

The Astrogram

VOLUME XX NUMBER 5

January 12, 1978

Outstanding 1977 Ames Achievements

AERONAUTICS

Space Shuttle tests

Space Shuttle tests accounted for about 25% of the CY 1977 Aerodynamics Division wind tunnel occupancy. Over the past five years, more than 12,000 hours of occupancy have been devoted to the Space Shuttle, which amounts to about 25% of the total shuttle wind tunnel test program.

A computer code has been developed for compressible, subsonic flow which permits investigating tunnel wall lift-interference for wind tunnels with non-homogenous porous or slotted boundaries. The code is being used to investigate the effects of model span, lift distribution, slot size, slot location, and pressure drop due to outflow.

An initial investigation to identify the aerodynamic interference between an advanced high speed ($M = 0.8$) turboprop and a supercritical wing has been successfully conducted. The results indicate that the interference should not be a limiting factor and furthermore, there exist a potential of recovering a major portion of the slipstream swirl to yield a net favorable interference.

Laser velocimetry and holographic interferometry have been used successfully to study quantitatively the transonic flow about a two-dimensional airfoil section. Measured results include the density and velocity fields (including flow angle) about the airfoil section and the turbulent shear distribution within the airfoil boundary layer and wake.

A large fraction of the drag and noise of a helicopter rotor system is caused by the shock waves formed in the transonic flow which exist in the tip region of the advancing blade. Analytical methods have been developed and applied to estimate the wave drag reduction afforded by modifying the outer 5% of the blade. At an advance ratio of 0.3, the advancing blade drag can be decreased by 10% by reducing airfoil thickness; 30° of sweepback at the tip will decrease drag by 16%.

Wing design

Wing design by numerical optimization has been clearly shown to be a useful tool for the design of advanced wings for both low speed and transonic applications. Several objective functions have been used successfully, e.g., shock drag minimization, induced drag minimization and pressure distribution development. The most successful has been the latter since pressure coefficient is the parameter which converges most rapidly in transonic codes. Such a method now gives the airplane designer a practical 3-D inverse code, i.e., the designer specifies the desired 3-D pressure distribution and the code finds the shape which will generate that distribution.

A laboratory investigation of cockpit instrumentation using electronic displays with touch-sensitive overlays has demonstrated that this type of technology can significantly simplify the interface between the pilot and advanced avionic system for General Aviation applications. Additionally, voice feedback using computer-generated voice has been found to be effective in alerting the pilot of erroneous data entry. These concepts will be flight-tested in the Cessna 402B during the early part of 1978.

MLS

Ames has played a very important role in the evaluation of the proposed National Microwave Landing System, an advanced electronic approach and landing aid for operation of aircraft in terminal areas. The following prototype Microwave Landing System (MLS) activities were successfully completed at Crows Landing during 1977: Testing included 50 flight test hours utilizing the DHC-6 aircraft; and approximately 25 hrs. utilizing the Navy F-4. United Kingdom and U.S.S.R. delegations visited Crows Landing for MLS demonstrations and discussions.

RLG Tetrad

The RLG Tetrad, a new type of strapdown inertial sensor system was flight-tested in an Ames helicopter for about 25 flight hours. This was the first time that a strapdown inertial navigation system was successfully operated in a helicopter high-vibration environment. The system demonstrated an excellent

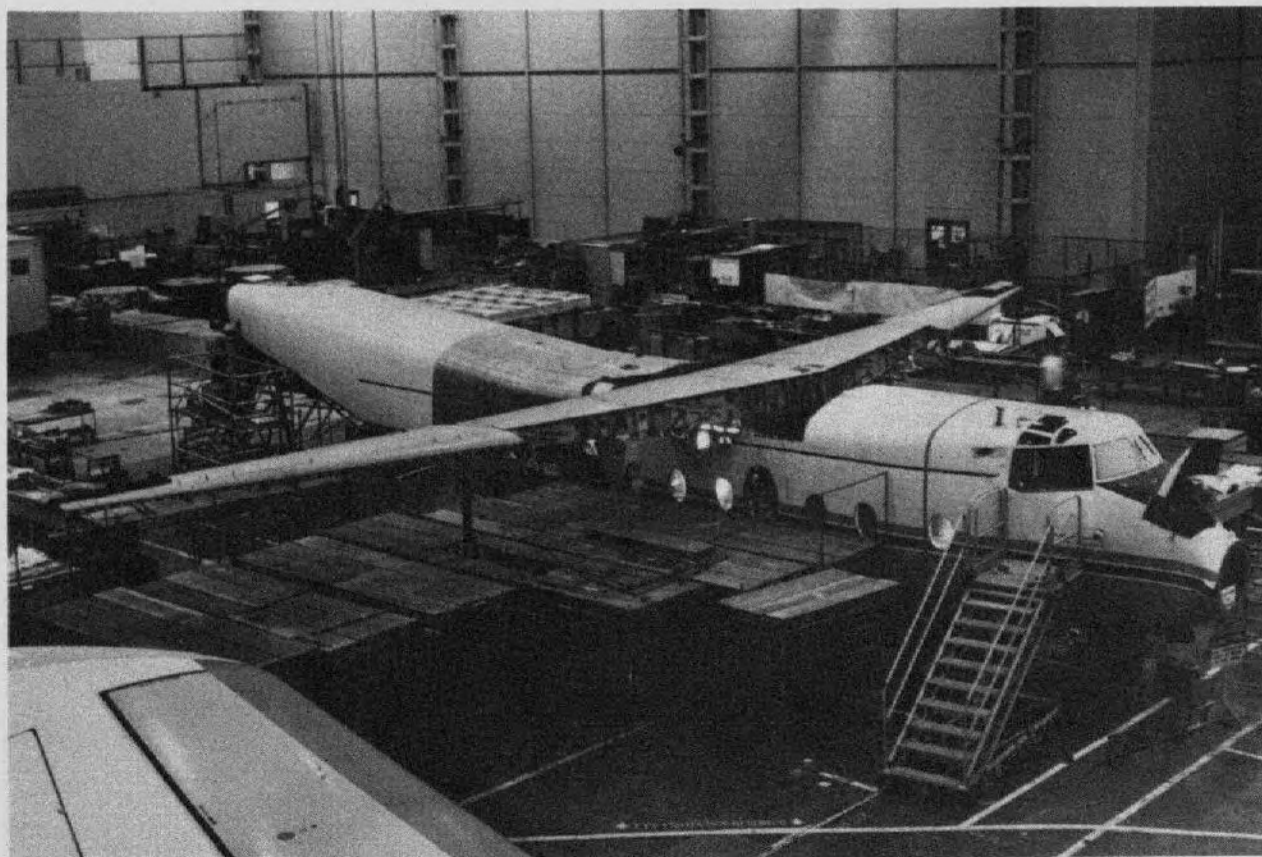
navigational ability, requiring only a few minutes of warm-up and alignment time prior to takeoff.

For the first time simulators at Ames and FAA's National Aviation Facilities Experimental Center (NAFEC) in Atlantic City, N.J., jointly participated in an experiment to evaluate several terminal area operational techniques for fuel conservation. In the experiment, two piloted simulators at Ames were flown simultaneously with an elaborate air traffic control simulation at NAFEC by means of a transcontinental voice and data link. The experiment verified the fuel savings potential of the new procedures under typical high-density air traffic conditions.

F-16 fighter

The forebody of an F-16 fighter, with human occupants in the cockpit, was tested in the Ames 40-by 80-Foot Wind Tunnel to determine the tolerance of the occupants to the loss of the canopy. Spoilers were devised to provide adequate protection for the pilot to return the aircraft to base and to land.

A major milestone for the Quiet Short Haul Research Aircraft Projects was achieved when the new wing was mated with the C-8A fuselage at the Boeing Company's Seattle Development Test Center. The event occurred on schedule, September 29, 1977. (see photo below)



The effect of velocity on jet noise was studied in the Ames 40- by 80-Foot Wind Tunnel during three separate tests. Included in the tests were measurements of velocity effects with several jet noise suppressors. Results of these studies will make a significant contribution to the prediction of the effect of velocity on jet noise.

Short Haul symposium

Symposium on Short Haul, Small Community Air Service. Interest in the technology area of short haul, small community air service has been building, and on November 9 and 10, 1977, NASA Ames Research Center hosted a well-attended symposium which provided a stimulating exchange of ideas from throughout the government, the academic community, and industry. The symposium included presentations on current airline service and future prospects, aircraft design and operating system requirements, technology opportunities, and related NASA research programs. The symposium culminated in a panel discussion headed by Mr. C. A. Syvertson; it addressed the technology needs and potential benefits for future small transport aircraft, particularly with regard to the proper direction for a NASA R&T program.

LIFE SCIENCES

Significant progress has been made in bringing selected bioinstrumentation items to the bedside. A NASA-developed biotelemetry system is being applied to the problem of accurately monitoring intracranial pressure in neurosurgical patients. Equipment has been designed and successfully tested in animal models preparatory to their utilization in man to monitor progress in head accidents victims or subjects with intracranial disease.

A special cooling suit and temperature control unit based on technology developed for advanced space-suits were built at Ames and delivered to the Crippled Children's Center, Toronto, Canada, for use by a 15-year-old girl with "Burning Limb Syndrome." She experiences continuous pain in her legs, and previous cooling techniques were not satisfactory. The Ames suit was found to be an effective method of treating the symptoms of this condition.

Removal of the adrenal gland of rats led to increased sensitivity to pain and removal of the pituitary gland led to decreased sensitivity to pain. These results parallel observations in humans in whom primary adrenocortical insufficiency results in increased sensitivity to noise, smell and taste whereas removal of the pituitary gland in terminal cancer patients abolishes the intractable pain. These findings suggest that a pituitary factor such as ACTH (the primary stress hormone) or a related peptide, is involved in mediating pain sensitivity and sensory thresholds.

Biofeedback training

Human research studies suggest that biofeedback training, previously found useful for increasing resistance to motion sickness induced by Coriolis accelerations, may be effective in overcoming sickness produced by oscillatory linear motions. This training technique is a candidate for testing in Shuttle OFT flights to determine its value for eliminating or reducing space motion sickness.

Extensive support for the theory of chemical evolution was obtained in experiments designed to probe the interaction of amino acids and metallic clays. These clays were shown to concentrate the amino acids. In addition, the nickel clay appears to selectively concentrate some protein amino acids and discriminate against the absorption of certain non-protein amino acids. A cycling procedure involving both drying and warming of the clays was used to simulate a tidal environment of the primitive earth.

An advanced high-pressure (8 PSI) space suit, which demonstrates excellent whole-body mobility, low torque joints, and low leakage rates, has been developed. A sizing scheme was also developed to provide "quick change" capability in suit sizing and configuration. This new suit technology allows for significant increase in EVA performance.

An Ames research team demonstrated how classical psychophysical measurements can aid in the quantification of realism of visual simulators. In the real world, humans typically overestimate angular-size as an increasing function of object distance. Using this information, the researchers incorporated a visual angular-size judgment task in a simulated landing scene display, and for the first time quantitatively proved that collimated simulator viewing is about twice as effective as uncollimated viewing.

An improved version of the biological preamplifier to be used in the Vestibular Function Research Project (VFR) aboard Spacelab III was developed in-house. The experimental specimens will be bullfrogs, instrumented to record nerve responses directly. The new preamplifier's volume was reduced by a factor of 20 using up-to-date electronic devices, permitting it to be mounted in close proximity to the microelectrode implanted in a vestibular neuron, thus improving the quality of the recorded biological data. In addition, an improved technique was developed for fabricating the microelectrode element. (see photo below)

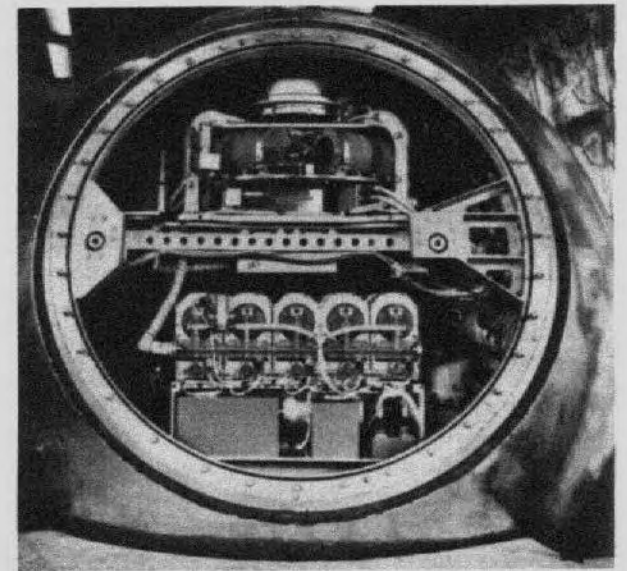
Experiments by Ames researchers at the Lawrence Berkeley Radiation Laboratory, designed to determine the biological hazards of space radiation, found that head-only exposure to pocket mice, gerbils and C57B1 mice, to neon irradiation results in detectable brain damage 4-5 weeks post exposure.

At equivalent exposures, argon irradiation resulted in the same brain damage as neon; however, scalp damage was much greater with argon. In irradiated *Drosophila melanogaster*, krypton was shown to be much more damaging to nerve cells than argon.

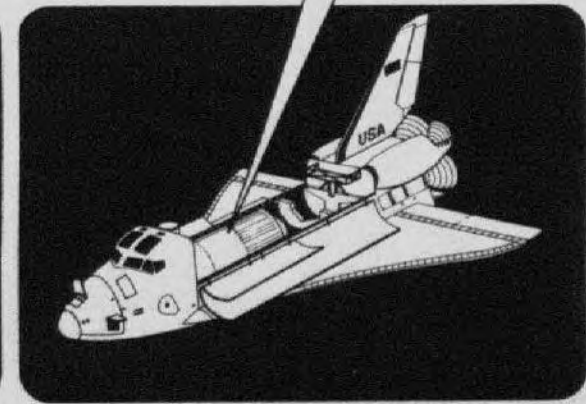
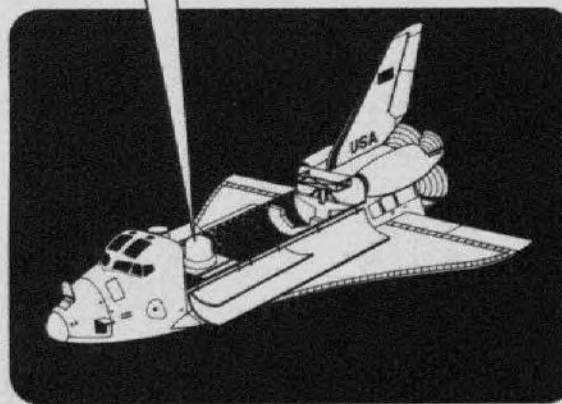
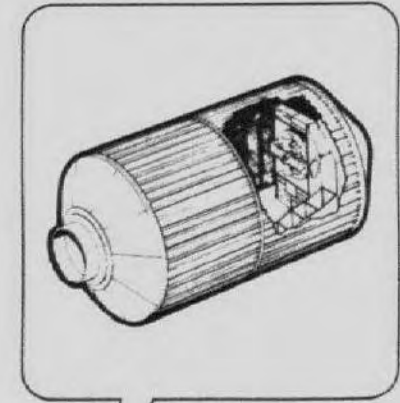
7 experiments aboard Kosmos 936

On August 3, 1977, the Soviet Biological Satellite, Kosmos 936, was launched. It carried approximately 80 investigations from 9 countries, including 7 U.S. experiments managed by Ames. Biological specimens included rats, fruit flies, and higher and lower plants. After 18.5 days in orbit, the satellite was brought back and recovered in Central Asia. Soviet specialists performed initial experimental operations and provided U.S. scientists with specimens from flight and control groups of animals.

Kosmos 936 was the second Soviet satellite to carry U.S. biological experiments into space and the first mission ever to subject higher animals to artificial gravity during spaceflight. Two centrifuges each containing 5 rats exposed the animals to a centrifugal force equivalent to earth gravity during the flight, in an attempt to offset the adverse effects of weightlessness on the musculo-skeletal and erythropoietic systems.



Interior view of Kosmos 936 Spacecraft mockup showing a rat centrifuge above a 5-cage rat holding unit.



Fruit flies and weightlessness

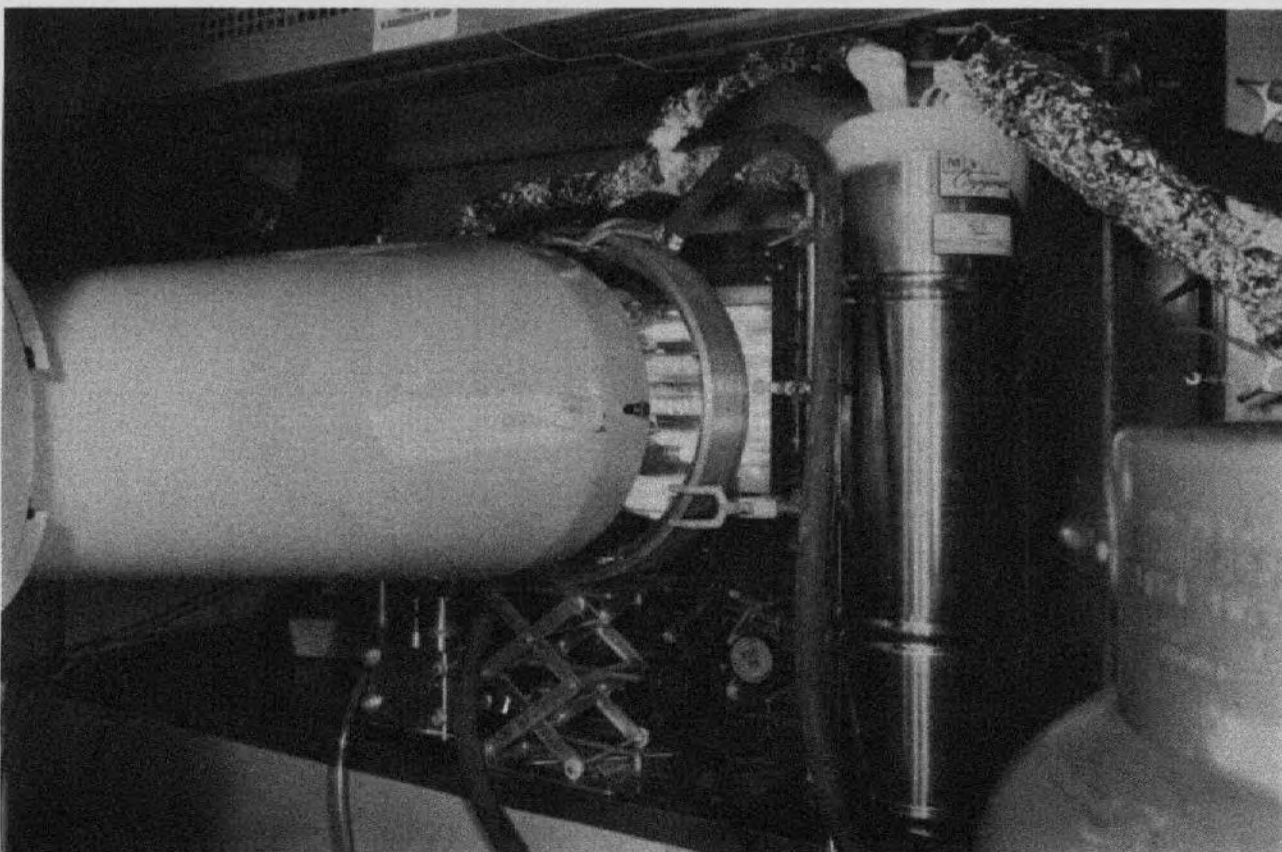
The life span of fruit flies was found to be shortened by exposure to 18.5 days of weightlessness. The life span of red blood cells of rats also decreased significantly. Bone formation in rats was arrested. Centrifugation increased bone strength and reduced the effects of weightlessness on red blood cell life span. Bone formation rate was not affected. Other Ames experiments are still under analysis.

Construction and testing of the flight Pioneer Venus Gas Chromatograph at TRW Systems has been completed and subsequently delivered to Hughes Aircraft Corporation for integration into the spacecraft. This device, developed by the Planetary Exploration Office, can measure some 30 constituents of the Venusian atmosphere at sensitivities down to the ppm range.

A multichannel telemetry unit was developed which transmits sixteen channels of physiological data (EKG, EMG, respiration, several body temperatures, and brain temperature). The entire unit is attached to an indwelling skull plug during the experiments. This device transmits all data (wireless) on the FM band and permits tests on unrestrained small animals.

