call Guy Wong 327-7612.

Scout-O-Rama was held by the Santa Clara Council at the Santa Clara County Fairgrounds. It was interesting to note that a number of young women are now participating in Explorer Post activities in such areas as veterinarian medicine and as Ham operators.

Tickets for the Stanford Area Council Scout-O-Rama may be purchased from any Cub, Boy Scout or Explorer and will also be available at the gate.

Ames "Classroom In The Sky"

"I'll never be the same after this! After listening to all these brilliant men and seeing the wonderful thing it makes me proud to be an American!"

"Many thanks for one of the most impressive experiences I have had in a long time."

These were some of the reactions of the participants of "Classroom in the Sky," a novel educational experience cosponsored by Ames and Fresno State College. It was an extension workshop which brought 121 educators, professionals, and students across America in a flying classroom to the launch of Apollo 16.

The group not only saw the launch, but was given a unique lesson in where Apollo 16 was going and how it would get there. While they flew from Fresno to Florida, and back again, Dr. Ronald Greeley, Ames' Planetology Branch, conducted a course in geology.

Dr. Greeley used such novel teaching aids as the Sierra Nevada Mountains, the Mississippi Delta, the Grand Canyon, the Gulf of Mexico and Meteorite Crater in Flagstaff, Arizona, viewed from a leisurely circling United Airlines DC-8.

United Airlines installed special equipment in the aircraft so that slides of lunar surface features could be shown during Dr. Greeley's lectures.

The purpose of this segment of the course was to familiarize the participants with reasons for, and methods of studying lunar geology. It was rated by many as the most

"significant" portion of the entire trip, including the launch.

Dr. Greeley, who also teaches a course in geology at Foothill Junior College, said of the workshop; "It helped a little to have had previous experience, but this was a unique situation. I thoroughly enjoyed it. We got to see a lot of geology, flying over as we did. Seeing it that way really brings it home to the student."

Another popular portion of the workshop was conducted by Richard G. Smith, Manager of Saturn Program, Marshall Spaceflight Center. He gave an "enlightening" lecture entitled "Preparing and Launching Apollo 16's Saturn 5" following the launch at Cape Kennedy. Many of the participants were particularly impressed with the amount of time Mr. Smith took from his obviously busy schedule to address their group and answer their questions.

Dr. P. Robin Brett, Chief, Geochemistry Branch, Manned Spacecraft Center and Conrad Dannenburg, Deputy Director of Mission and Payload Planning Office, Marshall Spaceflight Center, also delivered enthusiastically received lectures. Dr. Brett spoke on Apollo Lunar Science and Mr. Dannenburg discussed "Education: Springboard to Space."

Garth A. Hull, Ames Educational Programs Officer and Coordinator for "Classroom in the Sky," said of the workshop, "It's of educational experience that is only possible through the technology we have today."



"CLASSROOM IN THE SKY" . . . a novel educational experience which included lectures by Ames scientists and the launch of Apollo 16. The participants are pictured above as they entered their "classroom," a modified United Airlines DC-8.

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, N241-4, 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-Pickup Truck, 1955 Chev. 3/4 ton four speed. Good condition, reasonable. 948-8002, J. Lepetich.

For Sale-1964 Corvair, 4-dr., 4-spd., 110 hp., good work car. \$200. S.C. Whitaker, 7341663.

For Sale-1971 V.W. Super Beetle, Yellow 71, new tires worth \$130. Radio and heater. If interested please get in touch with Ray Diaz, 824-3219. \$1850.

For Sale-1958 T-Bird, runs well, new tires. Phone 322-6591.

For Sale-1965 Datsun station wagon, grey, excellent overall condition, 4 new tires, Blaupunkt needs fixing, about 36,300 miles. 2-owner, asking \$600 less new muffler, Fred Rossini, 848-6651. (Available after June 1.)

For Sale-Mercury Montego mx, 1969 white, V-8, 2-door hard top, power B (disc) and S, automatic, air cond., radio, mint cond., All service recds. available. Research Associate leaving mid-June. 854-6657, Dr. Melvill Jones.

For Sale-Cortina 1600 delux, 1969, 2-door, auto trans, radio, ex. cond., Research Associate leaving mid-June, 854-6657, Dr. Melvill Jones, 3695.

For Sale-1962 Rambler (1964 Rambler engine) 4-dr. station wagon automatic trans., R & H good tires. Engine needs some work. \$100 or best offer. Call 259-3687 after six.

For Sale-1956 Ford, runs, needs work, \$150 or offer. 968-1406.

HOUSING

For Sale-Marlette Mobile Home, 54' x 12', Expando living room, 3' tip out closet full back, May be left on space. Phone 968-3387.

For Sale-59 acres of historic Calif. property near Mariposa. 660 feet riverfront, huge trees in secluded area less than 40 miles from Yosemite. Reasonably priced. 948-8002, evenings.

Wanted-A used metrohome, R. Zander, 322-9289.

Home For Sale-Campbell, 3-br., 2-ba., huge family room, A/EK, new shag carpet, insulated, covered patio, trees, Doughboy pool, prof. landscaping, sprinklers. Minimum financing. \$29,950. 379-6167.

