

"Flight, This Is EGIL!"

Controllers run first of Skylab sim sessions

The faces are familiar, the consoles look much the same, but the chatter on the loops sounds new and strange. And rightly so, because a new mission for the Mission Control Center is in the offing.

EGIL—pronounced "eagle"—is just one of the many new call signs for Skylab in the MCC. The letters stand for the console position, "Saturn Workshop, Electrical, General Instrumentation Life Support Systems."

This past week a team of flight controllers, flight planners, and "backroom" experts assembled in the MCC's third floor rooms for a series of preliminary Skylab experiment planning simulations.

These first simulations are aimed at exercising the basic plans and procedures necessary before more detailed sims, involving other elements of the Skylab team, can begin later.

Flight planners and controllers are taking an initial look at procedures involved in integrating the four areas of experiment planning in Skylab, particularly the ATM (Apollo Telescope Mount) and EREP (Earth Resources Experiments Package) areas, and to evaluate the effects of solar activity and Earth weather on Skylab's operation.

Participating in these preliminary sims are members of the Flight Control Division, Space Flight Meteorology Office, Crew Procedures Division, and Mission Planning and Analysis Division.

No real-time computer support is involved in the sims, and no data from the spacecraft or spacecraft problems are injected into the sims.

The main variables being considered at this time are weather in the target areas, resulting in flight plan updating to work a-

round predicted cloud cover along the groundtrack, and un-expected solar activity necessitating changes in the ATM plan.

The sims cover the period between command module rendezvous with the Skylab and undocking for the return to Earth.

A list of the Skylab instrument ON/OFF times for each instrument as it passes over the target (based on the fields of view) during each revolution is provided to the teams in Mission Control.

Graphical display of the ground tracks superimposed on the targets is projected on the TV displays in the front of the Mission Operations Control Room and on the consoles.

To provide weather realism for these initial sims, the Space Flight Meteorology Office began in December to record daily real-time data from areas around the world which Skylab will cover and to make weather forecasts for that day and projected five-day forecasts.

During the current simulations, meteorologists in the MCC provide the cloud cover forecast for the countries scanned by Skylab and give the flight controller teams the probabilities of cloud cover in the areas under the groundtrack of Skylab.

A typical day of planning begins with awakening the crew at 6:00 a.m. Houston time and at 6:30 a.m., giving the GO/NO-GO for the day's EREP pass and experiment plan.

At 10:00 a.m., the initial selection of EREP passes for the next five days is made. Information on special experiment requirements is also relayed at that time.

At 1:00 p.m., the flight controller teams look at a summary flight plan and alternates available (See MCC, page 2)



ATM SSR — The Apollo Telescope Mount Staff Support Room in the Mission Control Center was one of the focal points of activity during the initial simulations for the Skylab missions. The sims were conducted last week and concluded earlier this week.

Scientists, Earth resource experts conclude their meetings at MSC

From January 10 through 13, over 600 scientists from the U.S. and 13 foreign countries met here for the Third Annual Lunar Science Conference.

The following week, some 460 experts in the field of Earth resources and remote sensing registered at MSC for the Fourth

Agency to develop health care system

NASA has asked eight aerospace firms for proposals to design, develop, and test a ground-based unit of the Integrated Medical and Behavioral Laboratory Measurement System—known as IMBLMS—for use in future manned space programs.

IMBLMS is a system for providing medical and health care for space crews or possibly groups living in remote areas on Earth.

Such assistance would be remotely monitored and controlled by doctors supervising the work of trained members of space crews or trained persons in isolated groups on Earth.

In this instance, the Agency is limiting the request to proposals developing only the earth-bound field unit as a portion of the overall IMBLMS project.

MSC issued the request for proposals as part of the program design phase of the IMBLMS project which began in 1967.

Firms asked to submit proposals include General Electric, General Dynamics, Grumman, Honeywell, IBM, Lockheed, McDonnell (See HEALTH, page 2)

Annual Earth Resources Program Review.