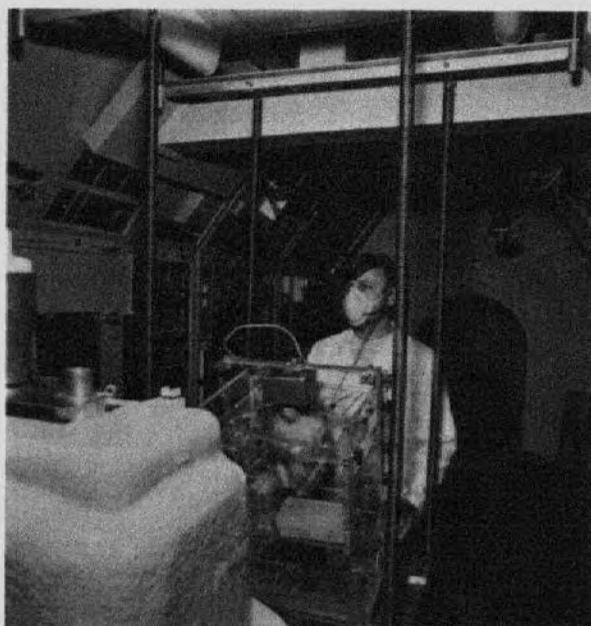
An extremely thin, lightweight polymeric film was developed for the solar sail project. The solar sail concept is for propulsion of spacecraft within the solar system by utilizing the light pressure of the sun on the sail. This film development utilized an oxygen glow discharge (plasma) to produce an ultrathin plastic film from much thicker commercial stock.

A facility for intense ultraviolet radiation of soil and mineral samples, while maintaining them at extremely low temperatures, has been completed. This facility is being used to radiate samples for Ames and other Viking investigators in their attempts to explain some of the results obtained by the Viking instrument on Mars. (see photo below)



SMD III

In May 1977, teams of scientists, engineers, and technicians from ARC and JSC successfully completed the Spacelab Mission Development Test III (SMD III) for the NASA Life Science Program. SMD III authentically simulated a complete Spacelab mission involving a combined payload of human and animal experiments. Along with the three-man crew, the flight manifest included 4 monkeys, 96 rats, 25 mice, 6 frogs, and 200 drosophila for the seven-day, closed-door simulation at JSC. Members of the Ames team were honored with a NASA Group Achievement Award presented by Dr. Frosch on December 9, 1977.



SETI

The report of the conclusions reached by a series of Science Workshops on the Search for Extraterrestrial Intelligence (SETI) held at Ames in 1975 and 1976, was issued (NASA SP-419). The report recommends the initiation of a SETI program now, using existing radiotelescopes and sophisticated multichannel spectrum analyzers; and with two approaches, a high sensitivity targeted search, and a broad frequency all sky survey. The Ames SETI Program Team is pursuing the targeting search, while a JPL SETI Team will carry out the sky survey. In 1977, Ames sponsored two preliminary targeted searches, one at the Arecibo Observatory, and one at the National Radio Astronomy Observatory.

ASTRONAUTICS

Many electronic properties of diatomic and triatomic molecules can now be accurately computed using advanced methods of computational chemistry, thereby complementing and in certain instances replacing the need for laboratory measurements.

SOLARES

A new space energy system (SOLARES), consisting of orbiting mirrors which provide continuous solar energy to ground conversion sites has been devised. Early conclusions indicate that it could supply the entire energy needs of the World with energy costs competitive with current fossil and nuclear sources.

The first stable operation of a mechanical Stirling engine powered by laser radiation was demonstrated.

The Flight Simulator for Advanced Aircraft (FSAA) and the Helicopter Simulator (S-19) have been used to investigate Nap-of-the-Earth helicopter flying. The effects of rotor system design parameters and stabilization and command augmentation systems on the flying qualities of helicopters were investigated. The results of these tests were reported at the 1977 Annual Forum of the American Helicopter Society.

The Flight Simulator for Advanced Aircraft has been used for studies of the Space Shuttle Vehicle. These studies involved the flying qualities and control system characteristics of the SSV in preparation for the flights launched from the Boeing 747 to the lake bed at Edwards Air Force Base.

A new thermoelectric laser energy converter was given proof-of-concept tests in the Ames Gas Dynamics Lasers facility.

The first successful operation of a pulser-sustainer discharge supersonic carbon monoxide laser was made at Ames, showing present efficiency of 10% in a quasi-cw mode.

In the laser space applications area, the Materials and Physical Sciences Branch was the first to determine the energy threshold phenomenon in laser-induced collisionless dissociation and to model correctly coherent excited state population in the process.

Computer codes which solve the complete coupled viscous and inviscid flow over bodies traveling at supersonic speeds have been applied to spinning projectiles, resulting in a better understanding of these flows. Aerodynamic effects, not previously obtained with the standard viscous-inviscid interaction methods, have been discovered.

For the first time, the complete viscous flow over a delta wing traveling at low supersonic Mach numbers has been computed. In the standard theories, the viscous flow was assumed to "separate" from the leading edge (Kutta condition), which behaves like a subsonic flow when the flight velocity is slightly supersonic. The present work verifies the older theory by direct computation.

Real-time velocity measurements in the unsteady, periodic, transonic flow field about an airfoil have been made for the first time by conditionally sampling the results of a two-color laser velocimeter relative to the initial use of a simultaneously recorded signal from a pressure transducer flush-mounted at the airfoil midcord. Similar results previously obtained from a numerical solution of the time-dependent Navier-Stokes equations were found to qualitatively reproduce the experimental flow-field features.

Models of turbulence of increasing sophistication have been developed that are inherently suitable for use in separated flows of compressible fluids. The degree of sophistication required for different classes of flows is currently under investigation.

Preliminary studies were completed by Burroughs and Control Data Corporations for a Numerical Aerodynamic Simulation Facility that will provide computer simulation of aerodynamics phenomena at processing speeds two to three orders of magnitude faster than possible now with general purpose computers. Baseline configurations have been defined to meet the performance requirements with the facility proposed to be operational at Ames in the early 1980's.

The Workshop on Future Computer Requirements for Computational Aerodynamics was sponsored by Ames to relate the needs of computational aerodynamics to the projected capabilities of general and special purpose computers of the early 1980's. Over 250 computational aerodynamicists and computer scientists representing the computer and aerospace industries, universities, and governmental agencies participated in the Workshop.

3-dimensional computer solutions

Three-dimensional computer solutions of the Navier-Stokes equations have been obtained for supersonic turbulent flow over a compression corner with a sidewall. Good agreement has been obtained with experimental measurements of the shock-wave/boundary-layer interaction effects.

A new implicit algorithm has been developed to solve the conservative, full potential equation for the transonic flow about an arbitrary airfoil. The finite-difference mesh is aligned with the airfoil surface and is generated numerically using a fully implicit algorithm. The new algorithm represents a significant increase in computational efficiency over the standard relaxation procedures.

The new Giant Planet Pilot Facility for simulating Jovian entry heating conditions has been run at power levels as high as 60 MW. Calibration tests, as well as preliminary ablation tests on candidate heat shield materials for the Jovian Entry Probe, have been performed in the facility.

Ames developed, high-temperature silica Reusable Surface Insulation (RSI) was adopted for use by the Space Shuttle program for certain areas of the Space Shuttle Orbiter heat shield that require its higher strength and higher temperature capability. Lockheed won the contract to manufacture the material.

The highest sensitivity and resolution SETI (Search for Extraterrestrial Intelligence) observations ever performed were conducted using the 300' diameter radio telescope of the National Radio Astronomy Observatory. Over 200 nearby stars were searched. The data are currently being analyzed.

Numerical studies of the dynamics of a model spherical solar wind have been completed. It has been found that either an external heating mechanism or a strong magnetic "nozzling" effect near the sun is required to account for the commonly observed high (700 km/sec) solar wind speeds.

A new model of the expansion of the universe, based on the general theory of relativity and the hypothesis that the universe possesses a net electric charge, has been developed. The predictions of this theory are in accord with current data on the expansion and age of the universe.

Mars surface penetrators

A series of surface penetrators, now being considered for future missions to Mars, successfully impacted 30 ft deep into wind deposited Loess sediments at McCook, Nebraska, and 4 ft deep into lava flows (Basalt) at Amboy Crater, California. Penetrators carry a complement of geophysical and geochemical experiments each of which must withstand very high g loads (i.e., 2,000-20,000 g's) upon impact.

The Pioneer 10 Plasma Analyzer is continuing its measurements of the solar wind out to 14.5 astronomical units (1,350,000,000 miles from the sun) as of December 1977.

The first numerical study of a dynamical evolution of a collapsing, magnetized interstellar cloud has been carried out and has revealed an important relationship between the strength of the magnetic field and the gas density at the center of clouds.

Fully three-dimensional n-body simulations of galaxy formation and evolution have been performed on the Illiac computer. Experiments dealing with the initial stages of galaxy formation indicate that elliptical galaxies may in fact be prolate or football shaped objects.

U-2 obtains aerosol samples

Researchers at Ames, using U-2 aircraft to obtain aerosol samples, have discovered that sea salt products and probably other low-altitude pollutants are rising as high as the stratosphere. They also have, for the first time, found crystals of a nitrogen-sulfur compound that suggest aerosols may play a role in the important nitrogen oxide chemistry in the stratosphere.

In a study conducted by physicists from the Lawrence Berkeley Laboratory, the motion of the earth with respect to distant matter of the Universe was measured by a sensor flown on the U-2 aircraft. Results of this experiment may help answer questions concerning the origin of the Universe.

Star MWC 349

In collaboration with astronomers from the University of Arizona, Ames scientists discovered a

luminous disc around the star MWC 349 in the constellation Cygnus. This is the first disk of this kind ever detected, and planets may well be forming from the material in the disk. (see photo)

New predictions of latitudinal variations of stratospheric ozone depletions by space shuttle operations show that the depletions are not likely to be markedly more severe over the launch site than at other latitudes. Similar calculations of the effects of chlorofluoromethanes show significant seasonal effects on the latitudinal variations of ozone depletions.

A stratospheric aerosol model was successfully developed and used to assess the potential effects on stratospheric temperatures of volcanic eruptions. It was found that current trends in global temperatures are more likely due to decreased volcanic activity than to heating by carbon dioxide; however, carbon dioxide heating will become dominant in the future. Calculations also show that the climatic effects of aerosols generated by projected aerospace operations will be insignificant.

Data on the atmosphere of Mars, obtained by Ames investigators during entry of the two Viking landers, were analyzed to define profiles of temperature, pressure, and density from an altitude of 120 km (75 miles) to touchdown on the planet surface, disclosing that Mars' atmosphere is in large scale sloshing motion, associated with diurnal gravity waves.

In July 1977, the Ames U-2 and Lear Jet were deployed to the Panama Canal to perform a 16-day study of atmospheric motions in the meteorologically active Intertropical Convergence Zone (ITCZ). A group of NASA and university scientists performed some twelve experiments carried by the aircraft as well as by balloons and rockets. The new observations lend support to the theory that the major movement of tropospheric pollutants into the stratosphere, such as the halocarbons (Freons), is due to the strong vertical air movements associated with the ITCZ.

U-2 aircraft operations were conducted in Alaska and the Panama Canal Zone during June and July to collect data for stratospheric research. A continuing probe of the effects of pollution on the ozone layer is being made by Ames investigators and scientists. Extensive photography was also taken in Alaska for land management applications.



ASSESS II

The ASSESS II project was a detailed simulation of Spacelab operations using the Ames Research Center CV-990 aircraft laboratory, Galileo II, to represent the Shuttle/Spacelab with a complex payload of science experiments from the U.S. and European laboratories. The cooperative NASA/ESA project culminated in a 10-day flight mission in May 1977, in which trained payload specialists operated experiments and lived in confined quarters much as will be done on Space Shuttle in the 1980's. Spacelab management teams from MSFC, KSC, and JSC worked closely with the ARC Medium Altitude Missions Branch and the ESA/SPICE organization to implement those tasks — payload development, launch site processing, and flight operations — which are their areas of responsibility in Spacelab.

Ames Research Center was represented at the Paris Air Show from June 2 to June 12, 1977, by the Galileo II aircraft laboratory with the ASSESS II payload of scientific instruments consisting of five American and five European experiments, the latter from Germany, France, England, The Netherlands, and Italy. By invitation from the European Space Agency (ESA) who participated in the ASSESS II Spacelab simulation mission, the CV-990 was a walk-on display at the Salon du Bourget, so immensely popular that over 80,000 persons were accommodated by Ames, Northrop Services, and experimenter personnel on hand for the show and for the following series of science flights over Europe.

Rings of Uranus discovery for which Dr. James Elliot received the NASA Medal for Exceptional Scientific Achievement in recognition of his innovative use of the KAO.

Project Porcupine

Project Porcupine — Lear Jet 705, based in Athens, Greece, obtained low-light-level photographs of a rocket-released barium ion cloud "trapped" in the earth's magnetic field lines.

The Western Regional Applicants Program came into being in 1977. This program extends the concepts of user-driven transfer of Landsat technology to agencies in the 14 Western States, including Hawaii and Alaska. Activities are in progress at this time in Arizona, California, Colorado, North Dakota, Montana, and Hawaii.

During the California forest fire season, several flights were made by the U-2 aircraft to support fire fighters to pinpoint "hot spots" and potential trouble areas. Areas covered included Santa Barbara, Big Sur, Mt. Shasta, and Mt. Diablo. Post-fire damage assessment flights were also made at the request of Federal and State agencies.

A minicomputer based data acquisition and display package has been developed for the analysis of unsteady aerodynamic phenomena. The system displays the experimental data on-line with selected overlays of theoretical and/or other experimental data which are obtained from the computer's data bank.

A successful deployment to Boise, Idaho, was made in February to underfly a balloon flight experiment conducted by Canadian Atmospheric Service (AES) to Cold Lake, Canada. The data gathered by the Stratospheric Air Sampler II (SAS II) were utilized to compliment the atmospheric measurements acquired with the AES flight.

InterTropical Convergence Zone Expedition — Lear Jet 705 and the NASA U-2 were based in the Panama Canal Zone and collected atmospheric aerosols in the InterTropical Convergence Zone to support studies of circulation of these substances.

Lear Jet 701 was based at Patrick Air Force Base, Florida, to obtain measurements of lightning activity for the Space Shuttle program.

Measurements aboard the KAO indicate the presence of a significant diurnal variation of H₂O in the upper mesosphere; these are first measurements of mesospheric H₂O.

AVRADCOM

Yo-3A acquired

The YO-3A "quiet" aircraft was acquired by NASA-Ames to be utilized for in-flight acoustic measurements on test V/STOL aircraft including helicopters. The YO-3A will be instrumented with microphones, monitoring, and recording equipment as well as an accurate in-flight, station-keeping system. By flying helicopters and other V/STOL aircraft in a station-keeping mode at chosen spatial positions with respect to the YO-3A, high-quality stationary acoustic data can be obtained. This in-flight technique, which was pioneered by the Aeromechanics Laboratory of AVRADCOM, is an excellent method of gathering the highly directional acoustic data of rotary-wing aircraft.

RESEARCH SUPPORT

A new biotelemetry system for implantation in rats and other small animals has been successfully developed and used. Energy for the system is provided by induction, thereby eliminating unreliable batteries.

Engineering support for the implementation of a number of experiments for SMD-III (Space Mission Development) was provided.

Engineering support to build, operate, and record data from a new, advanced laser-doppler velocimeter and data processor was provided to the Experimental Fluid Dynamics Branch. This equipment was used to provide experimental verification of a technical breakthrough, a computer-predicted phenomenon in unsteady flow about an airfoil.

A do-it-yourself handbook for the design of electrical filters was published.

A basic system for rapid scanning and readout of up to 1000 pressure transducers mounted in wind tunnel models was designed, assembled and tested.

Ames demonstrated extra-cavity CW Coherent Anti-Stokes Raman scattering in nitrogen. This phenomenon may be used to measure fundamental parameters of airflow in wind tunnels.

A new alignment-tolerant principle for Schlierin and shadowgraph devices was demonstrated and installed in an operating system. This technique eliminates the need for rigid coupling of mirrors or optical elements on two sides of a fluid flow under investigation.

Instrumentation for documenting the flow in the Giant Planet Pilot Facility and High-Enthalpy Entry Facility was designed, built and tested in the GPPF.

The Vertical Motion Simulator Mode Control System was designed, built, and tested.

A new model Ultrasonoscope, capable of yielding two-dimensional cross sections of the heart was developed.

The Institute for Advanced Computation has been engaged in a successful effort to make its unique computational resources available to those segments of the Federal Government which might best benefit from the application of these resources to problems of national interest. Several cooperative projects have been undertaken with various elements of the Government including the Army, the Navy, the Air Force, the Department of Agriculture, the United States Geological Survey, the Food and Drug Administration, the Defense Mapping Agency, and several NASA organizations external to the Ames Research Center.

The circuitry to support ILLIAC control unit and processing element execution overlap has been implemented. This overlap capability allows the ILLIAC to achieve its maximum computational speed of up to 310 million instructions per second.

ILLIAC transfers 800,000 bits per sec

A high-speed digital communication link between the ILLIAC and a remote computer facility has been implemented and used routinely at transfer rates in excess of 800,000 bits per second, with mean time between failures of better than 4 hours.

The two-dimensional oscillating airfoil apparatus has successfully been tested in a static test stand and is currently being installed in the Ames 11-Foot Wind Tunnel.

The Ames 12-Foot Wind Tunnel has been successfully hydro-tested and recertified for continued use.

40' x 80' modification contracts

Under the Modification of 40- x 80-Foot Subsonic Wind Tunnel Project, contracts have been awarded totaling \$12 million for the following major "Repowering" effort. The contracts include furnishing motors, variable pitch hubs, and fan blades.

Former Aerospace contractor employees

Under existing law (Sec. 7, Public Law 91-303 (84 STAT. 372)), NASA employees formerly employed by certain aerospace contractors are required to submit a report, containing information specified in the Statute. Personnel who were formerly employed by any of the aerospace companies listed below are required to file such a report by February 15, 1978, if they also meet the following criteria (for list, see Ames bulletin boards or call Records and Reports, X5610):

1. Employment with the listed aerospace contractor terminated on or after October 1, 1973; and
2. Salary rate during employment with the listed aerospace contractor was \$15,000 per annum or more; and
3. NASA salary rate at any time during the period October 1, 1976 through September 30, 1977 was equal to or greater than GS-13.

More detailed information on filing may be found in NMI 3309.1A dated December 8, 1976. Additional information and NASA forms 1480 may be obtained from and should be returned to the Records and Report Branch, Mail Stop 241-5.

Failure to file report is punishable by a maximum of six months imprisonment or a fine of not more than \$1,000, or both.

Ames Promotion Plan vacancies

Notice No.	Title	Grade	Org.	Area of Consideration	Closing Date
78-43	Aerospace Engineer	GS-12/13	LB	Centerwide	1-20-78
78-47	Electronics Tech	GS-7/9	FOS	Centerwide and outside	2-17-78
78-48	Procurement Clerk (Typing) or Clerk Typist	GS-4/5 or GS-3/4	ASL	Centerwide and outside	1-23-78
78-49	Secretary (Stenography) or Administrative Assistant (Stenography)	GS-6/7	L	Centerwide	1-25-78
78-50	Secretary (Typing)	GS-4/5	LM	Centerwide and outside	1-25-78
78-51	Aircraft Mechanic	WG-8/10/11	FOS	Centerwide and outside	1-30-78

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

MERIT PROMOTION PLAN SELECTIONS

Notice No.	Title	Org.	Name
78-2	Assistant Chief Man-Vehicle Systems Research Division (Operations)	LM	Frederick Styles
78-13	Secretary (Typing)	LM	Priscilla Gominak
78-14	Administrative Specialist	FL	Genelle Deverall
78-30	Secretary (Typing)	RKS	Cancel
78-35	Procurement Clerk (Typing)	ASB	Stefani Box (Outside Candidate)

Want ads

Transportation

FOR SALE: 1972 Honda 750, original owner, good condition, 5500 miles, fairing, crash bar, luggage rack, etc. \$1250. Call 379-2385 after 5 p.m.

FOR SALE: 1971 Datsun - good work car or first car. Runs and looks great. Going abroad and must sell. Call 296-4577 after 5 p.m.

FOR SALE: 1966 Dodge station wagon in good condition. \$550. Call 484-8145.

FOR SALE: 1961 Ford Panel Truck. Rebuilt engine, new radiator, fresh paint, good tires, carpeted interior, reclining seats. \$1200. Call 246-9311.

FOR SALE: 1972 Toyota Corona, 4-dr, AT, AC, 31 K miles, \$1200. Call (408)353-2357.

Housing

FOR SALE: Greenhouse in Palo Alto. Three bedrooms, two baths, covered balcony, carpets, drapes, blinds, all appliances, pool, clubhouse, gardens, private garage and exterior storage. \$85,000. Call 493-8248.

Miscellaneous

FOR SALE: Mini two-wheeler Schwinn with training wheels, ages 3-5. \$20. Call 241-5503 evenings.