For Rent-Tahoe City cottage near lake and private beach area. Sleeps 6. Spring rate \$70/wk or \$30/wknd. 328-4642.

MISCELLANEOUS

For Sale-RCA Console 21-inch color T.V. set. Remote controller. Rebuilt pix. tube. Excellent pix. and cabinet.

Heathkit 10 18 5-inch Oscilloscope. Excellent condition. Al Ruffange, phone 297-3843.

For Sale-Sports liner tent trailer. Sleeps six. 12-ft. length closed. Table, sink, cupboards and drawers used only once. Price \$900. Glen A. Weidlich, 734-3773.

For Sale-Standard Royal typewriter, good cond. \$30. Mr. Brooks, 356-9596.

For Sale-Part ownership in Star-Craft recreational "pop up" trailer complete with stove, sink, icebox, cabinets and closet, sleeps six, new condition, price negotiable, phone 253-4369 after 6 p.m.

For Sale-Afghan puppies, AKC, registered, champion sired, parents x-rayed, blues and blacks. 739-6054.

For Sale-Air conditioner, extra heavy duty, good for large room or small apt. \$115. 968-6033, after 4:30 p.m.

For Sale-Must see to appreciate, Panasonic 8 track tape deck, CX8885U, 12 volt home power supply CJ 858U. Car adapter CJ077U. Speakers, home and car. \$125. Richard Taylor, 390 Northlake Dr. #42, San Jose.

For Sale-Putters; one lady's, four men's and one adjustable. \$5 each. Call Ed Courtney after 5 p.m. at REgent 6-4830.

Ames Airings

... by Jeanne Richardson

So many people expressed a piqued interest in Ames' history after reading this column in the last issue that I dug deeper into the recesses of the Center's past and came up with this.

MORE LITTLE KNOWN FACTS ABOUT THE HISTORY OF AMES.

The 16-foot wind tunnel was built in 1941 and 42, when we were the good guys and the bad guys were the enemy. People at Ames were pretty jumpy because it looked like the enemy might bomb the West Coast as they had Pearl Harbor.

This caused a few problems for the calibration of the 16-foot tunnel.

You see, the tunnel's motor's made a deep rumble, especially at night when it could be heard for miles. It kinda sounded like an approaching fleet of bombers.

So, one night it had just been turned on when air-raid sirens began to whine and all major power absorbing equipment, including the tunnel, was ordered shut off.

Happily, the enemy raid looked like a false alarm and an all-clear sounded. But no sooner had the tunnel been turned back on than that foxy enemy came back.

Again the tunnel was turned off and again they disappeared. Ah, the frustrations of war!

After a few more on and off air raid warnings it began to dawn on someone that there was a connection between the tunnel operation and the suspected air raid.

Disillusioned, the military called off their raid for the night and arrangements were made to avoid such confusion in the future.

Sloan Fellowship

(Continued from Page 1)

the forthcoming year Mr. Peterson said, "I believe that the MIT-Sloan Program will provide the opportunity to give perspective to my previous experience here at the Center, and further insight into the principles and practice of modern management. This will help me to establish a broader viewpoint of administrative functions which will be valuable both to me personally and to NASA."

In his present position to which he was appointed last year, Mr. Peterson is responsible for the planning, organization, and operation of the Aerodynamics Branch, with a budget of some two million dollars and a staff of more than 35 aerospace engineers and support personnel.

Mr. Peterson was graduated from Oregon State University in 1956 with a B.S. degree in aeronautical engineering, and earned a master of science degree in aeronautic and astronautics sciences from Stanford University in 1964. He began his professional career as an aeronautical research scientist at Ames in 1956.

EARLY YEARS

During his early years at the Center Mr. Peterson conducted numerous wind-tunnel experiments and analytical investigations of both the aerodynamic characteristics of supersonic airplane configurations and the stability of aerodynamic shapes having various types of controls. "With the advent of extra-terrestrial flight," he said, "I became involved in early studies of problems associated with entry into and flight within the atmospheres of planets other than earth."

In 1963 Mr. Peterson was appointed leader of the Planetary Gas-dynamics Group of the Hypersonic Aerodynamics Branch. In addition to directing the research of this Group, his own personal research contributed to the understanding of problems associated with entry of vehicles into planetary atmospheres and the motions experienced by high speed missiles.

CAREER LADDER

The next step up the career ladder for Mr. Peterson was the assignment as assistant chief of the Hypersonic Aerodynamics Branch. Areas researched included atmospheric flight mechanics, boundary layers, hypersonic aircraft aerodynamics and basic fluid dynamics. In 1969 he was selected to fill

Foster and Caroff On T.V. Talk Show

John V. Foster, Director of Development, and Lawrence J. Caroff, Theoretical Studies Branch, will be guests on the half-hour talk show "Youth Inquires" on KRON-TV Sunday, May 21, at 12:30 p.m. Four college students will question the two Ames men on Pioneer-Jupiter and the space program in general.