Dr. Paul Gast, Chief of the Planetary and Earth Sciences Division, was program chairman for the Lunar Science Conference, co-hosted by MSC and the Lunar Science Institute.

Dr. John Dornbach, Deputy Director of the Applications Office, Earth Observations Division, served as meeting chairman for the Earth Resources Review.

Anthony J. Calio, Director of Science and Applications, gave the addresses of welcome at both meetings. Colonel James McDivitt, Apollo Program Manager, offered the keynote speech at the Lunar Science Conference. His subject was "Science Capability of the Last Three Apollo Missions."

Charles Matthews, Associate Administrator for Applications, NASA Headquarters, gave the

Stafford named for AF promotion

Astronaut Thomas Stafford, an Air Force colonel, has been nominated for promotion to the rank of brigadier general.

Stafford, Deputy Director of Flight Crew Operations, learned of his selection last Thursday when he received a phone call from Vice President Spiro Agnew.

The promotion is subject to Senate confirmation.

Apollo Program Manager Colonel James McDivitt, promoted to Air Force brigadier general last year, will pin on his stars on March 1.

keynote address at the Earth Resources Review.

The Office of Applications was formed, with Matthews as its head, in December. Following his talk before the Earth Resources group, Matthews said during a press briefing that there is a real desire on the part of NASA management to emphasize the applications area.

Within the Earth resources purview, he believes that "the sensors (used on ERTS and EREP) are completely adequate to provide for major arenas of activity involving such things as hydrology and agriculture, at this stage."

He continued, "I would envision the space system as being a leg of a total system that also involves aircraft and people right here on the surface of Earth doing some detailed investigations."

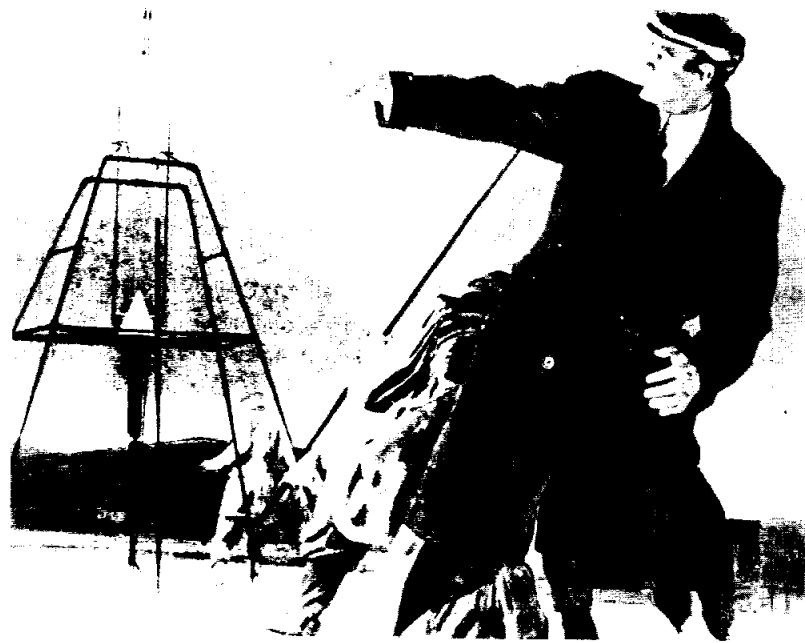
He sees applications as going "well beyond just the idea of placing satellites in Earth orbit. They will involve activities that take space equipment and space know-how and apply that to systems based on the ground."

Other organizations besides MSC taking part in the Resources Review were the U.S. Geological Survey, the Department of Agriculture, Naval Research Laboratories, National Oceanographic and Atmospheric Administration, other NASA centers, and a number of universities.