FOR SALE: Tire chains, two sets, \$12/each, (1) fits 7.50-14, D70-14, E70-14, 7.35-15, 185R15, (2) fits 6.70-15, 7.75-14, 7.75-15, 7.50-14, 195R14, 195R15, E70-15. Call 241-5503 evenings.

FOR SALE: Child's bike seat - mounts above rear fender of standard bike, \$10. Call 241-5503 evenings.

FOR SALE: Sofa bed purchased one year ago, like new. Original cost \$345, selling for \$150. Call 245-8325 after 6 p.m.

FOR SALE: Women's ice skates, white, size 6, with guards, excellent condition, \$14. Call 323-7070.

FOR SALE: Child's hobby horse, tricycle, zoom-zoom, wagon, size 1 shoe roller skates, infant car seat. Call 736-6947 after 5 p.m.

RACKETBALL - The ARA has obtained a 50% discount at Wallbangers Racketball Club. Anyone desiring information should contact Herb Finger X6598.

CAR POOL - Space available in an established car pool from Williams Road/San Tomas Area. Must be willing to listen to puns to and from work. Herb Finger X6598 or Jim Connolly X6609.

Female coop student wishes to share apartment with another female - begin 2/6/78. Please write or phone 216 George Washington Way, Richland, Wash., (509)943-4345. Ask for Jean.

Leave periods

Because of the particular beginning and ending dates of the 1978 leave year, there will be 27 leave periods instead of the usual 26 leave periods.

Permanent full-time employees will be advanced annual leave as follows:

Years of Service	Hours Advanced
0 - 3	108
3 - 15	166
15 or more	216

All employees in a pay status for the entire 1978 leave year will accrue 108 hours of sick leave.

Jetsetter's Club

Mediterranean, Playa Blanca, Mexico Trip - April 23-30, 1978 (1 week, Sunday to Sunday) \$507 per person - all inclusive. Contact Linda Atwood or Eddit Rosenstiel at Bulanti Travel (415)369-1711 for details. Deposit due immediately.

Summer Hires

The new summer hiring procedures, as outlined in the last Astrogram, precludes ARC hiring of sons or daughters of Ames civil service employees (clericals are an exception). The Ames Personnel Office encourages employees to have their children apply with other government agencies for summer college employment.

If you have questions concerning the summer hiring procedures, please call Marilyn Garis at extension 5617.

Dental plan

The open enrollment period for the Ames dental plan is from January 1-February 15 for a March 1st effective date. All people renewing their dental policy should reenroll. There will be a meeting with dental representative Dan Stark on January 18 at noontime in Room 147, Bldg. 241. Come if you have any questions.

Thank you

To all those good friends who marked the occasion of my retirement with gifts, champagne, and good wishes, my sincere thanks.

Jim Silver

Many thanks

On the occasion of my retirement at the end of 1977, I take this opportunity and format to express my appreciation and thanks to all of you for your help and assistance over the years in the programs in which I have been involved. To my regret, they have not always been popular ones, but things that needed to be done, whatever our feelings. For the most part, I feel we brought them off rather well and for that I am grateful.

To the wonderful people who worked with me in Supply, Property and Communications over the years, and who gave me such a great surprise going away party, my undying affection and, again, many thanks. It's been fun.

Karrell Reynolds

The Astrogram

Admin. Mgt. Building, Phone 965-5422

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

Editor Meredith Moore
Associate Editor Marcia Kadota
Reporters NASA Employees

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

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The Astrogram

VOLUME XX NUMBER 6

January 26, 1978

Microwave Landing System (MLS) prototype is tested

A prototype Microwave Landing System (MLS), provided to Ames by the FAA as part of a joint FAA/NASA letter of agreement, has been the subject of intensive testing and international interest since installation and acceptance tests were completed by a team of Ames, FAA, and contractor personnel in December 1976 (reported in the Astrogram, 12/30/76). Since the initial reporting, the following events have occurred:

14 October-15 November 1977. Final angle system optimization adjustments were performed in real time by the joint team utilizing the Ames STOL-1 DHC-6 aircraft and the real-time data acquisition facilitator at Crows Landing. A precision-modified L-Bord DME was added to the angle MLS providing better than 50-ft range accuracy.

7-8 November 1977. Representatives of the United Kingdom Plessey Company and Mr. Seymour

Everett of the FAA Approach and Landing Division visited Ames to review the MLS static and flight test data. As requested by the FAA, Ames personnel from the Avionics Systems Branch provided all the Crows Landing prototype MLS test data and described the data acquisition/processing techniques and formats used.

10-11 November 1977. Five FAA Headquarters personnel and six USSR visitors representing the Ministry of Civil Aviation, the Radio Research Institute, and the Institute of Flight Research toured the MLS installation at Crows Landing and witnessed a demonstration of real-time radar tracking/data processing for a MLS flight test using the Ames DHC-6 aircraft. The second day was devoted to briefings of Ames MLS R&D efforts such as MLS accuracy requirements, multipath effect

simulations, and the low-cost MLS airborne receiver development program.

17 November-14 December 1977. An 11-member Navy MLS test team from the Patuxent River Naval Air Test Center conducted extensive F4J flight tests using the MLS. Coupled approaches to autoland were made in December after optimizing the F4J flight control system. The real-time capabilities of the NASA Crows Landing Flight test facility enabled successful completion ahead of schedule of the planned series of MLS flight tests according to Mr. Alex Schust, program manager of the Navy MLS test team. In the same time period, successful MLS coupled approaches to autoland were made by the Aircraft G&N Bronco using the Ames DHC-6.

20 December 1977-6 January 1978. The MLS elevation system was relocated to midfield to support Ames VTOL/STOL flight tests.

Rotorcraft workshop

The U.S. Army Research Office, in collaboration with the Aeromechanics Laboratory of the U.S. Army Research and Technology Laboratories (AVRADCOM), is holding a Rotorcraft Vibration Workshop on 22-23 February 1978, at Ames Research Center. The Army Research Office sponsors basic and applied research in mathematics, engineering, and the physical sciences by means of contracts and grants at educational institutions, government and industry research groups, and research institutes. The workshop will bring together university, industry, and government personnel to identify basic research and technology needed to improve vibration characteristics of current and future rotorcraft. Eighteen speakers have been invited to participate in four technical sessions dealing with specific aspects of rotorcraft vibration and a general discussion session to summarize results of the presentations and delineate possible avenues for future research. The four technical sessions will include an industry and government review of vibration problems, principles and techniques of vibration reduction in dynamic systems, mathematical aspects of rotorcraft vibration analysis, and rotorcraft structural dynamics. The workshop is intended to provide an opportunity for university researchers to absorb practical information and experience of industry and government personnel while at the same time exposing industry and government personnel to advanced methods and techniques being developed by university researchers. As part of the program, a cocktail hour and dinner are scheduled for the evening of 22 February at Rickey's Hyatt House.

The workshop has been organized informally and intentionally limited to a small group of specialists who will actively engage in discussions with the speakers to help achieve the goals of the workshop. Members of the Ames rotorcraft research community having a strong interest in rotorcraft vibration problems and who would like to participate in this workshop or desire further information regarding the technical program are encouraged to contact R. A. Ormiston, Aeromechanics Laboratory, X-5835.



Navy, military, and civilian participants include: (back row) W. Dawirs, R. Kable, J. Ellis, T. Collom, A. Schust; (front row) G. Houser, R. Leviski, E. Wilkey, C. Dunlevy, E. Grass, D. Taylor.

NASA selects 35 astronauts

NASA Administrator, Dr. Robert A. Frosch, has announced the selection of 35 new astronaut candidates for the Space Shuttle program.

This group of candidates will report to Johnson Space Center on July 1, 1978. There they will join the astronauts currently on flight status.

In making the announcement, Dr. Frosch said: "The long and difficult task of selecting the most qualified candidates for the Space Shuttle program has been concluded and we are very pleased with the results. We have selected an outstanding group of women and men who represent the most competent,

talented and experienced people available to us today."

NASA received 8,079 applications during a year-long recruiting period which ended June 30, 1977.

Since August, 208 finalists have been interviewed and have undergone medical examinations at NASA's Johnson Space Center, Houston, Tex.

After two years of training and evaluation at the Johnson Space Center, successful candidates will become astronauts and enter the Shuttle training program leading to selection on a Space Shuttle flight crew. (Cont. on p.2)

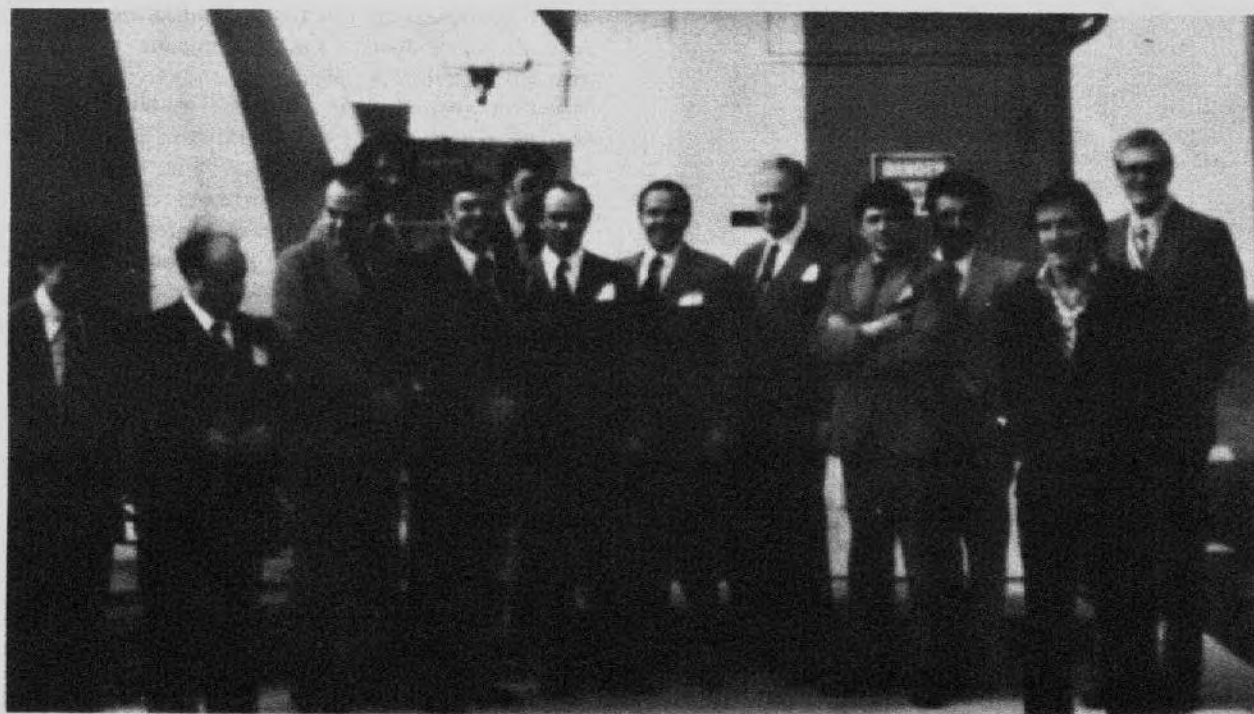
MLS photos



T. Collom, W. Dawirs, C. Burrous, A. Schust, J. Pope, R. Kable.



Lt. Jim Ellis making a touch-and-go landing in Navy F-4 at Crows Landing with MLS Elevation in background.



Left to right: Pivovarov, Pakholkov, Bomdarenko, Cooper, Tracy, Steblez, Gromov, Frisbee, Vatsuk, Ukolov, Bondi, Terpstra, and Lessing.

Iufer receives citation for saving life

On April 30 last year, Ernie Iufer, trained in Red Cross advanced first aid, was in a boat near scuba divers when one of the divers lost consciousness and respiration near the surface. As soon as he reached the victim, Mr. Iufer began mouth-to-mouth resuscitation; he and others then succeeded in getting the victim into his boat, where resuscitation and other life-supportive first aid measures were continued. After approximately 15 minutes, the victim began to respond. Without doubt, the use of first aid by Iufer saved the victim from death by drowning.

For this act of mercy Iufer has been named to receive the Red Cross Certificate of Merit. This is the highest award given by the American Red Cross to a person who saves or sustains a life by using skills learned in a Red Cross first aid, small craft, or water safety course. The Certificate bears the original signatures of President Carter, Honorary Chairman, and Frank Stanton, Chairman of the American Red Cross. The Certificate was awarded on January 16th in a ceremony at the Red Cross Headquarters in Palo Alto.

Export control

In the event that you, as a former NASA employee, take a professional position as an aerospace expert dealing with or for private industry abroad or foreign governments, you will be subject to the International Traffic in Arms Regulations (ITAR) administered by the Department of State. Under these regulations certain types of *unclassified* technical information requires an export license before it may be disclosed in any manner to foreign nationals.

The U.S. Munitions List of the ITAR sets forth categories of items which require an export license. Practically all space and advanced aeronautical equipment is covered by one or more of these categories.

The export of *unclassified* technical data is also subject to licensing. The ITAR defines the export of "Technical Data" (summarized) as "oral, visual, or documentary disclosure of unclassified information that can be used for the design, production, manufacture, repair, overhaul, processing, engineering, development, operation, maintenance, or reconstruction of items on the Munitions List, or that information which advances the state-of-the-art."

Dental plan

The open enrollment period for the Ames dental plan is from January-February 15 for a March 1st effective date. All people renewing their dental policy should reenroll. There will be a meeting with dental representative Dan Stark on February 8 at noontime in Room 147, Bldg. 241. Come if you have any questions.

Shuttle astronauts (Cont. from p. 1)

Mission specialist astronauts will have the overall responsibility of the coordination, with the commander and pilot, of Space Shuttle operations in the areas of crew activity planning, consumables usage, and other Space Shuttle activities affecting experiment operations. They may participate in extravehicular activities (space walks), perform special payload handling or maintenance operations using the Space Shuttle remote manipulator system, and assist in specific experiment operation at the discretion of the experiment sponsor.

The newly selected candidates include 14 civilians and 21 military officers. Of the group, six are women, and four are minorities. There are currently 27 astronauts on active status (17 pilots and 10 scientist astronauts) and one on leave of absence.

Stanford/NASA joint institute

University and government scientists are collaborating in research on the microstructures and related chemistry and physics of solid surfaces and tiny particles in a newly formed Stanford/NASA Joint Institute for Surface and Microstructural Research.

The Institute permits sharing manpower and highly advanced laboratory equipment between NASA-Ames Research Center's Materials and Physical Sciences Branch and Stanford's departments of materials science, chemical engineering, and electrical engineering. It formalizes and expands collaborative research by scientists of the two institutions that has been going on since 1968.

"This cooperation has already produced major scientific advances, mainly through the support of graduate student research, and has resulted in four Ph.D. theses," said Prof. Guy M. Pound of materials science, director of the new Institute. "In the past it was performed entirely or largely at the Ames Research Center with coadvice from University faculty and Center staff members."

Dr. Helmut Poppa, Ames physicist and a Stanford consulting professor, is associate director of the Institute. He noted that research by students, faculty, and staff would continue at both locations, and that some of Ames' highly sophisticated equipment would be transferred to Stanford.

The loan of a "microarea Auger spectroscopy system," for instance, has already been approved by NASA-Ames and will be moved to the campus in the near future. A kind of combination electron microscope-Auger spectrometer, it is used for extremely fine spatial and chemical analysis.

Poppa said the Institute will not only provide expanded research opportunities for both graduates and undergraduates and contribute substantially to NASA's materials research programs, but will also encourage visits by distinguished U.S. and foreign scientists, postdoctoral fellows, and international exchange students.

In addition to Pound and Poppa the Institute has two deputy directors: Profs. Michel Boudart, chairman of chemical engineering, and William Spicer of electrical engineering and materials science.

Associate members of the Institute are Profs. Klaus Heinemann, Robert Sinclair, William Tiller, and Dr. H. L. Yu of materials science; Prof. Robert Madix of chemical engineering; Prof. Clayton Bates of electrical engineering and materials science, and Prof. Walter Harrison of applied physics.

Scientific advisers are Dr. Ralph Dellabetta of chemical engineering and Prof. Ingolf Lindau and Drs. Charles Helms and Ronald Powell of electrical engineering.

Microstructures of the surfaces of solids and particles and their effect on the surface properties are becoming steadily more important in solid state physics and electronics, catalysis, corrosion, interface reactions, and a host of other fields, the scientists point out.

It is the surface of smoke particles that may produce interactions which cause smog. The corrosion of metals starts at the surface. The interface structure between silica and silicon must be properly controlled in order to make integrated circuits.

A vast amount of study is needed to determine the physical and chemical properties of these layers, surfaces, interfaces, and particles and how they interact with other materials and the environment. Information thus obtained can be applied in countless pursuits, for example, in identifying carcinogens (cancer-producing materials), controlling pollution, and even in predicting the weather.

The Institute also expects to initiate collaborative research with other universities and government laboratories in mutually productive fields of study. Seminars and informal courses for scientists of other research centers and industrial laboratories are also planned.

"Sojourner Truth" speaks

A soul stirring production no one can afford to miss. "Sojourner Truth," a God-given name to a freed slave named Isabella, was a woman of her time.

She took the world upon her shoulders and sought to bring about a change through her travels preaching Truth and Righteousness.

Co-sponsored by the Women's Advisory Group, and the Black Advisory Group, this program is particularly timely during Black History Month, although its beautiful message is right for men and women of every race and creed. It is a message depicting the power that can be generated by one person who truly cares about her fellow beings.

Starring in this magnificent monodramatic presentation is Charmaine Crowell, who proves that a one-woman show need not be a static series of recitations. She acts with her whole body, voice and heart, and from the deep understanding gained in years of research into the woman who was TRUTH... "Sojourner Truth."

Don't miss it, one performance only, Thursday, February 15th, at 1 p.m. in Ames Auditorium, Building 201.



ARC leads in minority contracts

Ames has recently been commended by Headquarters' Director of Equal Opportunity Programs, Harriet Jenkins, for the FY77 results which ARC achieved in the minority business enterprise program.

Ames' minority business enterprise program awarded \$5,162,770 in Section 8(a) contracts and \$398,272 in other contracts in FY77 and surpassed its goal.

Ames leads all Centers in total dollars (\$19,263,557) reported to minority entrepreneurs since NASA's program inception in June 1970.

It is interesting to note that of the dollars awarded to minority firms, \$3,840,236 or 69% were in the technical and computer services or in research and development.

Best photo captions chosen



The prize for the very best caption will go to Fred Immen. He will receive the photo with a matching frame for submitting the best caption.

Winning captions include the following:

"Sy, this is your old friend Hans! Don't you remember me? Look what Washington has done to me!" - Fred Immen.

"I'm not just a pretty face, I can type too!" - Madonna Mahoney.

"Where did you say you saw an advertisement for the new Center Director?" - Dennis Riddle.

"This is the last time the Illiac will be used for computer dating." - Jim Rogers.

"I'm giving you just one billion years to get Pioneer 10 out of my parking space." - Gordon Deboo.

"But I don't have a long-lost son." - Morris Lile.

"Are you still insistent that there are no problems with DNA recombinant research?" - Bill Bausman.

Ames Promotion Plan vacancies

Notice No.	Title	Grade	Org.	Area of Consideration	Closing Date
78-52	Equipment Control Specialist	GS-5/7	AAP	Centerwide and outside	2-3-78
78-53	Secretary (Typing)	GS-4/5	FSV	Centerwide and outside	2-3-78
78-54	Contract Specialist	GS-5/7	ASF	Centerwide and outside	2-3-78
78-55	Electronics Technician	GS-5/6	AAC	Centerwide and outside	2-3-78

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

MERIT PROMOTION PLAN SELECTIONS

Notice No.	Title	Org.	Name
78-33	Employee Development Clerk (Typing)	APT	Shirley Mock (outside candidate)
78-37	Contract Specialist	ASF	Dennis Padilla
78-38	Lead Voucher Examiner	AFG	Gayle Woody

Want ads

Transportation

FOR SALE: 1971 Volvo 142S, 4 cyl., 22 mpg city, 28 highway. Radio/heater/air/radials/tinted glass/4-speed. Top condition and low mileage. \$1800. Call 294-9289 after 5 p.m.

FOR SALE: 1967 Mustang - 289-V8, AT, PS, good tires, new vinyl top, fresh paint, new alternator, master cylinder, and more, \$1275. Call 227-2710.

Golf club

For all golfers, old and new, time to join up and send in your dues for another fun year. Our 1978 tour schedule is as follows:

- Feb. 11 - Sunnyvale
- Mar. 11 - San Jose
- Apr. 1 - Calero Hills
- Apr. 29 - Riverside
- May 20 - San Ramon
- June 10 - Laguna Seca
- July 8 - Aptos
- July 29 - Santa Teresa
- Aug. 12 - Pajaro
- Sept. 9 - Pasatiempo
- Sept. 23 - Spyglass
- Oct. 14 - Spring Valley
- Nov. 11 - Delaveaga
- Dec. 2 - Santa Teresa

Prospective new members can call Dave Banducci at ext. 5152.