SOFTBALL

The NASA Ames Fastpitch Softball Team will play in the Coleman Fastpitch League at Columbus Park in San Jose. Columbus Park is located at the corner of Taylor and Spring Street

The team roster includes Bruce Ganzler, manager, Bob Randle and John Yusken as coaches. Team members are Bob Bell, George Alger, Don Kornreich, Jim Myers, Frank Steinle, Phil Wilcox, Bob Corbett, Barry Scott and newcomers Tom Knight, Roger Pustolka, Dan Reda and George Plambeck.

FIRST HALF PLAY SCHEDULE:

Date	Time
May 11	8:00 p.m.
May 18	9:15
May 25	9:15
June 1	8:00
June 8	6:45

the post of Deputy Chief of the newly created Space Shuttle Coordination Office. This office was responsible for planning and coordinating, both within Ames and between other NASA Centers, Ames' entire effort supporting the National Space Shuttle Technology Program.

Mr. Peterson is a member of the American Institute of Aeronautics, and in addition to being elected as an Associate Fellow of this organization, he was chairman of the 1500-member San Francisco Section in 1968-69, and is now serving as a member of the Atmospheric Flight Mechanics Technical Committee. Other memberships include the American Association for Advancement of Science, Pi Mu Epsilon, and Pi Tau Sigma. While at Ames he has authored or coauthored 35 technical publications.

Sloan Fellows are expected to move to the Boston area with their families so that wives and children may benefit informally from the profound evolutions in thinking which the Fellows experience during the year of intensive study. Mr. Peterson will be accompanied by his wife, Jacqueline, and their three children, Linda, Janet, and Victor.



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

AMES 1972 U.S. SAVINGS BOND DRIVE MAY 15 to 26

Bond Drive Is a Success

Ames 1972 Savings Bond Drive began Monday and will continue through May 26. Early returns indicate strong support for this year's Drive.

Donald B. Kornreich, Staff Assistant to the Director and Campaign Coordinator, is optimistic about the Center reaching its goal of 80 percent participation. The Center's previous percentage of participation was 58.

Kornreich urged those who have not yet signed up for Bonds to consider the advantages of a Payroll Savings Plan.

Among these are:

*Payroll Savings is convenient. Once the card is signed, saving is automatic for as long as you live.

*Payroll Savings is effortless. Your saving is done for you. You never miss money you never see.

*Payroll Savings is regular. Every payday you're putting something aside toward the purchase of a Bond. And it's regularity of saving more than anything else that builds up the kind of money that buys the big things in your future.

*Payroll Savings is sure and safe. Backed by the Government, Savings Bonds guarantee that you'll always get back what you put in, plus interest that adds to the cash value every six months.



WE'RE GONNA MAKE YOU AN OFFER YOU CAN'T AFFORD TO REFUSE . . . Like a well-protected investment that can be easily obtained and collects 5 1/2 percent interest if held to maturity. Extending the offer for the organization are Dr. Ralph Pelligra (left), Medical Officer, and Donald B. Kornreich (right), Staff Assistant to the Director and 1972 U.S. Savings Bond Campaign Coordinator. They would like to stress the safety of investing in United States Savings Bonds. Bonds can be redeemed at any time after two months from issue date at most banks and financial institutions. If Bonds are lost, stolen, damaged, or destroyed the Bureau of the Public Dept. will replace them.

IT IS HARD FOR AN EMPTY SACK TO STAND UPRIGHT. BUY U.S. SAVINGS BONDS.



LITTLE STROKES FELL GREAT OAKS. BUY U.S. SAVINGS BONDS.



A BOND IN THE HAND . . . is worth more than all good intentions to save money. According to Ruben Ramos, the Payroll Savings Plan, "is an easy way to put away a little money. I've been accumulating Bonds for four years now; not for any specific purpose, just security."

**PROSPERITY MAKES FRIENDS
ADVERSITY TRIES THEM. BUY
U.S. SAVINGS BONDS.**

Keep Something For Yourself On Payday

"I can't believe I spent the whole thing" is a familiar cry the day after payday. Too often a zero bank balance appears after the bills are paid, and there's nothing to do but wait until next time payday rolls around.

One way to make sure there's something left over for you is to join the Payroll Savings Plan for U.S. Savings Bonds.

With Payroll Savings part of each paycheck is set aside before you ever see it. It buys you E Bonds which now pay 5 1/2 percent when held to maturity of 5 years and 10 months (4 percent the first year.)



A BOND FOR ALL REASONS . . . Skip Yem, Research Facilities Engineering, said recently, "One of the main reasons I buy bonds is that they eliminate the ordeal of making a deposit. In general I'm saving toward my children's education. But, they helped pay for my motorcycle and season ski lift tickets for my children last winter.

There are many more reasons for buying bonds. Mostly, I buy them for the children."

**HE THAT GOES A BORROWING
GOES A SORROWING. BUY U.S.
SAVINGS BONDS.**



BONDS ARE A GIRL'S BEST FRIEND . . . "I buy Bonds to provide my own private cache of money" said Marcie Smith, Program Development Office. They come in handy for large expenses. For instance, I cashed a lot in when I got married, and just before I bought a new car."



EASY RIDER . . . Like his riding, Cal Dodson, Mechanical Services, likes to save his money the easy way through purchasing U.S. Savings Bonds. Cal said, "Savings Bonds are about the safest way to save. It's become a real good habit of mine. It's a convenient way of having available money all the time."