Apollo 15 crewmen David Scott, James Irwin, and Alfred Worden took part in a question-and-answer session during the Lunar Conference, concerning their observations (See SCIENCE, page 3)



WHITE HOUSE SCIENCE ADVISOR Dr. Edward David (center) accompanied Apollo 17 crewmen Eugene Cernan and Jack Schmitt during a recent field geology training trip near Boulder City, Nevada. Dr. John Hanley (left), NASA Headquarters, and Dr. Gordon Swann, U.S. Geological Survey, are also pictured in front of the "Explorer," a USGS vehicle which travels well over rugged terrain.



Courtesy of The John Hancock Mutual Life Insurance Co.

He opened the door to space...

It was small compared with the giants men send up today. And for all the racket it didn't go much higher than the barn roof.

This didn't matter to Robert Goddard. The big thing was that it flew. They're all over the front pages now. Rockets with names like Atlas and Titan and Saturn probe the heavens and stretch for the moon, chipping away at space... because a young physics professor from Worcester, Mass., led the way.

In those days only boys were supposed to take rockets seriously. They discovered them in the books of Jules Verne and H. G. Wells, as Bob Goddard did. But Bob Goddard carefully noted in the margins whenever these friendly violated scientific fact.

At college his first experiments filled the labs with

smoke. Later, with savings from his modest salary, he shopped hardware stores for "rocket parts." And in his workshop a dream began to take shape.

On a cold March morning in 1926, out on his Aunt Flib's farm in Auburn, the dream took flight. With the first successful launching of a liquid-fuel rocket, Bob Goddard turned science fiction into fact.

He made us remember something, this stubborn Yankee professor... that America is a land where free men have made a habit of doing the impossible. In such a climate no boy's dreams are ever really out of reach. And it is to help ensure that climate of freedom for our children that millions of us invest regularly in United States Savings Bonds.

Buy U. S. Savings Bonds on the Payroll Savings Plan.

MCC completes first Skylab sims

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to the MOCR operations. The summary flight plan is approved around 5:00 p.m. After plan approval, experiment detail planning

Students Respond to Skylab Project

Over 80,000 U. S. high school students have applied to participate in the Skylab Student Project, sponsored by NASA and the National Science Teachers Association. Today is the deadline for student proposals.

Skylab crewmen will perform a limited number of the experiments proposed by students. Announcement of regional and national selectees will be made in April. NASA will pick the final flight experiments from the 25 national winners.



THEY WERE FRAMED—Photos of all the Apollo crews, signed by each crew member, were recently given to Clear Creek High School, where many MSC employees' youngsters are enrolled. The pictures will be displayed in the high school lobby. Shown at the presentation are (l. to r.) Ralph Parr, Senior Class Principal; Arthur Goforth, High School Principal; Chris Christman of MSC's Industry Affairs Office; and Lloyd Ferguson, Superintendent of the Clear Creek School District.

Air crash fatal to Heath and Present

Mark C. Heath and Stuart M. Present, civilian pilots with the Aircraft Operations Division, were killed on January 20 when their T-38 jet crashed into the beach on Matagorda Island.



Mark Heath

Heath, a native of Ohio, came to MSC from the Air Force in December 1966. He is survived by his wife Joan and three children, Mark C., III; Jay, and Molly.

Present was born in Brooklyn, New York. Prior to joining MSC in 1968, he was employed by the Federal Aviation Administration. His survivors include his wife Barbara and two children, Marsha and Stephen.



Stuart Present

MSC director Christopher C. Kraft, Jr., has named an Accident Investigation Board. Members are Harold E. Ream, Colonel Joe N. Engle, Conway H. Roberts, George L. Bosworth, and Dr. Clarence A. Jernigan.

Health care plans

(Continued From Page 1)

Douglas, and RCA. The Department of Health, Education and Welfare and the Veterans Administration will take part in evaluating the proposals.

Although NASA has experience in providing health care on the ground and in space, there still exists the need for a system which satisfies requirements of health service for long duration missions. A long mission will require some member of the crew to be specially trained—a physician's assistant, hospital corpsman, nurse, or physician, for example.

The proposals will relate to building a field test unit. With proper applications, this unit could hopefully be used to evaluate delivery of health services to remote or isolated communities on Earth.