Housing

FOR RENT: Cupertino, 2 bedrooms, patio, new carpets and drapes, fresh paint, fenced yard. Pets o.k. \$355/mo plus deposit. Call 733-9726 evenings.

FOR RENT: Sunnyvale, Lakewood Village, 3-bedroom, 2-bath, double garage, fireplace, carpets, drapes, fenced yard. Children and pets o.k. \$385/mo plus deposit. Call 733-9726 evenings.

FOR SALE: Refrigerator, Sears coldspot, 18 cu ft, frostfree with icemaker, like new. \$200. Tape recorder \$75. Call 733-9726 evenings.

SKIERS: Walk or ski to Alpine Meadows lifts from 3-bedroom condominium (sleeps up to 10). AEK, dishwasher, laundry, fireplace and wood, heated parking pad. By day or week. Call 736-1357.

HOUSE FOR SALE: Are you looking for a home away from all the smog, crowds, etc., of the Bay Area, yet within commuting distance of Ames? I may have just the place for you. A 3-bedroom, 2-bath home with lots of nice features; newly-rebuilt and customized; and, best of all, located in the peaceful, serene setting of the mountains. It's in the town of La Honda, just 25 miles from Ames over good roads. \$119,000. Call (415)747-0596 evenings.

FOR RENT: Palo Alto, customized 4-bedroom Eichler, 2 baths, 18x27 living/dining area, stone gas fireplace, family room, remodeled kitchen, carpeted, 2-car attached garage, \$600/mo. Call 494-6615.

Miscellaneous

FOR SALE: Snow tires, little wear, G78-15, \$45/pr. A78-13, \$30/pr. Call Bob Plummer, X5716.

Ames Flying Club membership available, Cessna 120, hangared at SJC, \$400 for 1/10 share, \$6/hr (wet), \$12/mo. Call 736-8497 or 252-8245.

FOUND: One pair of prescription sunglasses (aviator type). Owner can call or pick them up at Oper. Radio Room, Bldg. 211, Room 103, X5280.

FOR SALE: Sears outboard motor, 7.5 hp, F-N-R gear shift, 3-1/4 gal remote tank. Less than 25 hours running time. \$375. Call (408)262-4709.

FOR SALE: 2 modern black upholstered chairs, \$75 ea., 2 end tables, \$50 ea., dinette table and 4 chairs, \$100, 4 drawer chest for child's room, \$35, twin bed frame, \$5. All items in excellent condition. Call 255-2195 after 5 p.m.

FOR SALE: Wards portable sewing machine with case, sews zig-zag, heavy material with attachments and instructions, like new, \$30. Hydraulic rowing machine (exerciser) like new, barely used, \$50. Call 732-9116 after 6 p.m.

A male medical student from Georgetown University will be coming to work at Ames from February 6-April 1 and needs a place to live during that time. He would prefer to rent a room or share a house or apartment, but will sublet or house-sit. If you know an appropriate situation, please call Dee Kelsey, 494-8460.

Looking for king- or queen-size waterbed. Good condition. Call 969-0462.

Looking for roommate male or female, nonsmoker; 3 bedrooms, \$110/mo plus utilities. Off Saratoga Avenue, San Jose. Call Charlotte or Ron 996-2417.

FOR SALE: Yashica FR SLR with f1.4 lens. Only four months old, with case and filters. \$275. Call Kevin Donohoe X5737.

FOR SALE: Sears extra firm king mattress, springs and frame; two twin springs; one twin head and foot board; one lamp; one 30-06 Enfield; one 30-06 Springfield. Call 657-2017.

Male graduate student in need of temporary housing (furnished) from about February 5-April 1, 1978. Should be easy commute to Ames/Moffett Field. Call Marshall Joseph, Washington, D. C. (202)965-2988 or Katherine Suri (415)965-5574.

A GI's DREAM - "The Nancymobile" - A CLASSIC - \$500. Call Nancy 257-8229 after 5 p.m.

ROOMMATE WANTED: Share house in Santa Clara, female preferred, \$150/mo and 1/2 utilities. Available immediately. Call 296-2009 after 4:30 p.m.

FOR SALE: One pair Sony ICB-170 transceivers with cases valued at \$150; will sell for \$75. New. These are not toys. Call 294-9289 after 5 p.m.

WANTED: Sextant. Would trade for Black & Decker router or sound pressure level meter. Call 274-7374.

FOR SALE: Backpack and frame, complete. Universal adj. full size, like new, used once. \$50. Call 341-6736 evenings.

The Astrogram

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NASA-451



The Astrogram

McCarthy named Lewis director

Dr. John F. McCarthy, Jr., is to become Director of Lewis Research Center on October 1, 1978.

Dr. McCarthy is currently the Director of Massachusetts Institute of Technology's Center for Space Research. He has been a professor of aeronautics and astronautics at MIT since 1971 and is a widely recognized expert in systems engineering and vehicle design.

Before joining the staff of MIT, Professor McCarthy was with the Los Angeles Division, North American Rockwell Corp. (now Rockwell International Corp.), where he was Vice President, Systems Engineering.

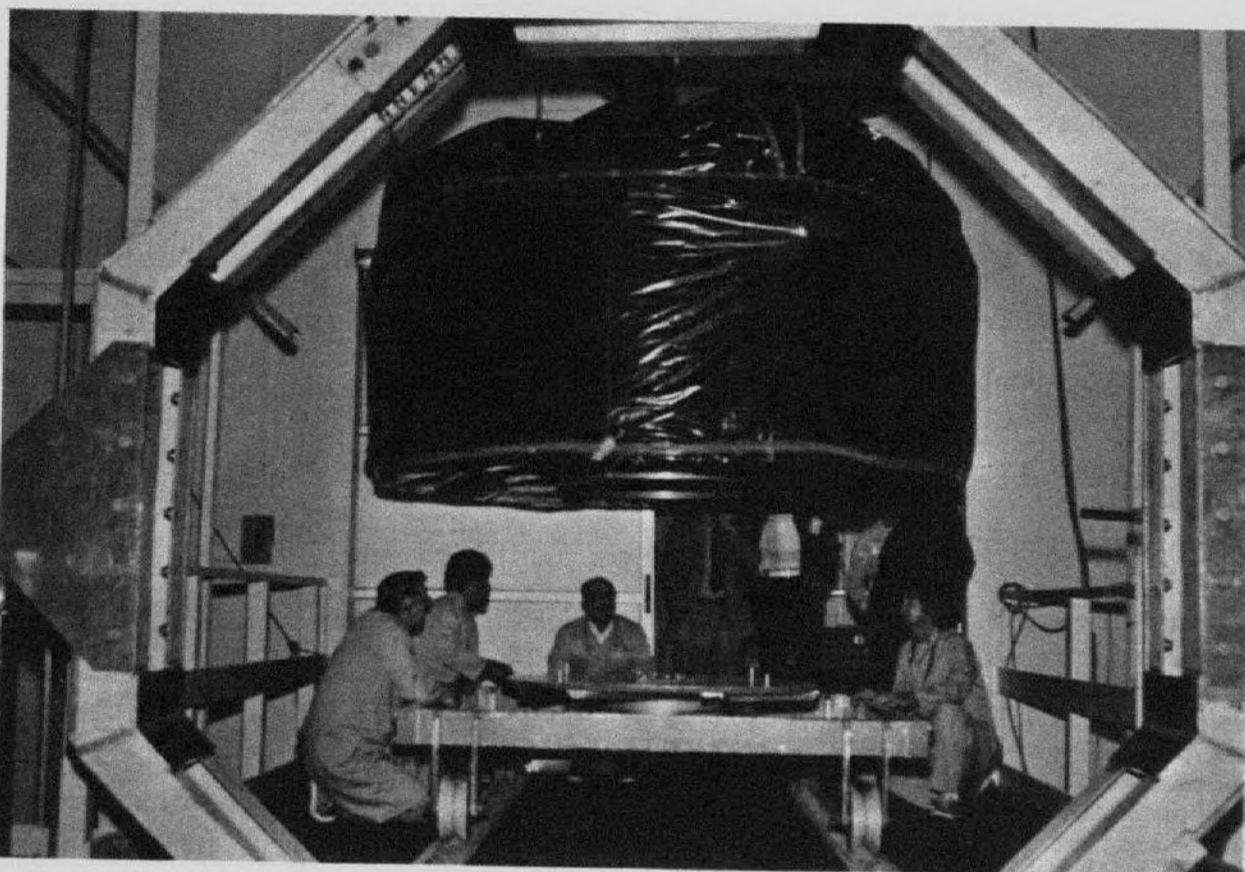
Other key positions held earlier at North American Rockwell included Vice President, Research and Engineering, and Executive Vice President, Technical, at the Los Angeles Division; Vice President, Research and Engineering, North American Aviation Divisions Office; Vice President of Research, Engineering and Test for the Space Division; and Assistant Chief Engineer, Apollo, and Directorships in Control Systems, Technology, and Space Sciences, at the Space Division.

Born in Boston in 1925, McCarthy attended MIT where he received S.B. and S.M. degrees in aeronautical engineering in 1950 and 1951. After graduation he joined the staff of MIT's Aeroelastic and Structures Research Laboratory and was responsible for the design and operation of one of the first variable Mach number supersonic test sections, in which he performed some of the earliest successful supersonic flutter tests. In 1962 he received a Ph.D. in aeronautics and physics from the California Institute of Technology.

McCarthy is the author of numerous technical papers; a fellow and former director of the American Institute of Aeronautics and Astronautics (AIAA); an associate fellow of the Royal Aeronautical Society; a member of Sigma Gamma Tau, Research Society of America and Sigma Xi.

He is a member of the Air Force Scientific Advisory Board and Chairman of the Aeronautical Systems Division Advisory Group of the Air Force Systems Command. He is a member of the Joint Strategic Target Planning Staff (JSTPS) Scientific Advisory Group for the Joint Chiefs of Staff, a member of the American Management Association's Research and Development Planning Council, a former member of the executive committee of the Aerospace Division of the American Society for Engineering Education, and has been a member of the NASA Research and Technology Advisory Council, Panel on Space Vehicles since 1974.

SPACECRAFT IN A BAG!



Pioneer Venus-Orbiter spacecraft undergoes testing for "magnetic cleanliness" in the Magnetics Test Facility at Ames. The Venus-Orbiter will be the first U.S. spacecraft to orbit the cloud-shrouded planet and is part of the first planetary atmosphere mission, which should help with understanding of Earth's climate. The spacecraft must be magnetically clean to avoid interference with experiments it carries. The bag, designed to protect the Venus-Orbiter from dirt, is magnetically transparent and was not removed for the tests. Pioneer-Venus is managed by Ames. The two Pioneer-Venus spacecraft are being built by Hughes Aircraft Co.

"Sojourner" play February 15

"TRUTH" Sojourner Truth that is, comes to Ames Auditorium Wednesday, February 15 at 1 p.m. for one performance only.

Cosponsored by the Black Advisory Group and the Women's Advisory Group, Sojourner speaks for Blacks and women like no other person of her time. The PALO ALTO TIMES said "Charmaine Crowell proves that a one woman show needn't be a static series of recitations. She acts with her total body, not just her voice . . . as directed by Opal Brown, its swift vignettes trace Sojourner Truth's progress from abject slave to abolitionist firebrand with humor, pathos, and warmth." Charmaine has been known to move audiences from tears to laughter in an instant, generating standing ovations at most performances. ". . . it is a must to see for those who are interested in historical attitudes and the future progress of American Blacks and women; truly a must to see for people of all ages."

Charmaine Crowell, whose years of research and study led to this monodramatic presentation, is an established professional performer. A native of Virginia and all-around actress, Ms. Crowell has made several appearances on both stage and television. She hails from Talledega College and has made her way successfully to Northern California as

a dedicated and talented actress, dancer, and poet. She currently teaches acting at the Institute of Afro-American Arts and Culture in San Jose.

Her acting credits include major roles in *South Pacific*, *A Raisin in the Sun*, and *Sister Sonjii*, a monodrama which has won her great acclaim in colleges and universities. Charmaine has also performed with the African People's Repertory Theater Company in San Francisco. Her most recent performance was in Los Angeles at the Mark Taper Forum "Story Theater."

This performance is a "MUST SEE" for all men and women who love America, not only for what it is, but for our vision of what it can be. Sojourner South was a person dedicated to that vision. Her story belongs to us all.

Dental notice

Dental insurance applications (using the new forms) must reach the following address by February 15, 1978: Dental Services, P. O. Box 26768, San Jose, CA 95159. Contact the Training Office if you have any questions.

Reorganization of Labs

In order to provide a structure more responsive to the Aeromechanics Laboratory's current and projected responsibilities, the Laboratory has been reorganized and the concept of operations revised within the context of the current Army/NASA Joint Agreement. Specifically, these changes will (1) ensure assignments within approved Army programs, (2) provide an organizational structure with which each Army employee can identify, and (3) provide more direct personnel management.

A typical current organization for the R&T Laboratories which are collocated in the NASA Research Centers, as indicated in Figure 1. The revised organization for the Aeromechanics Laboratory is shown in Figure 2. All personnel of the Aeromechanics Laboratory, whether they are currently assigned to the AARG, JARG or TSG, have been assigned to one of the four divisions indicated. Three of these are technical divisions, representing the major subdisciplines of aeromechanics; namely, Fluid Mechanics, Rotorcraft Dynamics and Flight Control. The fourth division is the Support Division.

All of the scientists and engineers currently in the AARG and the JARG will be assigned to one of the three technical divisions, depending on their particular area of expertise. All personnel within these technical divisions can be considered for assignments which may be conducted under either NASA or Army managers. Depending on the nature of the project, such assignments can, in fact, be relatively permanent if it is considered an ongoing, continuing effort. Annual discussions between the Director, Dr. Irving C. Statler, Aeromechanics Laboratory and the Cognizant Ames Organizational Director will determine the general character of these assignments. Specific assignments of these personnel (and/or positions) to jointly supported programs will be negotiated between the Division Chief in the Aeromechanics Laboratory and his counterpart in the NASA organization. The current assignments of the professional personnel are such that it is highly unlikely there would be substantial changes, particularly in the short term.

Traffic regulations

All persons committing a violation of traffic regulations will be issued a Notice to pay a fine or appear before the U.S. Magistrate's Court. Payment of fines will be made by checks or money order. Under no circumstances will cash be accepted.

All vehicle accidents on station must be reported immediately to the Duty Office Dispatcher, X5416 nonemergency; X5555 emergency.

Emergency vehicles exhibiting red lights and/or sirens have right-of-way. All other vehicles will immediately drive to the right-hand edge of the roadway and stop until emergency vehicle has passed.

All vehicles will come to a complete stop when approaching a school bus from either direction which is displaying a flashing red light and stopped for the purpose of receiving or discharging passengers. Vehicles shall not proceed past the school bus until the red flashing signal ceases operation.

Speed limits are posted and strictly enforced by radar.

Speed limit in all parking lots is 10 miles per hour. Speed limit at all gates and approaching all gates is 15 miles per hour. Speed limit in all housing areas is 15 miles per hour.

Any vehicular traffic, including bicycles, must come to a complete stop at all STOP signs.

A GUIDE TO ACTION reprinted from the Milpitas Post

Small Claims Court is the final forum for many consumer complaints involving auto sales and service, landlord-tenant disputes, faulty or defective merchandise, failure to honor warranties, among others.

It is conducted in an informal manner without, in theory, legal technicalities in order to swiftly resolve disputes involving less than \$750. The filing fee is a bargain at \$2.00 in this "people's court," where attorneys are forbidden to represent either side.

These courts were introduced in California in 1921, were overhauled in 1933, and again in 1976. The 1976 reforms raised the jurisdictional limit from \$500 to \$750, removed a loophole under which businesses, particularly corporately-owned ones, could be represented by attorneys, and made it somewhat easier to serve court papers on unavailable or inaccessible defendants.

Small claims courts were intended as a forum where an ordinary citizen could ask for legal settlement of a dispute with another individual, a small business, or even (again in theory) a large corporation. But in practice it is sometimes very difficult for ordinary citizens to bring to conclusion cases against dishonest businesses.

The outdated laws on the ways in which a business must be notified of and named in the suit make this an unfortunate fact of life in small claims suits.

Who to sue?

After you have decided how much money you feel is owed you, and have been refused payment of that amount (you must first have asked for the amount orally or in writing before you are allowed

to file), your next step is to decide who to name as the defendant in your suit.

If you are merely suing another individual who ran into your car, failed to repay a loan, or sold you a dead horse, this may seem trivial. But if your dispute is with a business (and most consumer disputes by definition are with businesses), you may have to do a lot of research just to determine whether the business is owned by one or several individuals, by a partnership, or by a corporation.

If it is located in a city that requires business licenses, this information can be obtained from the business license department of the city hall. Otherwise, this information can be obtained from the Fictitious Names Index in the county clerk's office. (299-2968 for Santa Clara County.) This index lists the legal owners of businesses opposite the "doing-business-as" (dba) names and addresses — the name of a business is not necessarily the same as that of the owning partnership or corporation.

This information may also be found in the appropriate edition of *Contacts Influential*, a privately published directory of Bay area businesses, listing the owners' legal names for over 96% of all Bay area businesses in alphabetical order by "dba" name, and including names of the corporate officers if applicable. Your local public library may have one or more of the three directories that cover the entire Bay area (San Francisco, Peninsula, and East Bay directories) in its reference shelf. If you are lucky, you also may be able to get an honest answer from someone in the business itself as to the type of ownership, or even the names of corporate officers, if owned by a corporation. This will, of course, work more often if the people you ask are unaware of your reason for asking. (Cont. next issue)

Minute Man flag ours again



Judith Bergland, 1977 U.S. Savings Bond Campaign Manager and Coordinator, and Mr. John Buerger, U.S. Savings Bond Representative, U.S. Treasury, presented Mr. Syvertson, Acting Director of Ames, with the Minute Man Flag in recognition of the Center's participation in the 1977 U.S. Savings Bond Campaign. The flag is awarded to only those Government agencies that achieve a participation rate of at least 75%. The two stars Mr. Syvertson and Mrs. Bergland are holding represent the years 1976 and 1977 in which Ames reached 76% and 77.7% respectively. Mr. Syvertson expressed his pleasure at receiving the award for Ames and pledged the Center's support for the 1978 Campaign.

Project Jupiter

A 1982 NASA mission designed to place an orbiting spacecraft around Jupiter and send a probe into its atmosphere has been formally designated as Project Galileo.

Dr. Robert A. Frosch, NASA Administrator, recently announced the new designation honoring the 16th Century Italian astronomer who was the first to observe the planet by telescope and who discovered the moons of Jupiter.

Scheduled to become the first planetary spacecraft to be carried aboard NASA's Space Shuttle, Galileo will conduct the most detailed scientific investigation yet of Jupiter, its environment and moons, including the first direct measurements of the planet's atmosphere.

The mission is composed of an orbiter which will circle the planet for at least 20 months and a probe which will plunge deeply into Jupiter's atmosphere. The orbiter will carry 10 instruments, and the probe will carry six.

Galileo is the first planetary spacecraft to be named for a person, although NASA's Orbiting Astronomical Observatory 3 (OAO-3) was christened Copernicus after it was launched in 1972.

Peering through the newly-invented telescope, Galileo Galilei in January, 1610, was the first to see the four larger moons of Jupiter, although he did not immediately recognize them as such. The satellites, known as the Galilean moons, are named Io, Europa, Ganymede and Callisto, after four lovers of the god Jupiter (Zeus) in Greek mythology. These are the satellites which will be closely investigated by the orbiter during the Galileo mission.

Final message from Advisory chairperson

As some of you know, my year as Chairperson of the Women's Advisory Group is ending. I would like to thank the members of the Group for their efforts and support over the past year and to introduce Susan Norman as your new Chairperson.

It has been a very interesting year for us and I wanted to share with you some of my thoughts about our accomplishments this past year. Obviously, we could not address all the issues we felt were important to women at Ames. We chose, instead, to select a few that we could accomplish within one year.

In January, we held a joint meeting with the other Advisory Groups and discussed items of interest to all minority groups at the Center.

Our recommended changes to the Ames Management Manual; brown bag lunches; child care centers; and seminars of special interest to women are all currently under discussion. EO training expansion for supervisors was coordinated with the EO Office, the EO Council, and the Training Office.

The highlight of the year was the Secretaries Week Breakfast co-hosted by the local chapter of the National Secretaries Association held April 26, 1977, in our cafeteria. This event was so popular we could not accommodate everyone who wished to attend. We plan to sponsor the breakfast again this year.

The Women's Advisory Group would like the women at Ames to consider their goals for this new year. If you are interested in being a member of the Women's Advisory Group, contact Susan at X5897. Remember, your goals are our goals! Watch the Astrogram for coming events.