BORN WITH A SAVINGS BOND IN THE BANK . . . Patt C. Melcic, Chemical Evolution, said she began buying Savings Bonds "for Lane's (her 18-month-old son) education."

*Some of the Things
you are
enabled to do
by buying
United States
Savings Bonds*



*Hunt with a camera the elusive,
near extinct Bog Turtle*

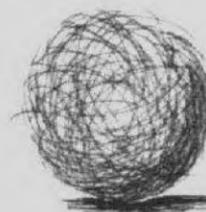
**A MAN MAY, IF HE KNOWS NOT
HOW TO SAVE AS HE GETS, KEEP
HIS NOSE TO THE GRINDSTONE.
BUY U.S. SAVINGS BONDS.**



EVERYBODY NEEDS SAVINGS BONDS . . . Even Noelle L. Hall (left), Thermo and Gas-Dynamics, and Doris A. Avery (right), Simulation Sciences.

**MONEY ALONE SETS ALL THE
WORLD IN MOTION. BUY U.S.
SAVINGS BONDS.**

**Before I joined the
Payroll Savings Plan
all I could save was**



string.



IF I HAVE BUT ONE PAYCHECK . . . Bonnie D. Malmos, Reliability and Quality Assurance, "After each successive overseas assignment with the State Department's foreign service, I returned home with a conviction grown stronger, and to which I continue to hold firm; that is, 'Thank God I am an American.' For me, buying U.S. Savings Bonds is not only my obligation, but my privilege and my pleasure."



A BIG BOND BUYER . . . O.B. Ray, Mechanical Services, has been buying Savings Bonds for over 15 years. "Buying Savings Bonds," he said of his investments, "is the only way I've been able to save."

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

New Computer Drives Ames FSAA

Ames aeronautical engineers are now simulating flight characteristics of advanced aircraft with the aid of a newly installed Xerox Sigma 8 computer.

Valued at \$1.2 million, the Sigma 8 drives \$10 million of equipment capable of duplicating the performance of virtually any aircraft, from helicopter to supersonic transport. Although the equipment is used primarily to drive the Ames FSAA, it also serves other simulators at the Center.

The complex simulators, under the control of the Xerox computer, provide the realistic "feel" of the craft in every conceivable flight situation, while a full-color visual image of the flight is displayed on the windows in front of the pilot-engineers. These visuals not only reproduce ground and weather conditions but also over-water flight complete with a simulated aircraft carrier for take-off and landing ex-

U. S. Savings Bond Drive Ends Tomorrow

Ames' 1972 U.S. Savings Bond Campaign will end tomorrow, May 26. All authorization cards should be sent to the respective division canvassers or to Robert A. Cooper, Mail Stop 203-12, as soon as possible.

Mid-campaign returns indicated the Center's percentage of participation will exceed previous records.

perimentation.

The majority of research currently being performed is for NASA, although the facilities are made available to other branches of the government and all aircraft companies.

In addition to basic research work, the Xerox Sigma 8 will be used by the Federal Aviation Administration for aircraft certification studies and research on flying quality requirements by the National Transportation Safety Board for the investigation of accidents.

JUPITER-BOUND SPACECRAFT TO CROSS MARS ORBIT

Pioneer Nears Unknown Space

Pioneer 10, bound for Jupiter, will cross the orbit of Mars today (May 25) and will then enter space never before visited by a spacecraft.

According to Pioneer project officials at Ames, the spacecraft will have crossed the 50 million miles separating the orbits of Earth and Mars in 12 weeks compared with about five months for previous Mars-bound spacecraft.

Pioneer has been in a region named by some scientists the "Great Galactic Ghoul" that may contain unusually high amounts of meteoroids and cosmic dust. In this region, just inside the orbit of Mars, several previous Mars-bound spacecraft have encountered difficulties, believed by some to be due to impact by high-velocity meteoroids.

The Pioneer 10 spacecraft is the fastest man-made object ever flown. Its curved flight path to Mars' orbit is 136 million miles long, and it has moved along this flight path at an average speed of about 75,000 miles an hour. During the later parts of its 22-month flight to Jupiter next year, solar gravity will slow the spacecraft to around 25,000 miles an hour. It will speed up again near Jupiter.

Pioneer 10 has now covered 124 million miles of its 620 million-mile flight path to Jupiter, and is 31 million miles straight-line distance from Earth.

Pioneer 10 will enter the Asteroid Belt to make man's first probe of this unexplored region on about July 1. It will take about seven months to cross the 175 million-mile wide Belt of rock fragments and cosmic rubble between the orbits of Mars and Jupiter.

All the spacecraft's 11 on-board scientific instruments now have been turned on and are functioning well.

In recent days, Pioneer flight directors have turned on the last of those, the infrared radiometer, which will make measurements of heat radiation in space, used to check out the instrument, were at expected levels.

The meteoroid instrument and the four asteroid-meteoroid telescopes continue to see an unusually large number of meteoroids and

dust particles. Experimenters now are completing calibration of the optics of the four asteroid telescopes, using sightings of Jupiter. These calibrations will allow measurements of meteoroid speed and direction, using the precisely-known overlaps of the fields of view of the telescopes.