Theater nights set

March 8 and 9 are to be MSC nights at the Dean Goss' Dinner Theater. The play on tap is "Enter Laughing."

Reservations won't be taken until February 21. The EAA will send out a flyer with more detailed information before that date. Tickets will cost \$6 per person.



VOLLEYBALL CHAMPS — In the mixed volleyball league tournament, the team pictured was runner-up—winning 3 of 5 matches—to an Ellington Air Force Base team. The ladies prettily posing in the front row are (l. to r.) Judy Nelson, Jennifer Reid, Bonnie Panter, and Bonnie Sawin. The gentlemen are Lowell Nelson (Judy's husband), Stephen Derry, and Bill Panter (Bonnie's husband). Bonnie Sawin's husband Chuck was not available for the photo session.

RFP's go out for Recreation center

Requests for proposals (RFP) from industry were issued by MSC this week for the construction of an employee recreation center.

Those receiving bids include ACM Builders, Bellaire; Bayport Construction Company, Baytown; Cinco Building Corporation, Pasadena; and American Steel Building Company, A & S Steel Buildings, Best Steel Buildings, Inc; Francis Construction Company, J. M. Monk Building Company, Pacer Building Systems, and Superior Building Systems, all of Houston.

Replies to the RFP's will be returned by February 16, and the

contract is to be awarded by March 1.

The groundbreaking ceremonies are tentatively set for April 1, with construction expected to take approximately five months.

APOLLO 16 STILL GO FOR APRIL

Repairs on the Apollo 16 command module reaction control system continued this week at Kennedy Space Center. Work on the spacecraft is not expected to delay liftoff, now set for 11:54 a.m. C.S.T. on April 16. Lunar landing is scheduled for 2:41 p.m., April 20, with the first EVA to begin four hours later.

MSC Photographer to star in Opera

Terry Slezak of the Photographic Technology Division will set aside his cameras this weekend to sing the lead tenor role in the Beaumont Civic Opera's production of Franz Lehar's "The Merry Widow."

Actually, singing professionally is not a new experience for Terry. Before coming to Houston, he was primary tenor with the Peninsula Civic Opera in Newport News, Virginia.

Four years ago he began singing at the Galleria Opera House on Old Market Square in Houston. Later he moved to Les Quatre Saisons—also on the Square—of which he is a part owner and where he regularly performs his vocal art. In April, Terry and some of the other singers from Les Quatre Saisons will release a record album of operatic arias.

Originally from Iowa, Terry began studying voice in Germany while he was in the service. He was a soloist with the U.S. Army 3rd Armored Division Chorus and toured with the group all over Europe from 1956 through 1959.

His Army stint completed, he returned to New York City where he found a job as a photographer and continued studying voice. Later he moved to Newport News

and went to work first for the *Daily Press and Times Herald* and then for the Space Task Group at Langley Field as a photographer. He transferred to Houston with the MSC team in 1961.

Terry regularly takes part in Houston Grand Opera Previews, performances at which the main arias of a coming opera are sung.



Terry Slezak

The previews are free, and one always held is at the Houston Central Library. Local newspapers usually carry notices of the preview times and locations.

Terry's current job at MSC is as an aerial photographer, flying aboard the Earth Resources aircraft. If it's ever decided to produce earth resources films with a musical score, talented Terry Slezak will certainly have a lead dual role.



ON THE LINE—The four candidates for the Vince Lombardi award to college football's top lineman visited MSC while they were in Houston for the awards banquet. Astronaut Joe Allen (center) met with the players during their tour here. The husky foreshores are (l. to r.) Walt Patulski of Notre Dame, who won the Lombardi trophy; Ron Estay of Louisiana State, and Rick Glover and Larry Jacobson, both from the University of Nebraska.

Science, Resources meetings end

(Continued From Page 1)

on the moon's surface and from lunar orbit.