Best of luck,

Judy Bergland

1977 children's Christmas party



Over a thousand children with their parents came to enjoy this year's Christmas party at Ames. Clowns, balloons, refreshments, carollers, a magician, a "moon walk," gifts, and a visit with Santa Claus decorated the day with fun and excitement for all the children.

"Every year, this party provides a place where employees and their families can gather to celebrate the season, and every year the event is memorable due to the efforts of the many volunteers who contribute their time and efforts to the party." Sy Syvertson.

Special thanks goes to:

The raffle ticket sellers.

Santa and Mrs. Claus (Bob Gaines and Barbara Fuller).

The workers who transformed the hanger into Santa's village.

All the volunteer entertainers, gift wrappers, clowns, and givers.

The helicopter pilot (thanks Almajuelo) who transported Santa and Mrs. Claus and helpers to the hanger door.

All those who helped clean up the hanger.

At the raffle at the Christmas party, first prize was won by Greg Pollick, second prize Sy Armfield, third prize Pauline Rose, fourth prize Ning Yu, and fifth prize Pat Torrella. Congratulations to all the winners and thanks to all those who helped to support the party by purchasing a raffle ticket.

ARA ACTIVITIES

If you are a person who enjoys having a good time and working with others to plan good times, this notice may be for you!! ARA will be holding the annual elections for board members in March. Interested persons should contact nomination chairman Stan Benbow at X5639 or Bobbi Pittman at X5318. Deadline for submitting names is Feb. 24, 1978.

Racketball: The ARA has been able to obtain discount rates at several racketball clubs. Employees wishing to join any of the following clubs should contact Herb Finger (X6598) for all the details.

Wallbangers - 50% discount on yearly membership fee.

The Court - 20% discount on hourly rates for nonmembers; 50% discount on initiation rate (if 5 or more).

"Thank you"

"Thank you" to all my friends and fellow workers for the super retirement dinner, and for the lovely gifts. It was a wonderful send-off to new, exciting experiences! (The recliner is already well broken in!) - Best wishes to you all.

Virginia Hughes

Fastpitch softball

The Ames Fastpitch Softball Team will start practicing in the near future. The team plays in the San Jose League and either the Sunnyvale or Mountain View Leagues. Anyone interested in playing for the team should call Bruce Ganzler X5943.

Ames Promotion Plan vacancies

Notice No.	Title	Grade	Org.	Area of Consideration	Closing Date
78-56	Administrative Specialist (STEP)	GS-5/7	FA	NASA-Ames	2/28/78
78-57	Research Aircraft Mechanic	WG-14	FOS	NASA-Ames	2/21/78
78-58	Supv. Physicist	GS-1310-14/15	STS	Centerwide & Outside	2/27/78
78-59	Teller	GS-5/6	AFP	Centerwide & Army	2/17/78
78-60	Supervisory Electronics Technician	GS-10/11	FOS	NASA-Ames	2/21/78
78-61	Secretary (Typing) or Secretary (Steno)	GS-5/6	L	Centerwide & Army	2/17/78
78-62	Engineering Technician (GO)	GS-5/7	FAX	NASA-Ames	3/3/78
78-63	Electronics Technician	GS-10/11	FOS	Centerwide & Outside	2/28/78

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

MERIT PROMOTION PLAN SELECTIONS

Notice No.	Title	Org.	Name
78-9	Supervisory Aerospace Engineer	FHR	William F. White
78-10	Supervisory Aerospace Engineer	FHI	Gregory Condon
78-22	Mathematician	FSD	James Jeske
78-27	Electronics Engineer	FSV	Joseph Epple
78-17	Secretary (Steno)	A	Emily Neves
78-49	Secretary (Steno)	L	Aileen Waterfall

Want ads Transportation

FOR SALE: TR4A ('66) Classic, original owner, near-new Michelin tires, must be seen, \$1600. Call 493-8203.

FOR SALE: 1968 Chev Biscayne, 68,000 mi, 2-door, good condition, good mileage, 307 cu in. engine, \$850/offer. Call 732-4467 evenings.

FOR SALE: 1963 Ford Falcon, 4-door, 83,000 mi, cheap transportation, \$50. Call 493-0719 evenings.

FOR SALE: Wrecked 1967 VW Bug. Chassis good; engine \$250; transaxle \$100; fenders, door, hood, chrome, windows, etc., also for sale. Or \$500 as a unit. Call 255-8627.

FOR SALE: 1976 BMW 530i; A/T, A/C, sun roof, etc.; excellent condition, \$10,400/offer. Call 279-1021 evenings.

FOR RENT: A luxury motorhome - 21 ft, sleeps 4, forced air heat, stall shower, air, cruise control, generator, and trailer hitch. Stop anywhere - no hookups required. Winter rates through May 15. Call 996-7009.

Housing

WANTED TO RENT: House - 4 or 5 bedroom, furnished or unfurnished, March 15-June 15. Call (408)354-8915.

FOR RENT: South San Jose, 4-bedroom, tri-level, brand new, patio, 2-1/2 bath, near schools. Rent free until March 1, \$450/plus deposit. Call 253-7518 evenings.

FOR SALE: Income property, house, 4-bedroom, 2-bath, east San Jose; recently refurbished. Has tenants. \$60,000. Call 259-9690.

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

FOR RENT: 3 bedrooms, 2-bath (4th bedroom or den). Quiet neighborhood, \$495/mo, large yard, lots of nature fruit trees and vegetable garden, detached 2-car garage. Saratoga location. Call 867-7121 after 6 p.m.

FOR RENT: Home in Saratoga with 4 bedrooms, 2-car garage, 40x20 ft pool with hot spa, \$800 plus deposit. Nine miles from Ames, pets ok. Call 257-7681 after 7:30 p.m.

Miscellaneous

FOR SALE: Pool table, excellent 1-in. slate bed, 9-ft table, commercial quality, ball return and rack, balls, cues, triangle and chalk included. \$700. You move. Call 258-5046 after 5 p.m.

SAMOYED puppies - 7 weeks old. AKC, beautiful SHOW quality. Shots. Call 255-5947.

FOR SALE: Aquarium, 20-gallon show tank, complete with stand, outside filter, rocks, plants, etc. \$35. Call 739-6054.

FOR SALE: American boat trailer. Has tilt frame and carries 15-ft power boat. Extra set of tail lights. \$90. Call 965-6136 or 241-8770 after 6:30 p.m.

FOR SALE: Apache tent trailer, sleeps 6, stove and ice box, excellent condition. \$1500. Call 793-1538.

FOR SALE: Brand new AM car radio. Paid \$72, make offer. Call J. Louis X5365.

FOR SALE: Living room set, sofa, 2 chairs, and 2 end tables. \$150. Also 1 sofa \$75. All in good condition. Call 266-5236.

FOR SALE: Singer touch-and-sew with accessories and cabinet. Just serviced. \$200. Call 257-3824.

German Shepherd male, beautiful, with excellent pedigree, is looking for a suitable German Shepherd female. Object: pick of the litter. Call 851-0300.

WANTED: The Life Sciences Library 239-13 is looking for extra copies of the ASTROGRAM dated December 1 which had the article on Mi Ae Lipe, 7-yr old Korean artist. Any copies gratefully accepted.

FOR SALE: Cockatiel 1-1/2 years old, tamed. \$40. Zebra Finch 1 year old, free. Call 296-8594.

FOR SALE: Child's bike seat - mounts above rear fender of standard bike. \$5. Call 241-5503 evenings.

FOR SALE: Tire chains, \$10. Fit 6.70-15, 7.75-14, 7.75-15, 7.50-14, 195R14, 195R15, E70-15. Call 241-5503 evenings.

FOR SALE: Baby's changing table, \$15. Baby's lamp/night light, excellent condition, \$3. Call 241-5503 evenings.

FOR SALE: Whirlpool refrigerator/freezer. All frost-free, 17 cu ft, white, freezer on top, adjustable shelves, built-in rollers. Excellent condition, no scratches, \$300 or will trade for a freezer. Call 272-1406.

FOR SALE: WURLITZER Spinnet Piano \$650. Call after 6:00 p.m., 272-2603.

The Astrogram

Admin. Mgt. Building, Phone 965-5422

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Associate Editor Marcia Kadota
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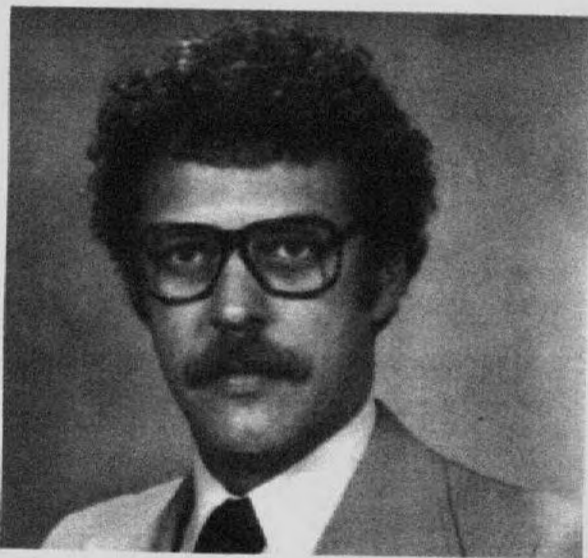
The Astrogram

VOLUME XX NUMBER 8

February 23, 1978

Klineberg named OAST Deputy Associate Administrator

Dr. John M. Klineberg has recently been named Deputy Associate Administrator of the Office of Aeronautics and Space Technology (OAST). Dr. Klineberg worked at Ames (1970-74) before transferring to the OAST Aerodynamics and Vehicle Systems Division at NASA Headquarters where he managed the NASA aeronautics research programs for short and reduced take-off and landing, vertical take-off and landing and rotorcraft vehicles. In 1976, Dr. Klineberg was appointed to the OAST Aircraft Energy Efficiency Office. In this position, he was responsible for the aerodynamics and active controls elements of the NASA Aircraft Energy Efficiency Program.



During his career at Ames, Dr. Klineberg's work was dedicated to the theoretical understanding of boundary layer, flow-separation phenomena. His most innovative piece of work was developing a method to couple the boundary-layer equations with inviscid outer flow equations through and beyond the flow separation point. He was able to accomplish this by specifying surface skin friction values rather than the surface pressures and iterating to achieve a solution. Dr. Klineberg published a number of papers on the subject and was invited to present his work at several national and international conferences. Dr. Klineberg had come to NASA-Ames from the California Institute of Technology.

In his new position, Dr. Klineberg will, under the direction of the OAST Associate Administrator, be responsible for the general management and direction of the OAST programs.

Auto insurance visit

Rick Gomes from California Casualty will be at Ames on March 2 and 14 to answer automobile insurance questions. If you have sent in a rate request, you can bring the quote with you and discuss it with Rick. The hours on March 2 will be from 10 to 1, and March 14 from 11 to 2.

Test scheduled on NASA warning instrument

Scientists from Ames and the National Oceanic and Atmospheric Administration's (NOAA) Environmental Research Laboratory in Boulder, will begin flight testing this month on an instrument concept designed to give pilots several minutes warning of an impending encounter with clear air turbulence.

The atmospheric phenomena known as CAT, for clear air turbulence, has been a problem since the beginning of the jet age. These naturally occurring, tempestuous air currents can unexpectedly add bumps to an aircraft's smooth ride even though the sky is cloudless.

As its name implies, CAT occurs in clear air. Thus the pilot cannot see it and has no indication of when or where it will be encountered. Needed is a simple, reliable cockpit instrument to alert pilots as they approach CAT.

The CAT detector to be tested uses an infrared (IR) water vapor radiometer to measure the amount of moisture present in the atmosphere.

NOAA scientist Dr. Peter Kuhn, an experimenter on Ames' C-141 Gerard P. Kuiper Observatory, noticed that extreme turbulence encountered by the aircraft was often accompanied by variations in the amount of water vapor in the atmosphere as measured by his IR radiometer.

At that time, the instrument was designed to measure the amount of water vapor in the atmosphere above the aircraft to define atmospheric conditions in the telescope's field of view.

Dr. Kuhn, intrigued with the idea that it might be possible to "see" areas of turbulence ahead of an aircraft, suggested mounting another IR radiometer in the aircraft, this time aimed forward.

The forward-looking system successfully detected turbulence. With the help of a simple program in the computer aboard the research aircraft, CAT occurrences were being predicted from 2½ to 5½ minutes before actual encounter.

These results were encouraging because clear air turbulence could be detected by identifying water vapor discontinuities in the air ahead of an airplane.

But there were still problems. Since the mission of the C-141 aircraft requires flying highly accurate flight paths through the cold stratosphere, there was no opportunity to purposely search out CAT areas and to fly into them from different directions at various altitudes. Moreover, the researchers wanted to experiment with filters which could change the "look" distance to the encounter and provide information on the depth of the disturbance. They also wanted more time to "fine tune" the instrument for optimum results and to minimize the false alarm rate for such a system.

Accordingly, NASA and NOAA set up a joint program, making plans to conduct exhaustive tests on the device using a NASA Lear Jet Research Aircraft.

Research flights with the CAT warning device aboard a Lear jet began in January in the skies over Colorado. The aircraft is based at Stapleton International Airport at Denver for periods of up to a week.

Researchers hope the flight program will lead to development of a low-cost system which can be installed in any aircraft. It would operate unattended and require minimum maintenance service. If it is found feasible it will produce a cockpit visual alert from 4 to 15 minutes in advance of a CAT encounter.

Such an instrument could enhance safety and comfort of flight by giving pilots warning of imminent turbulence encounters, allowing time for the flight and cabin crews to prepare for turbulence or possibly to avoid turbulent areas.

NASA's interest in CAT detection began in the late 1960's with investigation of a laser Doppler detection concept.

Fletcher awarded Distinguished Service Award

Dr. James C. Fletcher, former NASA Administrator, was presented with the NASA Distinguished Service Medal in a ceremony at NASA Headquarters on January 30.

The presentation, made by Dr. Frank Press, President Carter's science advisor, was in recognition of Dr. Fletcher's "distinguished leadership." "His outstanding scientific and administrative abilities," the citation noted, "contributed immeasurably to the nation's significant achievements in the exploration of space and the utilization of space to manage the Earth's resources."

"His unceasing advocacy, before the Congress and the public, of a sound, balanced program for aeronautics and space won for the United States a pre-eminent position in both advanced aviation technology and the development and use of space technology to benefit life on Earth.

"His decision to proceed with the development of the Shuttle Orbiter exemplified the perceptive leadership which foresaw space as a giant laboratory where men will work to improve the future of all mankind."

Dr. Fletcher, who served as NASA Administrator from April 27, 1971, until May 1, 1977, is now a consulting engineer and vice president of the National Space Institute in Washington, D.C. He holds the Gulf-Whiteford chair in the School of Engineering at the University of Pittsburgh.

A Guide to Action

(Continued from Number 7)

You must name the individual owner or any partner of the business as the defendant in the suit. For limited partnerships, only the general partner may be so named. A corporate defendant should be listed as such, with the name followed by "a corporation." A few cases have sometimes slipped through where business employees such as department and area managers have been named as individual defendants in small claims suits, but the courts generally frown on this practice and usually don't allow it.

One important exception to this is that tenants or former tenants who have a claim against the owner of an apartment may instead sue the apartment manager if the management does not properly divulge the true name and address of the owner or the owner's agent authorized to receive such suits (see Civil Code section 1962). This fact is very useful in security deposit refund cases, one of the most predominant types of cases heard in small claims courts. Nevertheless, some court clerks do not take the time to read the Civil Code, and may not let you do this unless you loudly insist; they are not judges and cannot legally refuse to let you file a claim even though they think you are wrong. Some rather ill-informed court clerks in San Mateo County, however, did for some time wrongly advise claimants that they could not sue apartment managers under any circumstances, and illegally refused to allow filing of such suits. (Final copy next issue)

Ames mailroom remodeled



Shown at a recent gathering to celebrate the remodeling of the Ames Mailroom (Bldg. 241, Room 109) are the following members of Services and Supply Division and the mailroom staff. From left to right: James Schriver, James Henderson, Kenji Ogata, Rosalind Jones, Don Washington, Dan Barragan (Mailroom Supervisor), Karrell Reynolds, Mildred Macon, Mike Castillo, Tammy Lillie, Tom Hammond, Cindy Hahn, Jodi Johnson, Eddie Figueira, Joan Nelson, Katie Garcia, Ronnie De Witt, and Jeffery Brown.

Aeromechanics Laboratory organization

(Deleted from last issue - figures 1 and 2)

FIG. 1

TYPICAL CURRENT ORGANIZATION OF LABORATORIES AT NASA CENTERS

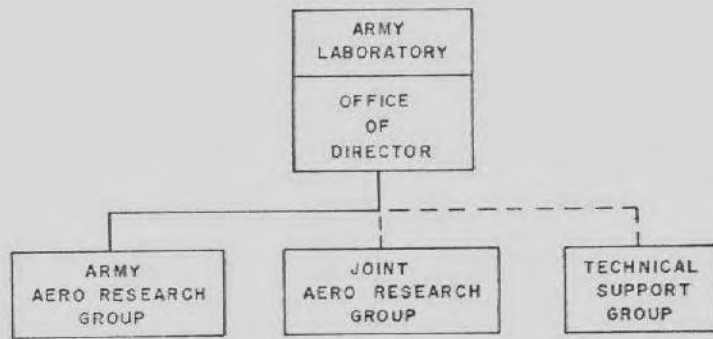
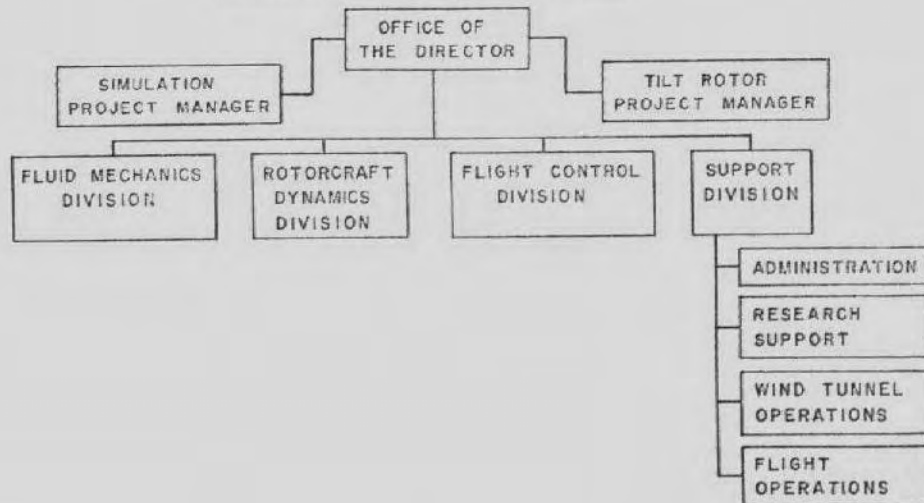


FIG. 2

REVISED ORGANIZATION AEROMECHANICS LABORATORY



Catering truck schedule

8:00	Navy Family Housing
8:10	Guard Station (Gate 18)
8:25	Bldg. 202 (Library)
8:30	Bldg. 241 (Mail Room)
8:40	Bldg. 233
8:55	Bldg. 246
9:00	Bldg. 211 (Door no. 4)
9:05	Bldg. 251 (Motor Pool)
9:10	N. 251
9:20	Bldg. 144 (Door no. 9)
9:25	Bldg. 245
9:30	Bldg. 244 (Bell)
9:35	Bldg. 238
9:40	Bldg. 234
9:45	Bldg. 226 and 221
9:50	Bldg. 227
10:00	(Round Bldg.)
10:05	Bldg. 210
10:10	Bldg. 240
10:15	Navy Crash Crew
10:30	Bldg. 144 (Door no. 19)
10:55	Bldg. 202 (Library)
11:00	Bldg. 241 (Mail Room)
11:10	Bldg. 233
11:20	Bldg. 245
11:30	Bldg. 246 (Door no. 4)
11:35	Bldg. 226 (6x6)
11:40	Bldg. 211
11:45	Bldg. 244 (Bell)
11:50	Bldg. 144 (Door no. 19)
11:55	Bldg. 144 (Door no. 9)
1:30	Bldg. 241
1:35	Bldg. 233
1:40	Bldg. 246
1:45	Bldg. 211
1:50	Bldg. 244
1:55	Bldg. 238
2:00	Bldg. 234
2:05	Bldg. 226 (6x6)

Contact C. J. Fenrick, ext. 6388, for additional information or question.

AIAA honors Kutler and Lomax

Two Ames scientists are being honored by the American Institute of Aeronautics and Astronautics for their work in advanced aeronautical theory.

Top award is for Dr. Paul Kutler, who will receive the coveted Lawrence Sperry Award for "furthering the understanding of supersonic aerodynamics through development of numerical methods that solve flow fields with intricate shock and expansion wave interactions." The Sperry Award with a medal and certificate is made annually for notable contributions by a young person for the advancement of aeronautics or astronautics.