The imaging photopolarimeter has made its first observations of Mercury and Jupiter. The polarimeter has measured the intensity and polarization of light from these planets, showing some characteristics of their atmospheres or surfaces.

Pioneer 10 will reach Jupiter December 3, 1973, and will pass about 87,000 miles from the giant planet's surface. It may well pass behind Jupiter's orange satellite Io, the most reflective object in the solar system, allowing studies of Io's atmosphere if it has one.



SMILES AND AWARDS . . . have a way of going together and scientific and technical photographers William A. Melliar (left center) of Ames, and Charles Lonzo, Jr. (right center) of the Army Air Mobility Research and Development Laboratory (AAMRD), bear this fact out as they receive Special Achievement Awards. Working as a team, the two photographers set-up and operated a new precision aerial film printer in the Ames Photographic Technology Branch. The equipment is a major acquisition and has enabled the Branch to greatly expand its support services to the Center's earth resources sciences and aircraft programs. The awards were presented by H. Andrew Morse (left), Chief of the Army Aeronautical Research Group, AAMRD, and Roland P. Michaelis (right), Chief of Ames' Photographic Technology Branch.



FRIDAY, JUNE 9
AMES AUDITORIUM
9 a.m. TILL NOON

Polyglots Sought

Do you speak or write a foreign language? The Civil Service Commission in Washington, D.C. is requesting all government agencies to provide them with the names of employees who can fluently speak or write a foreign language. Employees who have this skill may be asked to act as interpreters or translate documents. Any employee having these capabilities is requested to contact Betty Thomsen, Records and Reports Branch, ext. 5611.

L.H. Brennwald Is Guest Speaker

Louis H. Brennwald, Ames Director of Administration, was guest speaker recently at a dinner meeting of the Purchasing Management Association of Northern California, Inc., held at the Cabana Hyatt House in Palo Alto.

In his talk, entitled "NASA -- Yesterday, Today and Tomorrow," Mr. Brennwald gave a brief history of NASA and Center organizations, and then explained the mission and some of the long-range goals of the agency. He also discussed space technology and its contribution to industry, as well as the application of space-related technology in solving domestic problems in the public sector.

Ames research scientists Richard M. Brown of the Electronic Instrument Development Branch also participated in the meeting. He demonstrated a laser display which showed the application of holography to non-aerospace uses and holographic interferometry. Mr. Brown pointed out that the latter is being used by major tire companies and many airlines to look for hidden damage in all types of tires being considered for retreading. When used for passenger car tires holographic interferometry detects possible dis-banded areas which could create a potential hazard.

HTFM Institute June 14 - 16

The twenty-third Heat Transfer and Fluid Mechanics Institute (HTFMI), dealing primarily with basic advances in areas of heat transfer and fluid mechanics, will be held June 14-16 at San Fernando Valley State College, Northridge, Calif.

During the three-day conference, six invited lectures and approximately twenty-five papers will be presented. A special session of the conference will be devoted to heat transfer and fluid mechanics in ecological systems. Included in the participants will be Philip R. Nachtsheim of the Ames Thermal Protection Branch who will serve as co-chairman of the second session on the opening day.

Registration forms may be obtained from Professor Raymond B. Landis, General Chairman of the 1972 HTFMI, School of Engineering at the State College in San Fernando.



POWDER PUFF DERBY CONTESTANTS . . . It will be "Up, up and away" on July 7 for Sue Norman (left) and Betty Berkstresser (right), Advanced Concepts and Missions Division, who have qualified for the annual All-Woman Transcontinental Air Race (AWTAR), more familiarly known as the "Powder Puff Derby." Starting point for the race is the San Carlos Airport in California and the terminus is Tom's River, New Jersey. The two pilots flew night and day for months prior to the entry date to qualify -- and they made it. They can use all the support they can get in planning final phase of the project. If you want to help, call Betty Berkstresser, ext. 5887.

April 14 Big Date for Two Pilots

An important date in the life of pilots Mrs. Susan M. Norman and Miss Betty K. Berkstresser, Advanced Concepts and Missions Division, was April 14, 1972 the day they qualified for entry in the annual All-Woman Transcontinental Air Race (Powder Puff Derby) to be held July 7. This year the race starts from San Carlos Airport in Calif. and will end four days later at Tom's River, New Jersey.

For months prior to the entry date the two pilots flew night and day. Mrs. Norman was working toward a commercial pilot license and Miss Berkstresser was qualifying for a private pilot license -- both prerequisites for entry in the air race.

The drawing for take-off position took place on April 28 at a dinner planned by the Golden West Chapter of the Ninety-Nines, hostess chapter for the race start. The two pilots from Ames will be TAR #75 in the line-up of some 99 contestants. The first plane will take off at 9 a.m. and the rest will follow at 30-second intervals.

This internationally known Powder Puff Derby is open to all qualified women pilots flying eligible stock model aircraft, single or multi-engine of 145 to 450 horse power, manufactured within the last ten years. Contestants are scored according to their ground speed in relation to their handicaps. Mrs. Norman and Miss Berkstresser will be flying their own Cherokee 140

which has been given a handicap of 120 mph.