In addition to relating their Apollo 15 experiences, the men waxed philosophical at times. In particular, Dave Scott said, "We found during the mission something I think a lot of us knew before we started, and that's this thing about exploration and its being a fundamental nature of man."

"From exploration comes discovery, and from discovery comes knowledge and understanding, both of the mind and the spirit. I think you realize that it takes men of all nations and all disciplines to reduce the discoveries to knowledge and understanding."

At a summary session of the conference, Dr. John Wood of the Smithsonian Astrophysics Observatory said what, perhaps, most scientists attending the conference felt.

"We've seen the character of lunar research change dramatically over the last three years. It underwent a quantum jump in the case"

Bowmen Seek Arrow of Ways

The Toxophilites field archery club of Dickinson will sponsor an indoor archery tournament on February 26 and 27 at the pavilion in Galveston County Park.

So break out your bows and enter the tourney. If you're not an archer, drop by and watch the action.

For reservations for a particular shooting session of for more information call Tommy Keeton, x5551, or Sam Ankney, x2308. After 6 p.m., call 932-6121.

of the Apollo 11 conference when suddenly we opened up a whole new planet and data from return samples became available.

"We saw our analysis of the character of the moon become more sophisticated last year at the Apollo 12 conference, and this year I believe we are really beginning to understand something about the structure and evolution of the moon."

T.I.A.S.A.S.

This Is A Story About Skylab

As we move into the training phase for Skylab and closer to the first launch in that program (April 1973), more abbreviations or acronyms will be bandied about in print and in conversation.

To help you follow the Skylab program with more understanding, the *Roundup* publishes the following list of some more commonly used Skylab acronyms.

- AM—Airlock Module
- AME—Astronaut Maneuvering Equipment
- ATM—Apollo Telescope Mount
- CDS—Circadian Data System
- CEA—Control Electronics Assembly
- CM—Command Module
- DSE—Data Storage Equipment
- EEG—Electroencephalogram
- EREP—Earth Resources Experiment Package
- ESS—Experiments Support System
- FAS—Fixed Airlock Shroud
- FMSC—Film Magazine Storage Container
- GSE—Ground Support Equipment
- MDA—Multiple Docking Adapter
- OWS—Orbital Workshop
- SL—Skylab

Roundup Swap-Shop

(Deadline for Swap-Shop classified ads is Thursday of the week preceding *Roundup* publication date. Ads are limited to MSC civil service employees and assigned military personnel. Maximum length is 20 words, including name, office code and home telephone number. Send ads, typed or legibly written, to *Roundup* Editor, AP3)

MISCELLANEOUS

- Camper bumper, heavy duty, telescoping folding step, fits Ford F250, may fit others. \$40. White. 482-7529.
- Seven new 18" x 6' arched-head leaded glass window units, complete. Holzaepfel, 427-1657 (Baytown).
- Golf clubs, left-handed, 1, 3 & 4 woods, 2-9 irons, pitching wedge and putter, good cndn. \$45. Fleming, 877-1193.
- Ski alarm, automatic sonic alarm warns drivers when skier is down, operates from 12-volt boat battery, \$20. Messenger, 471-1079.
- Auto air conditioner, Fridgeking, works for Ford V8, \$50. McCoy, 944-5574.
- Golf bag, new, never used, \$10. Mark, 488-5037.
- Automobile, Ford, York air compressor and clutch, \$35. Brenton, 488-4372.
- Dyna Fog insect fogger, \$75. Brenton, 488-4372.