Named a Fellow of the AIAA is Mr. Harvard Lomax for "his exceptionally creative work in supersonic aerodynamic theory and computational fluid dynamics." AIAA "Fellows" are persons of distinction in aeronautics or astronautics who have made notable and valuable contributions to the arts, sciences, or technology.

The awards were bestowed during the AIAA 14th Annual Meeting and Technical Display in Washington, D.C., Feb. 6-10.



Paul Kutler



Harvard Lomax

SAE Wright Brothers Award to Hicks

Ray Hicks of the Aerodynamics Research Branch received the 1977 SAE Wright Brothers Award for the paper entitled "Application of Numerical Optimization to the Design of Supercritical Airfoils Without Drag-Creep" by Hicks and Vanderplaats. This award is given for the best SAE paper presented in 1977 dealing with aeronautics. The SAE Wright Brothers Award consists of a bronze medal and a certificate.

"Thank you"

I wish to express my appreciation and gratitude to all my friends who attended my retirement luncheon on February 3.

Despite my planned efforts to give a farewell speech, I'm afraid that it did not come off the way that I had intended. Let me say now, "Thank you," one and all for the wonderful party and the farewell gifts. That day will forever be cherished by Margie and me.

Arvid Natwick

Invention award to Delaplaine and Mossolani



Mr. Robert Delaplaine and Mr. Dan Mossolani were recent recipients of a monetary award for their invention of a rotary leveling base platform for instrument mounts.

Presenting the awards, from left to right, Mitch Radovich, Branch Chief; Dan Mossolani; Robert Delaplaine; and Robert Gordon, Supervisor of the Instrument Section. Mossolani and Delaplaine are research instrument makers in the Model and Instrument Machining Branch.

This new concept will remain stable under all weather conditions and will remain level at any angle of rotation. There is no limit as to what size plate or instrument can be used.

Because there are very few moving parts, instruments are mounted in a minimum amount of time with dependability, and repeatable to close tolerances.

New Spring televised courses (ACE)

Course number	Course title	Day	Time
GOLDEN GATE UNIVERSITY MBA PROGRAM			
All courses in progress.			
COLLEGE OF NOTRE DAME FOUNDATION PROGRAM (Management Development Courses denoted by #)			
BA C102.03	Managerial Accounting (#)	T	5:00-6:45 pm
BA C153	Planning & Operations Management (#)	W	5:00-6:45 pm
BA C195	Principles of Organizational Behavior (#)	M	5:00-6:45 pm
SUPERVISORY SKILLS PROGRAM			
BA C102.01	Introduction to Accounting	MW	12:00-1:00 pm
BA C113D	Principles of Effective Business Writing	Th	5:00-6:45 pm
BA C135.01	Elements of Supervision	TTh	12:00-1:00 pm
SPECIAL & GENERAL INTEREST COURSES			
CMS 220	Computer Modeling & Simulation III	MW	12:00-1:00 pm
ET 499	Introduction to Microcomputers (*)	T	5:00-6:45 pm
MATH C102C	Beginning Business Math	TTh	12:00-1:00 pm
ENGL C8	Word Power: Using Words More Effectively	MW	12:00-1:00 pm
BA C118	Understanding California Real Estate Practices	M	5:00-6:45 pm
Short Courses			
PR 816	Personal Shorthand	T	5:00-6:45 pm
MGT 104	Employment Interviewing Skills (*)	MWF	12:00-1:00 pm
PR 814	Effective Reading (*)	TTh	12:20-1:05 pm
MGT 102	Time in Your Life (*)	MWF	12:00-1:00 pm
PR 824	Communicating Successfully (*)	F	12:00-1:00 pm

(*) Videotaped Program.

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

Ames Promotion Plan vacancies

Notice No.	Title	Grade	Org.	Area of Consideration	Closing Date
78-65	Secretary (Typing)	GS-4/5	RKP	Centerwide and outside	3/3/78
78-66	Administrative Specialist (STEP)	GS-5/7	AT	Centerwide	3/10/78
78-67	Contract Specialist	GS-5/7	ASF	Centerwide and outside	3/6/78

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

MERIT PROMOTION PLAN SELECTIONS

Notice No.	Title	Org.	Name
77-110	Contract Specialist	ASL	Doris Middlebrooks (outside candidate)
78-32	Secretary (Typing)	LB	Linda Jean Felts
78-40	Administrative Specialist	RSTO	Janie Kendrick
78-45	Secretary (Typing)	RK	Leslie Mittag
78-48	Procurement Clerk (Typing)	ASL	Jeraldine Daus

GSA catalogs available

The new GSA catalogs are now available for issue. This catalog is actually four volumes which collectively contain virtually all information required to order through the GSA stock system, i.e., the GUIDE, TOOLS, INDUSTRIAL PRODUCTS, and OFFICE PRODUCTS. The GUIDE contains a cross-referenced index to all items contained in the other volumes. The data you need to order from any of the catalogs is all included in that particular volume from which you order. You will also find the interior format to be better organized, with easy-to-read type and improved illustrations. There is only one problem: THERE IS A LIMITED SUPPLY OF EACH VOLUME. Therefore, you are asked to review your requirements and order only those volumes needed. Order your catalog via ARC 579 (Easy Order Form) using the space provided under FORMS AND CALENDAR section.

Lights - off!

It is often said that the simplest way to save energy is to TURN OFF THE LIGHTS, but the hardest thing to do is to GET PEOPLE TO TURN OFF THE LIGHTS. One reason for this may well be the change in standards over the years. For example, the Illumination Engineering Society recommended 30 to 50 footcandles for office work in 1952 but were recommending 70 to 150 footcandles by 1972, thus conditioning us to demand more light. The present European standard (England) of 15 to 30 footcandles indicates, however, that much lower illumination levels are permissible and the NASA office standard of 50 footcandles should certainly be more than adequate. So, each of you is requested to turn the lights off unless they are really needed. In offices where multiple light levels are provided, use only the lowest illumination level except during those occasional periods when more light is required for detailed work.

Bloodmobile visit

The American Red Cross Blood Mobile will visit Ames Research Center on March 15, 1978, between the hours of 8:30 a.m. and 1:30 p.m. in Bldg. N-239, Life Sciences Res. Lab, Room 39 (Basement).

Skiers

Skiers - Northshore-Hyatt Tahoe 3/3-5/78. 1 day each Alpine Meadows and Squaw Valley. R/T and 2 nights lodging, 2 breakfasts, 1 dinner - \$65 per person, double occupancy. Checks should be made to Ames Ski Club and sent to R. E. Maines, 241-2, ext. 5589.

Want ads Transportation

For sale: '74 Dodge Colt, 1 owner, low mileage, automatic transmission. Call 245-9515.

For sale: 1963 Olds, air cond., good engine and tires, \$200. Call 969-5274 evenings.

1978 Ford F250 Custom, 4-wheel drive, automatic, R/H, CB, 5000 miles, \$8500. 457-4821 or 479-7881.

For sale: '68 Chev. Biscayne, 68,000 miles, 307 cu. in. engine, auto. trans., green 2-door, black interior, good cond., good mileage, \$700/offer. 732-4467.

Miscellaneous

Free short-haired terrier to good home. Small and friendly, yet good watch dog. 365-2672.

Free: Irish setter female, 14 months old. AKC papers, champion lineage. Mother good hunter, father field champion. Good with children. 262-4129.

RACKETBALL - Wallbanger discount memberships have been temporarily discontinued. Notice of the reopening will appear in the Astrogram.

Wanted for High-Flight Adventure: Members for SJFJ Flying Club. No membership fee; economical dues and rates for IFR fleet: Cessnas 150 and 172, Cardinal RG, and Piper Comanche. Call Fred Hansen, 257-5779, Dennis Riddle, 941-8579, or Dave Brocker, 377-9345.

Cherry Chase, 3 br, 1 ba, \$400 + dep. Clean, quiet neighbor, water & garb. paid. 854-6641, after 6.

For sale: Snow tires, slightly used. G78-15, \$45/pair. B78-13, \$30/pair. Call Bob Plummer, ext. 5716.

King-size mattress and box springs with frame. \$125. Call 257-8863 after 5:00 p.m.

Vivitar Automatic Electronic Flash, Model 252. Practically new, accessories included, multiple voltage (120V/220V), AC cord, pouch case. \$25. 948-5602.

For sale: Smith Corona portable typewriter and case, w/manual carriage return. \$55. 259-7607 after 5 p.m. or weekends.

For sale: Youth golf clubs, left-handed, ages 11-14. Woods, irons, putter, bag, head covers. \$25. Call 252-2788.

For sale: Baby's automatic, convertible cradle/seat swing with canopy, \$20. Infant seat, \$2. Call evenings, 259-1939.

For sale: 23-inch Sylvania console color TV. Works well occasionally, picture dim at other times. Fine for electronic genius. \$40. Call 322-1380.

Used hollow-core home front door, 78 1/2" x 35 1/4". \$25. 735-8680.

8-place setting sterling silver, w/serving pieces. \$1200 or best offer. Call 255-9427 after 5:00.

For sale: Heathkit GR-2000 color TV. 25" with built in test equip. New, assembled, 10 hrs. total time on set. \$550. 259-7607.

Bedroom set. 5 pieces. Very good condition. \$125. Peter Patterakis, 252-6538, evenings.

SKIERS! Ski or walk to Alpine Meadows lifts from plush 3 br condominium. AEK, DW, laundry, fireplace (& wood), heated parking pad. Dramatic view of backside of KT-22 from large balcony. Reserve now for spring skiing. By day or week. 736-1357.

Female roommate wanted. Nice 3 bdrm Cupertino home with pool. \$125/mo + deposit. Call evenings & weekends 255-8627.

The Astrogram

Admin. Mgt. Building, Phone 965-5422

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

Editor Meredith Moore
Associate Editor Marcia Kadota
Reporters NASA Employees

Deadline for contributions: Thursday between publication dates

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Moffett Field, California 94035

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NASA-451



The Astrogram

VOLUME XX NUMBER 9

March 9, 1978

1978 FPG scholarship award program

This year, as in the past, the Federal Personnel Council, the San Francisco Bay Area Federal Executive Board, and other cooperating groups are offering scholarships for children of Federal Civilian employees or for youths employed under the Youth Opportunity Programs (the President's Stay-in-School Campaign or the Summer Youth Opportunity Campaign). Ten or more \$500.00 awards will be granted depending upon the generosity of sponsors, professional associations, and others interested in this deserving project.

Eligibility: (1) Must be the son or daughter of a career civilian employee presently employed in a Federal agency in Northern California; or (2) the son or daughter of a retired or deceased career civilian who was employed by a Federal agency in Northern California at the time of retirement or death; or (3) currently employed in a Federal agency in Northern California under the President's Stay-in-School campaign; or (4) have been employed during the summer of 1977 under the Summer Youth Opportunity Program; and (5) a high school senior graduating in January or June 1978 (or between those dates). Northern California includes Monterey, Kings, Tulare, Inyo, and all areas in California north of these counties.

Bases of Awards: Scholastic Ability — based on high school record and results of scholastic aptitude tests of the College Entrance Examination Board.

Leadership Potential — based on application and letters of recommendation.

Essay — based on submission of a 1200 word essay entitled "How I expect Education to Contribute to My Life and Career."

Economic Need — based on income and family size.

Application Procedures: (1) Obtain application from agency or, if not available, from address below. (2) Send application to the address below post-marked no later than *April 3, 1978*, with: (a) A copy or photostat of your high school transcript(s) as of December 1977 showing hours of credit for each course, grade, date of completion and results of your CEEB test. This may be shown on transcript. (b) Two letters of recommendation from Teachers, Counselors or Principals. (c) An essay of approximately 1200 words on "How I Expect Education to Contribute to My Life and Career."

Send application to:

Mr. Arthur Reimers
Regional Personnel Officer
Health, Education, and Welfare
Region IX
50 United Nations Plaza
San Francisco, CA 94102

Auto insurance visit

Rick Gomes from California Casualty will be at Ames on March 14 to answer automobile insurance questions. If you have sent in a rate request, you can bring the quote with you and discuss it with Rick. The hours on March 14 will be from 11 a.m. to 2 p.m. in Bldg. 241, Room 147.

Pollack wins prestigious Flemming award

James B. Pollack, Ames Theoretical and Planetary Studies Branch, will receive the Arthur S. Flemming Award at ceremonies to be held in Washington, D.C. on March 23.

The Flemming Award, sponsored by the Downtown Jaycees of Washington, D.C., was initiated 30 years ago to honor outstanding public service rendered by young people working in civilian or military capacities in the Federal government. Ten awards are given annually in scientific and administrative categories.

Dr. Pollack was cited for his outstanding research achievements in the field of planetary sciences. Dr. Pollack has made pioneering, original, and fundamental contributions to our understanding of the solar system, particularly of its planets. These contributions include studies of the evolution of Jupiter, Saturn, and their satellites, of the atmosphere and clouds of Venus, and the surface of Mars. He has applied his knowledge and his research techniques to problems concerning the Earth by studying the long-term climatic effects of atmosphere changes, both natural and man-caused. Dr. Pollack is a leader in his field and has exerted strong influence on its development and direction.

Ivy Fay Hooks, Johnson Space Center employee, will also receive the Flemming Award.



NASA to flight test experimental pivot-wing aircraft

Dryden Flight Research Center has awarded a \$218,000 fixed-price contract to the Ames Industrial Corporation, Bohemia, N.Y., for the development and fabrication of a small, lightweight, manned, oblique wing aircraft.

Because the pivoting oblique wing concept is a significant departure from conventional aircraft design, NASA is initiating this low-cost exploratory program to study the fundamental aspects of piloting an oblique wing aircraft.

At lower flight speeds, the wing is oriented perpendicular to the fuselage, providing efficient, quiet operation for take-off and landing as well as for low-speed cruise flight. The concept offers good low-speed stability and control characteristics and does not require complex high-lift systems. The engine thrust required for takeoff is substantially reduced, which could result in quieter operations during takeoff and landing.

For high-speed flights, the wing is pivoted fore and aft to form oblique angles up to 60° with the aircraft's fuselage. Studies indicate that this "scissor-wing" concept would permit better high-speed flight performance.

As the aircraft flies faster, pivoting the wing to an oblique angle decreases air drag, permitting increased speed and longer range for the same fuel expenditure.

Analytical and wind-tunnel studies conducted by Ames Research Center indicate that a future oblique

wing transport aircraft flying at 1,000 miles per hour might achieve twice the fuel economy of either the current British-French Concorde or the Russian SST. These studies also indicated that the new concept would help alleviate the sonic boom problem.

Under the terms of the contract, NASA will provide the contractor with a design and Ames Industrial will construct the aircraft of foam and fiberglass. Called the AD-1 (NASA Ames-Dryden-1), the aircraft will be approximately 40 feet long with a wingspan of 32 feet. Powered by two small 400-pound thrust turbojet engines, the AD-1 will have a gross weight of approximately 1800 pounds.

Delivery of the aircraft to NADA Dryden is expected in late 1978 and the first flights are planned for early 1979.

Stamp club

The first meeting of the Ames Stamp Club will be held on March 15, 1978 at 11:45 a.m. in the private dining room of the Ames Cafeteria. Our agenda will include an election of officers and the establishment of our club objectives which will best serve the varied interests of the membership. Your comments and suggestions are requested. Please forward to mail stop 200-24. We urge you to attend our first meeting and help us get off to a good start.

A Guide to Action

(Continued from last issue)

What's in a business name?

Otherwise, California, despite its national reputation for well-run, modern small claims courts, still clings to the archaic past in not allowing businesses to be sued under common (dba) business names. The requirement that the full legal name of the owner be used often makes it difficult for even the most persistent disgruntled consumer to obtain justice. Businesses, on the other hand, have no such problem when suing individuals in small claims court. This may be one of the reasons why small claims courts are disproportionately used by businesses as an alternative to collection agencies than by consumers, despite the original intent of the law. Another 1976 reform, however, limits the number of cases filed by the same plaintiff and heard on the same day to six in order not to crowd the court dockets with too many claims of this type.

You (the plaintiff) must file your suit in the court for the judicial district (the six judicial districts in Santa Clara County are: San Jose-Milpitas, Gilroy-Morgan Hill, Los Gatos-Campbell-Saratoga, Santa Clara, Sunnyvale-Cupertino and Palo Alto-Mountain View) where the cause of action (injury, accident, failure to perform a contract or agreement, etc.) arose, or where the person you're suing resides or where the business is located. (When filing against a business, these will often be the same, and you will not be able to choose between two judicial districts.)

Once you have told the court clerk why and who you are suing, and the amount of money asked, the clerk will type the paper, then will ask you how you wish it to be served. (Don't say, "with relish and mustard.") You will have three choices:

1. You can have the court clerk mail it to the defendant by certified mail at a cost (recoverable if you win) of \$2 to you for each defendant served that way.

2. You can have a sheriff's deputy serve it at a cost of between \$5 and \$10 (also recoverable if you win) for each defendant.

3. You can have it served by anyone over 18 (other than your spouse) who is not a party to the suit. You are not allowed to serve the paper yourself, and you should avoid professional process-servers. Their fees are high, and may be large in comparison to the disputed amount itself. In addition, not necessarily all their fee will be recoverable even if you win. (The San Jose court will allow only \$2 in such cases unless certified mail service was unsuccessfully attempted beforehand.)

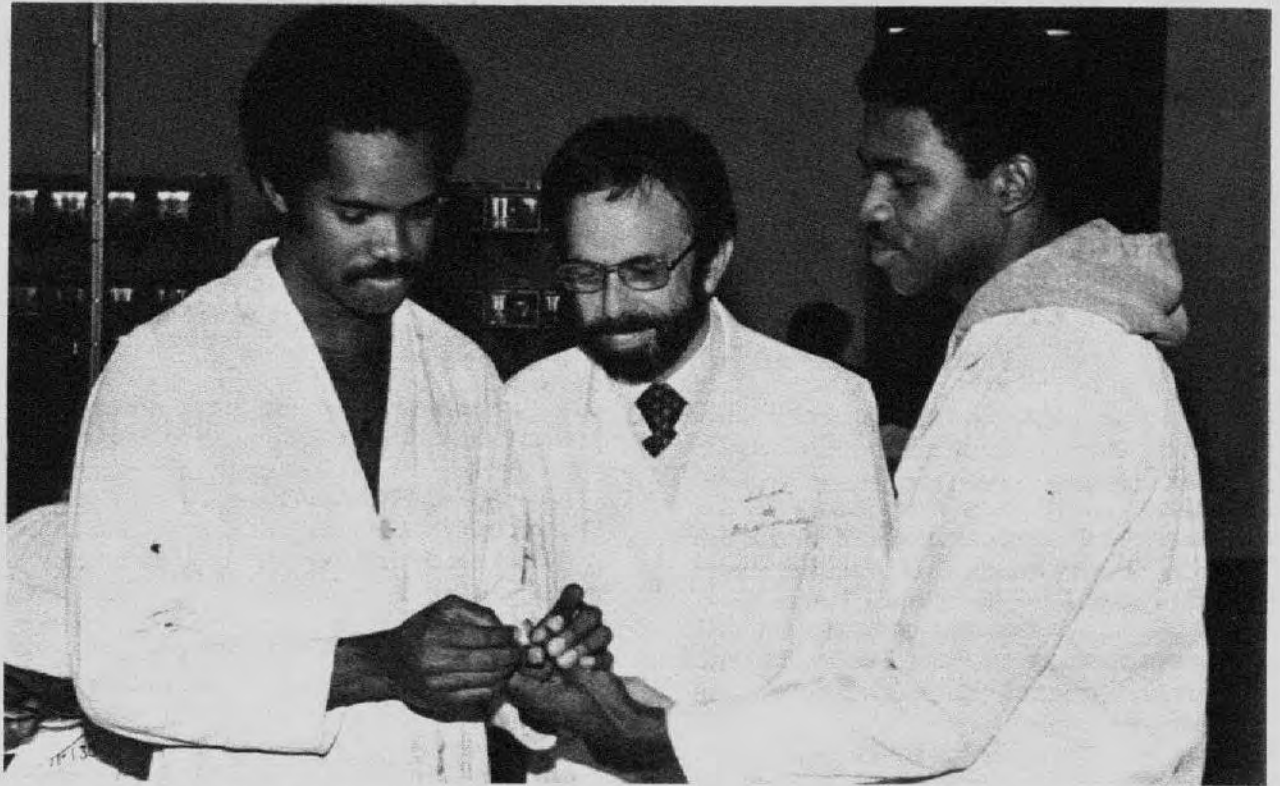
Making proper service on the defendant is often the most difficult obstacle to bringing a small claims case to trial. Serving the paper is like playing a game of "tag"; the person or business being sued may know that you are chasing them, and may even know that you know they know. But unless you "tag" them by having the papers served on the right person in time (at least five days before the court date, or 15 days if the defendant is located in another county) the court will not hear the case.