Qualifying for entry in the race hasn't been nearly as hard as trying to find a sponsor, according to the two women pilots. Funding from a sponsor would provide the required annual inspection, the necessary oxygen system, and the operating expenses of gas, oil, maps, food and lodging. They expect their personal financial outlay will be in the neighborhood of \$2000. Anyone interested in helping these pilots with their preparations for the forthcoming air race may call Betty Berkstresser, ext. 5887.

AIAA Meeting

Installation of officers for the 1972-73 season and a tour of the Novitiate Winery on College Avenue in Los Gatos is the program for the June 1 dinner meeting of the San Francisco Section of the AIAA meeting.

The winery tour will begin at 5:30 p.m. with wine tasting at 6:30 and dinner at 7:30. A brief ceremony honoring retiring officers and installation of the new slate will be held at 8:30 p.m. Participants in the program will be Region VI Director Charles W. (Pat) Duffy, Jr., and Norman Hill, Deputy Administrator for Member Services.

Advance reservations are required and may be made by calling Ames ext. 5887 before May 30.

Space Telescope

NASA has decided to proceed with detailed planning of a large multi-purpose optical telescope to be launched and serviced by the Space Shuttle in the 1980's.

The Large Space Telescope (LST) will be able to look at galaxies 100 times fainter than those seen by the most powerful ground-based optical telescope. Within the solar system, it will be able to provide long-term monitoring of atmospheric phenomena on Venus, Mars, Jupiter and Saturn.

Scientists expect the LST to contribute significantly to the study of energy processes that occur in galactic nuclei; the study of early stages of stellar and solar system formation; observation of such highly evolved objects as supernova remnants and white dwarfs; and other studies relevant to the origin of the universe.

Project management of the LST has been assigned by NASA's Office of Space Science to the Marshall Space Flight Center with participation in the project by the Goddard Space Flight Center and other NASA centers.

The LST will weigh between 20,000 and 25,000 lbs. and have a length of 40 to 52 feet and a diameter of 12 to 13 feet. Its most important optical element will be a diffraction-limited mirror approximately ten feet in diameter.

The guidance system will be capable of holding onto a target for extended periods within 0.005 seconds of arc. (This is the angle subtended by a dime at a distance from Washington to Boston.)

Solar panels will provide electrical power to the LST, and its images will be transmitted to Earth by television.

The spacecraft will orbit Earth at an altitude of 350 to 420 nautical miles at an inclination of 28.5 degrees.

The manned Space Shuttle, which NASA is developing for operations beginning in the late 1970's, will be used to launch, test and retrieve the LST from orbit as required for repair, refurbishment, and updating of its instruments.

Room 134
Admin. Mgt. Building
Phone 965-5422

The Astrogram

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Editor Dorothy M. Evans
Editorial Assistant Jeanne Richardson
Reporters NASA Employees

Deadline for contributions:
Thursday between publication dates

A Look At The Ames Central Files Operation

"The moving finger writes; and having writ, moves on..." Written in the eleventh century by Omar Khayyam in his "Rubaiyat", this is a thought to ponder in this space age. Where do they go, those trillions of written words? A look at the Ames Central Files operation gives some insight into a small segment of those words.

Five young women, working together as a closely knit team, process more than 200,000 pieces of mail received each year in the Central Files Section of the Records Management Branch. Under the able supervision of Carol A. Anderson, each member of the staff has a thorough knowledge of the mail and file system. They know the organization and functions of the Center and are familiar with the specialized terminology so prevalent in a research environment.

The central filing system at Ames involves numerous subjects and many subdivisions. They run the gamut from research reports to technical and scientific correspondence and administrative documents.

History is made and recorded in the material compiled in the central files as each phase of aeronautical space and life sciences research takes its place in the system. And as new "words" join the old, they are cataloged, cross-indexed, and given new catalog codes, if necessary.

As research functions, programs and operations change, the versatile central files group, Ruthie M. White, Catherine L. Garcia, Sharon M. Costa, and Margaret L. Hines, meet the challenges of revisions and new mission objectives.

"Customer service" is an integral part of the daily routine in Central Files. "Requestors seeking copies of administrative and research correspondence can be pretty vague in their descriptions," said Mrs. Anderson in defining some of the minor difficulties encountered by her staff. "We try to satisfy the file user as expeditiously as possible, but research subjects can be complicated and are hard to index and cross reference -- then the documents take time to locate."

Classified document control (secret and confidential restricted data) is another function of the Central File Section. Here again Mrs. Anderson could point with pride to a well-organized filing and retrieval system. "Our staff knows the security regulations," she said, "they are part of our initial training and we all keep current in this area. There are special procedures for handling, coding and maintaining separate files and records for materials in classified categories and we follow them."

Here, then, is where some of the words go -- "And, having writ, moves on..."



MAIL CALL . . . Ruthie White of Central Files begins the review of official correspondence as it arrives at the Center and prepares it for routing to appropriate organizations.



SOLVING A PROBLEM . . . takes team work as Catherine Garcia (left) and Sharon Costa (center) check official correspondence logs for a hard-to-identify file. Carol Anderson (right), Central Files Supervisor, is the hub of this operation where more than 200,000 peices of mail are handled each year.