VEHICLES

- 66 VW, very clean, radio, good tires, runs and looks good, \$725. Holzaepfel, 427-1657 (Baytown).
- 70 1/2 Honda CL 450, 6000 mi., xln cndn., red, \$800. Ardoin, 877-4960.
- 70 Ford, 1/2 ton pickup, 20,000 miles, Maverick camper shell, like new, must sell. Roach, 645-7932 after 6 p.m.
- Honda, 750 CC, 2,000 miles, like new, must sell. Roach, 645-7932 after 6 p.m.
- 63 Karmann Ghia convertible, xln mechanical cndn, new tires, brakes, exhaust system. Cohen, 488-3171 after 5:30 p.m.
- 70 Triumph motorcycle, Trophy 250cc 877-1666.
- 77 Suzuki 350, good cndn, \$500. Jevas, 644-5832.
- model. xln cndn, fine machine, \$525. Gillen, 71 Honda SL125, xln cndn, less than 2500 miles, \$400. Rodman, 482-1420.
- 66 Chevelle 300 Deluxe, 4-door sedan, 6-cyl. standard, A/C, radio, 70,000 miles. Merriam, 488-3806.
- 71 Honda CB 350, many extras, 2100 miles adult rider. 70 Honda QA-50 mini, like new, about 3 hrs. Underhill, 488-2781 after 4 p.m.
- 56 Pontiac 2 dr-HT, V8, automatic, 64k miles, new tires, battery, brakes, very sound mechanically, body solid but rusty, \$125. Sampson, 481-2716.
- 66 Dodge Dart 170, clean, runs good, radio, heater, manual transmission, nice, \$350. Willis, 944-3647 after 5 p.m.
- 65 Pontiac Tempest convertible, good cndn, automatic, air, 72 plates, \$550. Allgeier, 333-4527.
- 62 Comet, xln cndn, 6-cylinder, A.T., A/C, radio. Mansfield, GR2-2417.
- 68 AMX, 243 cubic inch high performance V8 engine, four-on-the-floor, single family ownership. Forbes, 488-4238.
- 65 Chev, V8, air, overdrive, radio, economical. \$550 or make offer. Deiterich, 482-1859.
- 59 Devco van, 6-cyl. flathead Continental engine, good hunting & fishing truck; stove, sink, running water, ice box, beds, table; in good running order, \$400, will negotiate. Lynch, 523-4194 after 6 p.m.
- 70 Olds 98 luxury sedan, 4-door vinyl hardtop, everything, heavy duty cooling/suspension, new premium tires, \$3495. Fuller, 488-3985.
- 68 Fiat 850 Spyder sports car, hardtop, convertible top, Pirelli tires, baby blue jewel, \$800. Biggs, 471-2745.
- Chopper - 69 Honda, 450cc, \$900. Grubbs, 488-3872.
- 67 Mercury Montclair, 4-dr., air, power steering & disc brakes, AM-FM, good tires, new brakes, extra clean. Embrey, 946-7283.
- 69 Olds Cutlass convertible, A/C, auto-

- matic, AM/FM radio, \$400 under blue book. Coan, 488-1028.
- 62 Corvair, 4-dr. sedan, body rusty and hung starter, \$75. Brenton, 488-4372.
- Travel trailer, 29', like new, sleeps 8, self-contained, stove, eye level oven, refrigerator, abundant storage space, extras. Schwartz, 477-7334.
- 71 Chev Malibu, V8, A/C, power steering, radio, 13,000 miles, priced for quick sale. Burton, 488-3751.
- 66 Ford Country sedan, 10 passenger, loaded, AT, PS, PB, AC, 390 V8, new tires, bargain, \$825. Humbert, 944-8753.
- 67 Pontiac 4-door sedan, A/C, power steering & brakes, still in warranty, \$1200. Schultz, 877-1463.

SOUND EQUIPMENT

- Audiophiles, Heathkit cassette deck, perfect cndn, regular or Cr/O2 tapes, \$180 or best offer. Meigs, 424-5148.
- Vox Westminster base amplifier in good cndn, purchased slightly used from Evens Music Center for \$550. Will sell for \$350. Hughton, 534-5678 after 5 p.m.
- Antenna, 10db gain, 50 db front to back ratio, for stereo FM, \$10. Coan, 488-1028.
- Motorola stereo console (contemporary), xln cndn, \$60. Brenton, 488-4372.