Don't ask Kissinger

If the defendant is a corporation, it is necessary to have the paper served on an officer of the corporation. The names of the corporate officers may be found in *Contacts Influential*, or may be obtained for a fee of \$1 from the Office of the Secretary of State (no, it's not Henry Kissinger or Cyrus Vance - it's March Fong-Eu) in Sacramento.

Once you have their names, serving the paper on one of them is easier said than done; they may be outside of the state, or may be inaccessible in their offices behind a locked door and a protective receptionist. It is sometimes easier to have the notice served on the general manager of the business, and this is allowed even if he or she is not a partner or

Dr. Winget becomes Visiting Prof at Florida A&M



Dr. Charles M. Winget, a prominent research scientist here at Ames, has been selected as a Visiting Scholar and Professor for the 1978 Winter Quarter at Florida A&M University by the Florida State Board of Regents.

In the University's School of Pharmacy, Dr. Winget will conduct research and hold student and community seminars related to his current studies on circadian rhythms.

The appointment, to be effected under an Intergovernmental Personnel Agreement, represents the first selection of NASA scientists as a Visiting Scholar at a Black University.

corporate officer. Unfortunately, many small claims court clerks have not read section 416.10(b) and 416.40(a) of the Code of Civil Procedure, and are totally ignorant of this fact.

The most important 1976 reform, however, now allows what is known as "substituted service" under Code of Civil Procedure section 415.30. After "due diligence" in attempting to serve the summons on the appropriate person, the person serving the summons can instead serve another, more accessible person who is "apparently in charge" of the office, or is a "competent member (over 18) of the household" of the person to be served. The meaning of "due diligence" may vary from court to court; some courts require three attempts at personal service before substituted service is allowed, and the Redwood City court requires that both certified mail and a sheriff's deputy first be used to attempt service.)

The person serving a summons by substituted service must inform the "substitute" of the nature of the summons, including who it is for. The server must then mail another copy of the summons by first class mail to the person originally meant to be served; this must be done as soon as possible because the service is not considered final until the tenth day after it is mailed. This means, then, that substituted service must be accomplished at least 15 days before trial, or 25 days for defendants located in another county.

The newly enacted availability of substituted service for small claims cases will make it virtually impossible for a determined defendant to avoid service on a claim by a persistent plaintiff. This was the most desperately needed 1976 reform.

Dr. Winget, who was NASA's senior scientist on the Biosatellite Program during the mid-1960's, holds a BA in Biological Science from San Francisco State University and gained his PhD in Physiology from the University of California at Berkeley in 1957. He is the author of more than 200 scientific publications and is the recipient of the 1977 Paul Bert Award for medical research. Most recently, his research at NASA has been on the understanding of the biological clock as it relates to so-called "jet lag" and other manifestations of circadian rhythms. Dr. Winget and his wife Katherine reside in Cupertino, California.

Having the papers served by certified mail is often one of the worst choices because the defendant does not have to sign for and accept the letter at all. If the return receipt is not signed, or if it is signed, but by the wrong person, the service is not valid, and the court will not hear the case. (According to one clerk with 15 years' experience, the success rate of certified mail service is less than 40%.) Marginally honest or downright crooked business operators who are being sued all the time know better than to sign for certified mail; they already know what's inside the envelope. The court might not inform you that service has not been properly made, and you may be in for an unpleasant surprise when you appear in court ready to present your side of the story only to have the case postponed until proper service can be made.

Skylab III Command Module on display

March 9, 1978, from 9:00 a.m. to 4:30 p.m. the Hi-Bay of Building 242 will be open to all Ames personnel and contractors to view the Skylab III Command Module which is on loan to Ames from the Smithsonian Air and Space Museum, Washington, D.C.

This is to give Ames personnel an opportunity to view the spacecraft before it leaves the later part of March for an exhibition in Japan for a year. This spacecraft will return to Ames after the Japanese show.

Everyone is encouraged to visit this display. Docents will be on hand to answer any questions.

Stanford Music-Go-Round Auction

Instruments and artifacts of music, dance, and drama are currently being sought by the Lively Arts at Stanford and Stanford Music Guild for a unique auction to be held this Spring.

The auction, known as the Music-Go-Round, will be held Sunday, April 30, in the Stanford Barn and will feature not only the sale of new and used performing arts items but entertainment and other festivities.

Anything "musical, terpsichorean, or thespian" will be accepted for the Music-Go-Round auction, says Janet Minden, cochairperson, "that ranges from such performing arts related items as musical instruments, sheet music, books, prints, and sculptures to dancing shoes."

Donors will receive a tax deduction for their gifts.

Donations to the Music-Go-Round can be taken anytime to Western Federal Savings and Loan in the Stanford Barn, Welch and Quarry Roads, Palo Alto, Monday-Thursday from 9 a.m.-4 p.m., Friday from 9 a.m.-6 p.m., and Saturday from 10 a.m.-2 p.m.

Persons unable to take a donation to Western Federal Savings and Loan can arrange for a pick-up by calling 329-0410. Further information about the Music-Go-Round is available by calling 497-2551 or 497-3811.

"Thank you"

I wish at this time to thank my many friends and work associates for attending my retirement luncheon on Feb. 24, I mean this with all sincerity.

After the case of the unopened fly rod case was solved, I was very happy to find a beautiful Fisher Graphite fishing rod. I thank you for it, and I know it will bring me many hours of happy fishing.

I will try not to be such a stranger and visit you people occasionally.

Otto J. Meckler

To all those who made my retirement luncheon so impossible, thanks, and to all those who tossed barbs at me, I hope you have lockjaw.

Particular thanks to Frank Plucinski for making all the arrangements and Vera Buscher for being such a good Ceremonies Person. When such tasks are put in the hands of such good people, everything turns out the very best. Also, thanks to the others who assisted.

I'll not say good-bye, as that is so final. But, instead, just say have a "happie," and I'll be seeing you at the important places like ball games, parties, and picnics.

Some of my future plans include doing volunteer work for the underprivileged, and since government employees are fast becoming this species, I'll be seeing you all.

Fred Tucker

I wish to extend my sincere thanks and appreciation to all who honored me by their presence at my retirement luncheon on January 12, and to everyone who contributed to the very wonderful gifts (including gag). I will make good use of the nice pullman suitcase in my anticipated travels to the Orient this year.

My 35 years at Ames have been enhanced by the fine fellowship and association I enjoyed with my co-workers. This, I am sure, I will miss more than the work, and I hope will continue despite my retirement.

Guy K. Wong

Stanford Spring quarter courses Sponsored by Ames Training office

AERO-ASTRO

AA 278B	Optimal Estimation & Control Logic in the Presence of Noise	TTh	8:00- 9:15
AA 297	Seminar in Flight Mechanics & Control	Wed	4:15- 5:30

CIVIL ENGINEERING

CE 282B	Earthquake Engineering II	MWF	9:00- 9:50
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COMPUTER SCIENCE

CS 111	Intro to Computer Organization, Machine & Assembly Languages	MWF	1:15- 2:05
CS 140B	Systems Programming	TTh	9:30-10:45
CS 154	Formal Languages	MWF	10:00-10:50
CS 235	Statistical Computing	MWF	2:15- 3:05
CS 240B	Compiler Construction	TTh	9:30-10:45
CS 249	Introduction to Distributed Computing	TTh	11:00-12:15
CS 237C	Advanced Numerical Analysis	MWF	3:15- 4:05
CS 251	Probabilistic Algorithms	MWF	3:15- 4:05
CS 247	Computer System Evaluation	MWF	11:00-11:50

ENGLISH

ENG 50	Poetry	MWF	9:00- 9:50
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ELECTRICAL ENGINEERING

EE 102	Circuits II	MWF	8:00- 8:50
EE 113	Electronics	MWF	8:00- 8:50
EE 201C	Seminar	Th	11:00-11:50
EE 208	Biological Information Processing	TTh	9:30-10:45
EE 221B	Linear Active Networks	MWF	10:00-10:50
EE 261	Fourier Transform and Its Applications	MWF	2:15- 3:05
EE 271	Nonlinear Network Analysis	MWF	9:00- 9:50
EE 292V	Special Seminar	Tues	2:45- 4:25
EE 292W	Special Seminar	TTh	8:00- 9:15
EE 310	Integrated Circuits Seminar	Th	4:15- 5:30
EE 314	Linear Integrated Circuits - Analysis & Design	TTh	8:00- 9:15
EE 326C	Microwave Electronics	TTh	1:15- 2:30
EE 328B	Physics of Semiconductor Devices	TTh	2:45- 4:00
EE 349	Statistical Optics	MWF	1:15- 2:05
EE 370	Information Systems Seminar	Mon	4:15- 5:30
EE 373	Adaptive Systems	MWF	3:15- 4:05
EE 378B	Statistical Detection and Nonlinear Estimation	TTh	1:15- 2:30
EE 379	Communication Channels	TTh	2:45- 4:00
EE 380	Seminar on Digital Systems	Wed	4:15- 5:30
EE 381B	Switching Theory and Logic Design	MWF	11:00-11:50
EE 386	Operating Systems	TTh	1:15- 2:30
EE 481	Computer-Aided Design of Digital Systems	TTh	2:45- 4:00

ENGINEERING-ECONOMIC SYSTEMS

EES 100C	Introduction to Systems & Policy Analysis: Models of Uncertainty, Decisions & Policies	MW	7:30- 9:00
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INDUSTRIAL ENGINEERING

IE 133	Industrial Accounting	MWF	10:00-10:50
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MATERIALS SCIENCE

MATS 249	Time-Dependent Plasticity	TTh	1:15- 2:30
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MECHANICAL ENGINEERING

ME 180	Energy and Society	MWF	1:15- 2:05
ME 231C	Dynamics	Tues	10:00-10:50
		Thurs	9:00-10:50
		Mon	4:15- 5:30

MATHEMATICS

MATH 130	Ordinary Differential Equations	MWF	11:00-11:50
MATH 132	Partial Differential Equations II	MWF	2:15- 3:05

STATISTICS

STAT 218	Introduction to Stochastic Processes	MWF	3:15- 4:05
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Bowling

Sign-ups for Summer League are now being taken. We will have 8 teams, 4 persons each. The season will run from May 16th through Aug. 29th. Anyone wishing to bowl please send your name and mail stop to Wayne Harry, mail stop N238-1. Individual names or teams may be turned in. Those submitting entire teams please notate team caption. Space is on a first come, first place basis.



Ames Promotion Plan vacancies

Notice No.	Title	Grade	Org.	Area of Consideration	Closing Date
78-64	Secretary (Typing)	GS-5/6	FO	Centerwide & Army	3/17/78
78-66	Administrative Specialist (STEP)	GS-5/7	AT	Centerwide	3/31/78
78-68	Aerospace Engineer	GS-11/12	FSV	Centerwide & Outside	3/17/78
78-72	Supervisory Electronic Technician	GS-11/12	RSE	Centerwide	3/17/78
78-73	Research Aircraft Inspector	WG-14/15	FOI	Centerwide & Outside	3/31/78
78-74	Personnel Clerk (Typing) or Clerk-Typist	GS-4/5 or GS-3/4	APX	Centerwide & Outside	3/17/78
78-75	Secretary (Typing)	GS-4/5	STS	Centerwide & Outside	3/20/78

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

MERIT PROMOTION PLAN SELECTIONS

Notice No.	Title	Org.	Name
78-9	Supervisory Aerospace Engineer	FHR*	James Biggers
78-34	Supervisory Aerospace Engineer	FVS	Alan Faye
78-36	Research Aircraft Inspector	FOI	Cancelled
78-52	Equipment Control Specialist	AAP	Cancelled
78-53	Secretary (Typing)	FSV	Virginia Bautista
78-67	Contract Specialist	ASF	Cancelled

Want ads Transportation

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

For Sale: 1974 Ford Ranchero GT. 39,000 mi, new metallic brown paint, mags, A/T, P/S, P/B, A/C. Must be seen, call 737-2383 evenings.

For Sale: '73 VW Thing, like new, 17,000 mi, extras, \$2900. Paul Sebesta, evenings, 257-2207.

For Sale: '68 Mercury Montego, new tires, battery, needs paint. Make offer. Paul Sebesta, 257-2207, evenings.

Fund for DeAnza student

A fund has been established for Ron Lamica, 22, a De Anza College student and work-experience student at Ames in the Model and Instrument Machining Branch. Ron, the son of Gil Lamica of this Center, lost a leg in a motorcycle-auto accident on January 20th.

Initiation of the fund, set up by Peggy Schoenhair and Stan Randol of the District Office of Technical Education at De Anza College, was prompted by the lack of adequate medical insurance held by either party. Ron was married just 5 months ago.

Checks payable to Home Savings should be forwarded to: Ron Lamica Fund, 20573 Stevens Creek Blvd., Cupertino 95014. Checks may also be forwarded to Peggy Schoenhair or Stan Randol at De Anza College.

The Astrogram

Admin. Mgt. Building, Phone 965-5422

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

Editor Meredith Moore
Associate Editor Marcia Kadota
Reporters NASA Employees

Deadline for contributions: Thursday between publication dates

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

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National Aeronautics and
Space Administration
NASA-451



of backside of KT-22 from large balcony. Reserve now for spring skiing. By day or week. 736-1357.

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

Miscellaneous

For Sale: Heavy duty tire chains, fit 14" and some 15" tires, \$10/offer. 3/4-size violin with case, \$50/offer. Gibson SG guitar with case, exc. cond., \$275/offer. 738-2948.

For Sale: Beseler 67C enlarger with color filters and heat absorbing glass. Like new, \$155, 629-1362, after 6.

For Sale: Flea Market items (clothes, linens, etc.), best offer, 968-3307.

For Sale: SCM electric typewriter, manual return, very good condition, \$50; sewing machine, sturdy, sews straight, \$20; all-folding table, 30"x72", \$15; lamp shade and stand, like new, \$10; headboard for twin bed, white color, \$3; box spring for twin bed, extra long, \$5. Call (408)737-7764 evenings.

17" Zenith, black and white TV with stand; exc. cond., \$50. Call after 5 p.m. 739-5373.

GET IN SHAPE! For Sale: 110 lb weight set. \$10. Mark Koenig, 326-1264 evenings.

For Sale: Child's bike seat - mounts above rear fender of standard bike. \$5. Call 241-5503 evenings.

For Sale: Baby's changing table, \$15. Baby's lamp/night light, exc. cond., \$3. Call 241-5503, evenings.

FREE: 17,000 BTU Sears air conditioner. Ugly but works fine, 220V. Paul Sebesta, 257-2207, evenings.

Anyone having witnessed the accident involving a red-orange colored Porsche parked on the northwest corner of Bldg. 237 between the hours of 2:15 p.m. and 5:30 p.m., Thursday, February 24, please call 248-2481 or Ames extension 5889. Thank you.

For Sale: Bedroom set, 1 nine-drawer dresser, 7-drawer chest, mattress and box springs. Sofa Bed, queen size, only one year old. Call 578-7906, Monday through Friday.

FREE: Pups, mixed breed, both parents small, approximately 14 lb, colors are white with black or brown. Call Don Lefforge, 244-7310.

For Sale: Large tent - \$50, and Honda 175 - \$250. Call Cecil, 272-2603.

Wanted: Porta crib in good condition. Call 961-5268, evenings.

FREE: Female Golden Retriever, neutered, about 7 yr old, very obedient, has always been a house dog. Call 732-9116, after 6 p.m.

The Astrogram

VOLUME XX NUMBER 10

NASA publishes book on SETI

A 276-page summary of the findings of a blue-ribbon group of 16 U.S. scientists on ways to detect possible radio signals from intelligent life in the universe, called "The Search for Extraterrestrial Intelligence" (NASA SP-419), has been published by NASA's Scientific and Technical Information Office.

Edited by Professor Philip Morrison of the Massachusetts Institute of Technology and Drs. John Billingham and John Wolfe of Ames, the volume is based on the results of a series of SETI (an acronym for Search for Extraterrestrial Intelligence) workshops held during 1975 and 1976 on the West Coast.

It consists of three major sections: Consensus, Colloquies, and Complementary Documents and contains eight illustrations and numerous tables and figures. The book's Foreword is written by Dr. Theodore M. Hesburgh, C.S.C., President of the University of Notre Dame.

Much of the book is devoted to such complex subjects as preferred frequency bands, search strategies and scanning devices used on radio telescopes. The less technical "Consensus" section at the beginning of the book reviews in general terms the conclusions reached by the SETI group. These are:

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

It should be noted that the proposed NASA budget for Fiscal Year 1979 contains a request for \$2 million for the start of a SETI program by NASA's Jet Propulsion Laboratory, Pasadena, Calif.

The funds, if approved, are for an all-sky, all-frequency search for radio signals from intelligent extraterrestrial life, using existing antennas of the Deep Space Network at Goldstone, Calif., and some state-of-the-art hardware including a new very wide bandwidth supercooled preamplifier that will be developed specifically for the effort. The search would start in October 1978 and last for five years.

In their introduction to the book, the authors describe the SETI effort by saying:

"This is an exploration of a new kind, an exploration we think both as uncertain and as full of meaning as any that human beings have ever undertaken.

"The search would be an expression of man's natural exploratory drive. The time is at hand when we can begin it in earnest. How far and hard we will need to look before we find a signal, or before we become at last convinced that our nature is rare in the Universe, we cannot now know."

Copies of "The Search for Extraterrestrial Intelligence" can be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. The stock number is 033-000-00696-0. The price is \$4.50.

Tech Utilization awards

March 23, 1978

Twenty-three Ames employees were rewarded for their inventive efforts at a ceremony held February 27, 1978.

Charles Kubokawa, Chief, Technology Utilization Office, presented a total of \$2,925.00 in Invention and Contribution Board-Awards to the employees for initiating Tech Briefs and Patents through the Technology Utilization Program.

The following innovators received awards: Robert W. Delaplaine and Daniel L. Mossolani each received \$125.00 as co-innovators of a "Rotary Leveling Base Platform." Howard E. Goldstein and Victor W. Katvala each received \$50.00 for inventing "High-Temperature Glass and Glass Coatings." Bruce W. Webbon, Hubert C. Vykukal, and Bill A. Williams were each awarded \$100.00 for developing an "Improved Cooling System for Removing Metabolic Heat from a Hermetically Sealed Spacesuit." Joan Vernikos Danellis received \$50.00 for inventing a new combination of aspirin and Metiamide which reduces stomach ulceration. Thomas B. Fryer received \$100.00 for his invention entitled "Induction Powered Biological Radiosonde." Thomas J. Gregory was awarded \$50.00 for developing a "Rotating Mobile Launcher." William D. Gunter also received \$50.00 for an "Alignment Tolerant Schlieren System." Wayne H. Howard was awarded \$250.00 for his inventive "Tread Drum for Animals." Ronald J. Hruby gained \$125.00 for his "Capacitive Shaft Encoder." Eldon A. Latham

received \$100.00 for a new "Jet Engine Air Intake System." Robert D. Lee was awarded \$50.00 for an innovation entitled "Simultaneous EKG and Ultrasound Display." Wilbur C. Vallotton received \$100.00 for developing an "Artificial Leg with Mechanical Energy Storage Device for Hip Disarticulation." Wendell D. Chase received \$150.00 for his "Full-Color Hybrid Display" and "Spectrally-Balanced Chromatic Approach-Lighting System."

A \$250.00 award was received by Joseph R. Smith, Jr., due to the large number of inquiries received for Tech Brief entitled "Ear Oximeter/Blood Pressure Transducer."

Since software is included in Tech Brief Journals, Henry Lum was awarded \$50.00 for a new computer program entitled "DECIM4-4Digit Binary to ASCII Conversion." John V. Rakich also received \$50.00 for developing a program entitled "Three-Dimensional Supersonic Viscous Flows."

During the ceremony, three employees received monetary awards for both Tech Briefs and Patents. Gilbert T. Parra was awarded \$50.00 for Tech Brief "Angle Indicating Digital Servo." In addition, he received \$250.00 for his patent of this same item. Paul M. Sawko and Salvatore R. Riccitiello each received \$100.00 for two Tech Briefs entitled "Improved Intumescent Coating" and "Heating-Moderating Filler for Intumescent Coatings." In addition, they were each awarded \$200.00 for the patents of these inventions. (Cont'd. on Page 3)

1978 CFC Coordinating Committee



At the Annual Meeting of the Combined Federal Campaign (CFC) Coordinating Committee, held on February 16, 1978, at the Naval Air Station's (NAS) Officers Club, Ames Research Center was given a special award. This award is given to Federal installations who have met the full share standard of giving.