TELEPHONE REQUESTS . . . for controlled documents are handled by Margaret Hines, shown here as she checks an index of classified receipts for a waiting customer. This is but one of the many functions in the classifying, cataloging, routing and sorting of high-priority correspondence received at the Center.



"AND, HAVING WRIT, MOVES ON" . . . leaving behind volumes of words and document-filled filing cabinets. Here, Sharon Costa (left) reviews with Carol Anderson, Central Files supervisor, input for the chronological files which surround them.

Ames Airings

... by Jeanne Richardson

Awright, no more stories about wind tunnels and phoney bombers.

One person, who wishes to remain anonymous, (Hint: he's got dart holes in his door) said that DORIS AVERY (Photo in May 18 Special Issue) should be identified with Stimulation Sciences instead of Simulation. Doris, on the other hand, thinks she should be identified with the Office of the Director of Aeronautics and Flight Systems, since that's where she's been working since February.

Did you know that the Theoretical Studies Branch got a new secretary? They had been minus for over a year, so the arrival of DONNA HIGGINS was a noteworthy occasion.

JIM HUNTER, Machine Shop, and his wife Virginia, and their two Samoyeds drove in a caravan to the AKC meet in Eureka recently. Then Jim and Virginia and their two Samoyeds drove home alone with their two first place ribbons.

Jim said the Pebble Beach meet on May 28 will also be a howling success.

Hand-holding has been going on in the dimly-lit corners of Ames' Stewart Hill Restaurant again. The Ameorous couple was CAROL WERNER of the Chief Counsel's Office and GERALD ERICKSON, also (aha!) of the Chief Counsel's Office. Deftly quelling all speculation as to the seriousness of the romance, they got married April 15 in Los Altos' St. Williams Catholic Church. Their two-week honeymoon trip included San Simeon and a visit with Carol's family in Pennsylvania.

ROGER ELY, Northrop Services Inc. with LTB, was presented with a pair of sons May 11. His wife, Charlene, who had a lot to do with the presentation, was in Good Samaritan Hospital at the time.

The boys are, Michael Allen (7lbs. 1 1/2 oz.) and Robert Erik (6 lbs. 2 oz.).

DAVID CROSS, who retired from Facilities Services about a year ago, is the grandfather.

Peter A. Bresler, son of Hans H. Bresler of the Ames Supply Branch, and Mrs. Bresler, will be graduated in June from the School of Medicine at the University of California, Los Angeles. The medical oath will be administered June 2 and then Mr. Bresler will go to Montreal, Canada, where he will begin his internship at the Jewish General Hospital which is affiliated with McGill University.



CHANGE OF COMMAND . . . in the Air Force Systems Command Liaison Office at Ames will take place June 1 when Lt. Col. Richard E. Kahler (left) takes over for Lt. Col. William H. Trammell (right), as Chief of the Office. Col. Trammell will be retired from the Air Force after 30 years of service at an official ceremony to be held in the Ames Auditorium on Wednesday, May 31, at 4 p.m. Ames employees are invited to attend this ceremony.

The new AFSC Liaison Officer, Col. Kahler, was rated as a pilot in June 1952 and has 4000 hours of flying time to his credit. He holds a master of science degree in nuclear engineering and recently completed a three-year tour of duty as Staff Safety Officer, Office of Safety and Reliability, Space Nuclear Systems Division, USAEC.

GOLF

... by Kay Bruck

The low-net individual score tournament at Spring Valley in Milpitas was played in four flights. The co-chairmen, John Mulkern and Ed Tischler, reported the following went home with gift certificates from the pro shop:

First Flight-1st place, John Mulkern; 2nd place, Ed Stepnoski; 3rd place, Jack Lee; 4th place, Bill Gideon.

Second Flight-1st place, Russ Cravens; 2nd place, Steve Hing; 3rd place, Vance Oyama; 4th place, Mitch Radovich.

Third Flight-1st place, Dick Johns, 2nd place, Clark White; 3rd place, Jack Shapira; 4th place, Ruth Richardson.

Fourth Flight-1st place, Elmer Hampel; 2nd place, Bill Sutton; 3rd place, Ray Forrest; 4th place, Kay Bruck.

The hole-in-one prize went to Bob Carlson. The next tournament will be at Pajaro, Watsonville, and starts the 1972 Ames Matchplay Tournament.

Anyone interested in golf vacation packages may contact Kay Bruck at ext. 5635, for further information.

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, N241-4, 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-1972 Opel G.T., Nice, good on gas. \$600 and take over payments. Home phone 489-2148.

For Sale-1962 Chevrolet pickup, 6 cyl. short wide bed, new engine, new transmission, excellent cond. Asking \$625. 243-8378.

For Sale-1966 Cutlass, 4-dr., P.S., P.B., 65,300 miles, new tires, good condition, \$800. Phone 967-6850 after five.

For Sale-1971 Datsun 510, two door, dk. green, r & h., new condition, Bob Pierce, 235-5207, \$1725.

For Sale-1965 Corvair Conv., floorstick, no R/H. Power-tran and brakes fine. \$225. Call Woeller at 732-5569.

HOUSING

For Rent-3 br., 2-bath, all furnished Eichler home in Palo Alto with a large family room A/E, Refrigerator, dishwasher, washing machine, almost new furniture, 2-car garage, all fenced yard, nice locality close to shopping centers and freeway. \$300 per month. Call 965-6278 or 321-1858.

For Sale-Berkeley flatlands, excellent condition, 2 large br., small dining room, utility rm., fence back yard, new roof, some small trees, detached 2 rm. studio used as workshop-study, interesting diversified neighborhood, asking \$21,950. Some appliances can be arranged. Fred Rossini 848-6651.

For Rent-Tahoe City cottage near lake and private beach area. Sleeps 6. Spring rate \$70/wk or \$30/wkend. 964-9848.

For Sale-Mariposa Land, fishing, hunting, good living. Two acres on year around Chowchilla Creek about 20 miles from Mariposa. Year around paved roads, water, electricity, at property. Paid \$6,500 two years ago will sell for \$7,000, \$2,500 down, \$54 per month. Take over loan. Owner out of state. Phone Gene Wells, 1-408-426-7974.

Wanted-2 or 3 bedroom furnished home or apartment convenient to ARC for any four week period commencing July 1, 1972 to August 31, 1972. George T. Lenehan, 964-2474.

For Rent-Cheerful cabin in Historic Donner Pass area. Many lakes and streams nearby. Surrounded by National Forest. All modern conveniences plus large deck, stone BBQ and canoe. Available by the week. Leo Poppoff, 323-2375.

For Sale-Home near Lockheed and Moffett Field, 2-bdrm, 2-bath, fireplace, culdesac lot with pool and large fish pond. Beautiful trees, orange, sil. dol. Eucalyptus, pine, etc. Large living and dining area, lighted aquarium. \$25,900. 739-4325 or 736-8590.

For Rent-Sparkling Cupertino Exec. 3-bdrm., 2-bath family rm., cptd. drps. Near Valico, \$260 per month. 253-3851.

MISCELLANEOUS

For Sale-Archery set, 45 lb. hunting/target bow (fiberglass-wood laminate, left-handed), arrows, bow and back quivers, armguard and shooting glove, and extra points and bow string. Excellent condition \$35. Call G. Mateer, 353-2357.

Carpool-I would like to join/form a small carpool from downtown Palo Alto. I live at High and Addison. Call me at 328-8537. Susan Post.

For Sale-Double pedestal desk with filing drawer and partitioned center drawer. Walnut color with wood grain. Formica never-mar top. \$45. Tel. 253-4475.

For Sale-Sony Stereo tape recorder with 2 microphones and extension speakers. Model TC-206. \$80. Four tapes included free. 253-4475.

For Sale-English Bulldog, AKC registered, female, 10-months, \$95. Tel. 253-4475.

For Sale-Male Chihuahua, 10-months-old, AKC. \$50. Ph. 374-7379.

For Sale-Intercontinental radio, 17 transistors, 5 bands, AFC, BFO, many other features. Little used, \$60 (new one costs over \$100), tap shoes size 6. Like new \$6. Call 321-1858 after 5 p.m.

Wanted-Room air conditioner, low capacity, 110 volt, good condition, essential. C. Castelland, 269-0475.

McClinton is Treasurer of Homeowners Group

Charles H. McClinton, General Accounting, was recently installed as treasurer of the Piedmont homeowner's association. The association coordinates community affairs for the Piedmont area of San Jose.

For Sale-Old Hotpoint, built in dishwasher, rebuilt pump and motor, runs fine, excellent for parts or vacation home. \$20. Dick Wood, 326-6951.

For Sale-One 5 gal. and two 10 gallon tropical fish aquariums, practically new, sold separately or together. Dick Wood, 326-6951.

Carpool-Share Ride, Scotts Valley to Ames, 7:30 a.m. to 4 p.m. Phone Gene Wells ext. 5636 or home 1-408-426-7974.

For Sale-Marine D.F. (direction finder) radio. June beacon, broadcast and marine bands. \$25. 253-4715.

For Sale-Two tickets to U.S. Open Championship for Sat., June 17 and Sunday, June 18, 1972. Also two tickets for Qualifying rounds June 12 and 13. Call 948-5250.

For Sale-Bar-b-que pot, large, green, oriental style, never used. \$30. Call 252-1229.

For Sale-Part ownership in Star-Craft recreational "pop-up" trailer complete with stove, sink, icebox, cabinets and closet, sleeps six, new condition, price negotiable, phone 253-4369.

For Sale-Girl's bike, in ok condition. \$10. 961-4182.

Wanted-Participate in ride group from Los Gatos. Contact Barbara Craven, ext. 5332.

Wanted-Peace and quiet. Will trade nearly new extractor exhaust system for 1968 Fiat 850 Spider, for a standard exhaust system in good condition. Call Lope, 964-7289.

For Sale-1965 Datsun Station Wagon, grey, excellent overall condition, 4 new tires, 36,500 miles, 2-owner, asking \$525, available in June, Fred Rossini, 848-6651.

For Sale-Standard Royal typewriter, good cond. \$30. Mr. Brooks, 356-9655.