On hand at the award ceremony were Fred Styles, 1977-78 Loan Executive to the United Way Santa Clara County; C. J. Fenrick, 1977-78 ARC CFC Campaign Coordinator; Captain J. M. Quin, Jr., USN Commanding Officer, NAS, Moffett Field; Louis H. Brennwald, Director of Administration of ARC, representing the Deputy Director of Ames; and Janet E. Glaab, EEO Specialist at ARC, a member of the CFC Coordinating Committee.

Pacific Northwest governors approve NASA satellite applications

Governors Dixy Lee Ray of Washington, John Evans of Idaho, and Robert Straub of Oregon have unanimously agreed to a three-year program to demonstrate the use of NASA-supplied satellite data for natural resource management in their states.

The three governors who, with federal representative Pat Vaughan, make up the Pacific Northwest Regional Commission, voted \$480,000 from Commission funds to support first-year activities beginning next month.

The three-year plan is designed as a follow-on to the Land Resource Inventory Demonstration Project launched by the Commission in 1975. Under that demonstration project, over 45 state and local agencies in the three states conducted test projects incorporating the satellite data into their surveys and inventories of various land cover types. The program's continuation will provide planning and natural resource management agencies in the three states with an operational capacity to extract and use information derived from NASA's Landsat satellite system and will aid them in handling the more sophisticated data to be gained from Landsat C after its launch in early March.

The Pacific Northwest program joins other demonstration projects across the country in a con-

tinuing effort by NASA's Office of Space and Terrestrial Applications to make space technology accessible to state and local governments, businesses and universities.

Technical assistance and training of agency personnel in the demonstration project were supplied by Ames and the U.S. Geological Survey (USGS) who will continue as partners in the follow-on phase. A seven-member task force, representing state agencies, NASA and USGS, will oversee the demonstration project through 1981.

State and local agencies in the northwest say that the satellite data has proved valuable in surveying agriculture, forestry, water resources, range lands, urban areas and noxious weeds. Monitoring of two other areas recently affected by federal legislation, surface mining and coastal zone management, will increase in the new three-year effort.

The Pacific Northwest Regional Commission is one of seven multi-state organizations created and funded under Title V of the Public Works and Economic Development Act of 1965. Chartered to promote economic development and stability in the northwest region, the Commission is chaired by Gov. Dixy Lee Ray and co-chaired by federal representative Pat Vaughan.

Frutkin named Deputy Associate Administrator

Arnold W. Frutkin has been appointed NASA Deputy Associate Administrator for External Relations, effective March 1, 1978.

Frutkin has headed NASA's Office of International Affairs for the past 18 years. In his new position, he will support the Associate Administrator for External Relations in the development of external policy and the coordination of NASA activities dealing with its various outside interests.

Before joining NASA, Frutkin was Deputy Director of the U.S. National Committee for the International Geophysical Year.

A graduate of Harvard College, Frutkin did graduate work at Columbia University and served in the U.S. Navy in the Pacific during World War II. He is a Commander USNR (ret.).

FPC scholarship

Applications may be obtained from the Training and Special Programs Branch, Room 138, Building 241, Extension 5623.

Dinner meeting

The Society of Women Engineers Dinner Meeting is open to the public. It will be held at the Blue Pheasant Restaurant in Cupertino on April 5, 1978. The speaker will be Judith Schliessmann, Lockheed Manager. The title of her talk will be "Your Image and Your Paycheck." Cocktails will be at 5:30, with dinner at 6:30 and the speaker at 7:30.

The menu is Rainbow Trout, \$8.00, or Veal Cordon Bleu, \$8.30. Both include full dinner. For reservations call Sharon Okonski at 6030 or 5014.

Joggernauts honored



Members of the Ames Joggernauts were presented with medals from Dr. Lewis Hughes, Chief, Health and Safety Office, after they captured first place in the 2 mile Inter-Center Postal Jogging Competition.

SAFETY CORNER:

How close are you to a third-degree burn?

Home water heaters can heat water hot enough to cause a fatal burn injury.

In the Bay Area numerous people each year, most of them young children, are seriously burned by water from a bathroom faucet.

Water at temperatures between 124° and 130° is hot enough to do laundry, dishes and other household cleaning tasks without causing a major threat to you and your family.

Here's how to regulate your water temperature, eliminate the risk of bathtub burns and lower your utility bill.

1. Turn on the hot water only at the tub. Let the water run for 3-5 minutes. Check the water temperature with a meat, candy or water thermometer. If the water is 130° or hotter the thermostat on the water heater should be turned down. CAUTION: Water heater thermostats are not very reliable. Many are marked "low-medium-high." Those that have numbers cannot be totally relied upon either.

2. Turn the thermostat down.

3. Wait a day for the water to reach the new temperature and check the temperature at the bathtub faucet as before.

4. If necessary repeat the process until the hottest water temperature is between 124° and 130°.

CPR training available

LOCATION: Room MB 23: Classroom Lab and Learning Resource Center, Mission College, 3585 Monroe Street, Santa Clara, 988-2200.

TIME: Mondays, March 27 - June 12, 1:00 - 4:00 p.m. Saturdays, April 1, 8, and 15, 9:00 - 12:00 a.m. and 1:00 - 4:00 p.m.

INSTRUCTORS: Julie Rose, RN, MA, and Cindy Rohrs, RN, BS.

Cardio-pulmonary resuscitation is an easily learned technique that can be used to save the life of heart attack victims.

The course is designed to provide basic Red Cross Certified CPR training or to provide a refresher course for recertification.

Instruction is offered on a self-paced method, permitting attendance at times convenient to the student within the schedule shown above. Nine to twelve hours of instruction are typically required to complete the program.

Persons interested in taking this course should submit an ARC 301 to the Training Office, Mail Stop 241-3.

Annual AIAA model airplane contest

This year the contest will be held at the Sunnyvale Community Center on Remington Road on Sunday, May 21, 1978. The events to be flown will be: Delta Dart in two age classes, 11 and under, and 12 through 14; Penny Plane in two classes, 14 and under, and 15 through 19; and Original Design in two classes, 14 and under, and 15 through 19.

Trophies through 5th place and ribbons through 10th place will be awarded in all events for ages 14 and under. Trophies through third place will be awarded in the Senior Penny Plane and Original Design events.

Delta Dart Kits and contest rules sheets are available from:

Lou Young, Bldg 244/Rm 136, Ext 6546

Joseph Steger, Bldg 202/Rm 216A, Ext 6417

George Xenakis, Bldg 210/Rm 241, Ext 5430

For additional information and free Penny Plane Plans please contact Mr. Xenakis.

Santa Clara Science fair April 6, 7 & 8

A special invitation has been extended to all employees and their families to visit the Eighteenth Annual Santa Clara Valley Science and Engineering Fair. The Fair will be open to the public April 6, 7, and 8 (Thursday, Friday, and Saturday) from 10 a.m. to 5 p.m. in Gateway Hall at the Santa Clara County Fairgrounds located on Tully Road, San Jose. Admission is free.

The Science Fair is sponsored by industry and organizations in the Santa Clara Valley area.

Each year, several hundred students from public, private, and parochial schools, grades six through twelve, exhibit projects chosen because of their own scientific interest. The research, attention to details, documenting of data leading to attainment of a logical conclusion, offer evidence that American students are still "turned-on" to science and learning.

The Fair is judged by scientists from the various fields of biological and physical science. In many instances, these volunteer judges are associated with companies and organizations that sponsor the Science Fair.

The Awards Ceremony, held Saturday, April 8 at 1:30 p.m. at Fiesta Hall on the Fairgrounds, honors the winners of each category at each grade level. In addition, many larger prizes from local and national organizations are awarded to outstanding exhibitors, including several \$600 Work-Fellowships. Grand prizes for the best biological science project and the best physical science project entitle those winners to compete in the International Science and Engineering Fair being held this year in Anaheim, California.

The public is invited to attend the Awards Ceremony.

Tech Utilization

(Continued from Page 1)

Acting Director C. A. Syvertson, after offering congratulations to the recipients, closed the awards ceremony by saying, "Keep up the good work and I hope to see you all here again soon."

The Awards and Contributions Board is authorized by the Space Act to recognize employee and contractor innovations by providing cash awards. The Minimal Award is fifty dollars (\$50.00) when a Tech Brief is published or one hundred dollars (\$100.00) when a Patent Application is filed for an innovation reported to the Technology Utilization Office and/or the Patent Counsel. The Board gives special consideration to those items which are a significant scientific and technical contribution and/or transferred and used in the private or public sector.

As the Patent Counsel and the Technology Utilization Office prepare special justification for the Boards consideration, two important steps are required and should be emphasized. One, employee innovations must be reported if they are to be considered and secondly, evaluations (Awards Evaluation Questionnaire originated through the Technology Utilization Office) to the innovator's management should be carefully prepared to assure that significant innovations are recognized and proper justifications prepared for consideration by the Board.

Innovations do not necessarily need to be technical in nature but can include any item which has merit or utility, including computer programs. Assistance in reporting and preparing innovations for publication can be secured by contacting the Technology Utilization Office.

Cafeteria menu

This month, the Astrogram begins publishing all of the upcoming Ames Cafeteria menus. In approximately six months Center opinion will be pulsed as to how beneficial and helpful employees feel this type of information is. Please let us know at that time.

March 28 through April 3, 1978
A LA CARTE MENU

TUESDAY

Roast Pork and Dressing
Polonaise Burger
Franks and Boston Baked Beans
Choice of One: Whipped Potatoes, Rice Pilaf,
Green Peas, Corn or Salad
Soup: Onion, Macaroni and Tomato

WEDNESDAY

Swiss Steak with Rice
Shrimp Chow Mein or Fresh Mushroom Omelette
Choice of One: Whipped or Lyonnaise Potatoes,
Green Beans, Spinach or Salad
Soup: Fresh Vegetables

THURSDAY

Brisket of Corned Beef with Buttered Cabbage
Zucchini Casserole or Omelette
Choice of One: Whipped or Parsleyed Boiled
Potatoes, Zucchini, Lima Beans or Salad
Soup: Cream of Chicken

FRIDAY

Oven Baked Chicken with Fine Herbs
Grilled Fish with Tartar Sauce or Omelette
Choice of One: Whipped Potatoes, Rice, Spinach,
Carrots or Salad
Soup: Seafood Gumbo or Borscht

MONDAY

Beef Stew with Vegetables
Chili Burger and Rice or Omelette
Choice of One: Rissolle or Whipped Potatoes,
Zucchini with scallions, Asparagus or Salad
Soup: Minestrone

April 4 through April 10, 1978
A LA CARTE MENU

TUESDAY

Breaded Pork Chop with Cream Gravy
Beef Hash/Poached Egg or Omelette
Choice of One: Lyonnaise or Whipped Potatoes,
Sweet Peas, Beets or Salad
Soup: Fresh Vegetables

WEDNESDAY

Lamb Curry with Noodles
Baked Beans and Knockwurst or Omelette
Choice of One: Scalloped or Whipped Potatoes,
Broccoli, Cauliflower Saute or Salad
Soup: Beef Barley

THURSDAY

Swiss Steak and Vegetables
Chiliburger and Rice or Omelette
Choice of One: Rissolle or Whipped Potatoes,
Zucchini with Scallions, Asparagus or Salad
Soup: Minestrone

FRIDAY

Mini Cod with French Fries
Hamburger Steak with Bordelaise Sauce or
Omelette
Choice of One: Fried Rice, Whipped Potatoes,
Baby Limas, Corn O'Brien or Salad
Soup: Coney Island Clam Chowder

MONDAY

Ham and Chicken Supreme
Baked Stuffed Peppers or Omelette
Choice of One: Whipped Potatoes, Rice Pilaf,
Buttered Lima Beans, Au Gratin Spinach or
Salad
Soup: Lentil or Fraciach Onion

Special MBA announcement

The next MBA INFORMATION MEETING is scheduled for Friday, April 7. All employees of ACE member organizations who are interested in learning more about the televised MBA PROGRAM are invited to attend.

The purpose of this INFORMATION MEETING is to explain the objectives of the program and answer questions concerning the requirements for admission and how you can enroll in the courses which are scheduled on television.

Remember: DATE - Friday, April 7; TIME - 12-1 p.m.; CHANNEL - 3 (Room 191 Skilling Building for those who will be attending on the Stanford Campus).

Golf

The first Ames Golf Club tournament of the year was held February 11 at Sunnyvale Municipal Golf Course. Tournament chairpersons Stu and Donna Johnson report the following winners of the 2-man best-ball event:

First Flight: 1 - B. Ross/F. Johnson; 2 - Tie between R. Hedlund/L. McCulley, P. Quattrone/M. Macon, T. Almojuela/B. Gray, and A. Petretti/P. Barisich

Second Flight: 1 - C. McCloskey/J. Silver; 2 - T. Polek/R. Sandoval; 3 - Tie between B. Quattrone/E. Menefee, S. Johnson/A. Lopez, and E. Rozewicz/M. Rozewicz

The most players ever (73) to play in an Ames Golf Club tournament turned out for the San Jose Muni Tournament held on March 11. Tournament Chairmen Don Graham and Richard Dick report the following winners:

First Flight: 1 - Tie between D. Banducci and H. Mathews; 3 - J. Martin; 4 - Tie between F. Johnson and E. Ronsted

Second Flight: 1 - D. Norman; 2 - M. Radovich; 3 - R. Dick; 4 - D. Graham; 5 - R. Carlson

Third Flight: 1 - B. Scott; 2 - Tie between J. Silver and D. Davis; 4 - Tie between E. Tischler and R. DeConti

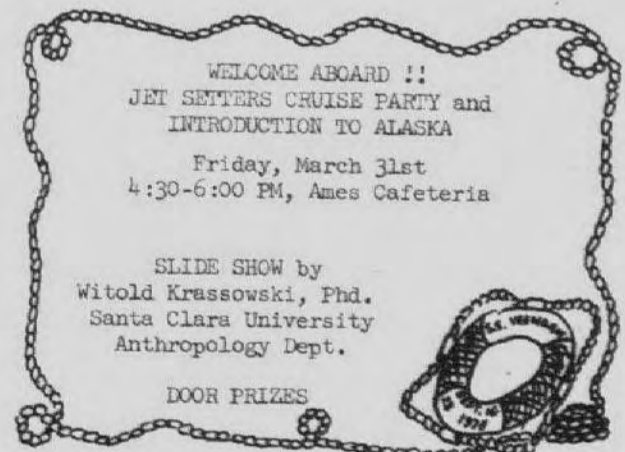
Fourth Flight: 1 - M. Reisner; 2 - R. Sandoval; 3 - A. Llamas; 4 - Tie between E. Mitz and D. Van Sickle

Fifth Flight: 1 - D. Johnson; 2 - Tie between J. Pogue, C. Banducci, and W. Harry; 5 - Tie between B. Gray and G. Rathert

Closest to hole: No. 4 - A. Petretti, No. 7 - E. Mitz, No. 12 - S. Johnson, No. 17 - R. Ramos.

Secretaries Week coming up

The 2nd Annual Secretaries Week Breakfast will be held Wednesday, April 26, 1978. Watch the next Astrogram for further details about the breakfast.



Ames Promotion Plan vacancies

Notice No.	Title	Grade	Org.	Area of Consideration	Closing Date
77-79	Accounting Technician	GS-5/6/7	AFC	Centerwide	4-3-78
77-80	Personnel Clerk (Typing) or Clerk-Typist	GS-4/5 GS-3/4	APM	Centerwide and outside	4-3-78
78-69	AST Experimental Facilities and Equipment (Test Project Engineer)	GS-7/9	FAX	Centerwide and outside	4-24-78
78-70	AST Experimental Facilities and Equipment (Instrumentation Engineer)	GS-7/9	FAX	Centerwide and outside	4-24-78
78-71	AST Experimental Facilities and Equipment (Wind-Tunnel Facilities Engineer)	GS-7/9	FAX	Centerwide and outside	4-24-78
78-76	Voucher Examiner	GS-3/4/5	AFG	Centerwide and outside	4-3-78
78-77	Procurement Clerk (Typing) or Clerk-Typist	GS-4/5 GS-3/4	ASA	Centerwide and outside	4-3-78
78-78	Systems Accountant	GS-11/12	AFB	Centerwide	4-3-78

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

MERIT PROMOTION PLAN SELECTIONS

Notice No.	Title	Org.	Name
78-41	Res. Arcft Inspector	FOI	Frank Presbury
78-44	Accounting Technician (GO)	AFC	Cancelled
78-50	Secretary (Typing)	LM	Diane Kimball
78-54	Contract Specialist	ASF	Sue Ann Sue
78-59	Teller	AFP	Nancy Rigney (outside candidate)
78-60	Supv. Electronics Tech	FOS	Alson Silva
78-61	Secretary (Steno)	L	Anita Paige

Want ads

Transportation

Attention Fiat owners: Have wire sets, ignition parts, break and clutch parts, water pumps, air and oil filters, wheel bearings, valves, etc., 50% off dealer prices. Call Carol Anderson, 948-1627 evenings.

For Sale: 1970 VW Bug, low mileage, good condition, \$1400. Nancy, 287-0676.

1966 Porsche 912, new metallic brown paint, rebuilt engine, \$4300. Gary, 287-0676.

1978 Pontiac Firebird Formula. Odometer reading: 2,525. Moffett Field Emp. Credit Union is currently accepting bids. Minimum bid: \$6,500. Bidding open through March 29, 1978 at 2 p.m.

1975 Chevy Monte Carlo. Moffett Field Emp. Credit Union is currently accepting bids. Minimum bid: \$2500. Needs work. Bidding open through March 29, 1978 at 2 p.m.

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

For Sale: 1971 175cc Honda road bike. 5000 mi. Exc. cond. \$250. Call 965-8434.

SPRING IS HERE! Time to buy a Honda Trail 70, 300 miles, like new \$300; Honda 70 Step thru, 200 mi, with locked box (takes large grocery bag), \$275. I'll bring to work if you're really interested. Sal, 259-4618, eves.

For Sale: 1973 Honda CB 350, low miles, runs well. \$475/offer. 948-5968.

For Sale: 1975 Ford Courier, like new. 7,800 miles, original owner. \$2800 firm. Pat Hallett, evenings, 967-0953.

Housing

House rental, Palo Alto. June 1 to Sept. 15. Completely furnished 5 bdrm, 2 bath. Incl. membership in swim and tennis club located across the street. Children welcome. \$600 month. 494-6492.

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

Summer Faculty Fellow desires furnished accommodations for his family in the vicinity of Moffett Field for the period June 15 through the end of August. Need 3 to 4 bedrooms, preferably with access to swimming pool. Contact Dave Chappell, 5441, or Jim Brown, 5020.

Miscellaneous

For Sale: Mercedes Benz, 250 SE engine, \$450; 250 SE fuel injection system, \$350; 230 SL 4-speed transmission, \$250; or all for \$950. 354-2682.

For Sale: '74 Chaparral 19' Jet 455 Olds Berk. pump covered engine and some eqpt. A&M trlr, \$5000-B/O. Bob Springer, 408/249-4031.

For Sale: Authentic Indian jewelry from New Mexico. Beautifully crafted turquoise, coral, etc., set in silver. Call Fred, 967-5487, evenings.

Wanted to buy: Used Kirby vacuum cleaner, good condition, reasonable. Call 253-7518, evenings.

Coldspot refrigerator. Excellent running condition. \$50. Can be seen in Trailer No. 6, Bldg. (hangar) 248. Available 3/31. Phone 6487/6563.

For Sale: Kelvinator side-by-side refrigerator-freezer (extra large 25 cu.ft. refrigerator w/large freezer) \$75; power lawn mower, \$50; Scotts push lawn spreader, \$9. Call Tom Spalding at 965-5465.

For Sale: Ampex 1260 tape recorder, reel to reel, 3 heads, near professional machine, \$275 or best offer; Fisher tube type stereo components, make offer; 80 watt rms amplifier, stereo tuner, Thorens TD135 manual turntable w/Shure cart.; Heathkit triggered oscilloscope, new kit (not assembled), \$130; Heathkit RF signal generator, \$50; B&K instruments TV analyzer, the complete TV servicing tool, \$125. M. Wash, 259-7607, after 6 p.m. and weekends.

For Sale: Brand new 10'x12' gold carpet with 3/4" padding, \$60. Call 298-6390.

San Jose Swim and Racquet Club Family Membership in Willow Glen, \$375, 238-2208 after 6:30 p.m.

For Sale: Man's bike, Royce-Union, 3-speed, \$45; dog house, 2x3 ft, assembled, \$45. 241-4459.

For the outdoorsman: A 20-foot Fifth Wheel Prowler Trailer, 6 months old, completely self-contained. Excellent condition! Phone 948-3041 after 4 p.m.

Playhouse or garden shed for sale. 8x8x7 ft, 3 windows, inside paneled, asphalt shingle roof. You dismantle and move. 253-1454.

Free terrier-mix female dogs to good homes. Very loving companions. 255-6585.

The Astrogram

Admin. Mgt. Building, Phone 965-5422

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