HOUSEHOLD ARTICLES

- Large dinette table, brown and tan wood-grained formica top, 52" x 36" plus 17" leaf. No chairs. Gillen, 877-1666.
- Kenmore top-loading washer & Penncrest gas dryer, \$150 for both. Ligrani, 877-4405.
- Black and white Magnavox console TV, contemporary walnut cabinet, \$50. Hamner, 534-4175.
- Crib, Edison Standard, maple-finished pine, drop sides, toe release, complete w/ extras, \$45. Hill, 471-4305.
- Bedroom suite, 4-pc, \$90; portable television B/W, \$50; French Provincial blue and gold chair, \$40. 946-7104.
- Headboard for king-size bed, Fr. Provincial, fruitwood finish, \$35. Ross, 946-6738.
- Two B/W TV sets, one Zenith and one Sears, \$25 each or two for \$40. Bullock, 488-1042.
- TV, B/W, all channel 19" portable with stand, xln cndn. Coan, 488-1028.
- GE portable dishwasher, like new, avocado finish, \$75 or best offer. McCoy, 944-5574.
- Dining room sideboard, early 1900's, re-finished w/dark stain, \$20. Humbert, 944-8753.
- 2 Danish chairs and Lane lamp table, \$85. Puddy, 877-4787.
- Bunkie mattress, twin size, xln cndn, \$10. Smith, 488-3238.
- Walnut bedroom: dbl bookcase bed w/ bedding, 5-drawer chest, utility table, corner table, desk & chair, \$250. Talbert, 643-9206.
- GE washer, 2 cycle, 12 pound, good cndn, \$60. Reim, 944-3795.

BOATS

- Snipe sailboat and trailer, xln cndn, was asking \$850, will take \$675. Holzaepfel, 427-1657 (Baytown).
- 20-foot plywood boat and trailer, fiberglass bottom, xln cndn, lots of room, \$800 or consider trade for smaller boat and trailer. Holzaepfel, 427-1657 (Baytown).

WANTED

- Like-new dining room suite. Bouillion, 482-7642.
- Adding machine for home use, reasonable. Hamner, 534-4175.
- Portable projector screen, reasonable. Hamner, 534-4175.
- 65 or earlier pickup truck or van. Must be in good shape. Brenton, 488-4372.
- Working lady to share 3 bedroom, 2 bath home with another working lady. Williams, 483-4895.
- Folding wheel chair, good cndn. Workman, 534-3446.
- 1966 Mustang shop manual. Embrey, 946-7283.

PETS

- WANTED good home for female, spayed Bassett hound, AKC, 3 yrs. old, good with kids; Siamese, neutered male, 6 yrs. old. Free, must sacrifice due to allergy problems. Brown, 488-0649.
- Poodle pups mini-type, purebred, \$25 each. Rodman, 932-2897.
- AKC registered Lhasa Apso puppy, male, 3 mos. old, champion line, \$150. Moseley, 481-2394.
- Male Beagle, 4 mo., AKC, shots, beautiful dog, \$35. Willis, 944-3647 after 5 p.m.
- Male kittens, white, black, apricot, gray, born on Dec. 17. Clark, 643-7325 after 5 p.m.
- 3 black kittens, four mo. old, half Siamese. Meigs, 424-5148 or Clark, 643-7325 after 5 p.m.
- Horse for sale, 7 yr. gelding, brown w/ black points, saddle, bridle, and tack included, \$310. Hays, 877-4809.

REAL ESTATE & RENTALS

- Newport (League City): 3 BR, 2 bath, built-in kitchen, separate family, living, dining areas; 2 car garage; landscaped. Assume owner's 6% GI loan or refinance. Ligrani, 877-4405.
- Large, wooded canal lot in Oak Harbor,

access to Clear Lake. Workman, 534-3446 after 5 p.m.

Trade property in Dickinson for airplane or boat in \$2000 to \$3000 price range. Weary, 877-2206.

Livingston, 2 bedroom home, large back porch, wooded lot, 62 x 210, central heat, xln weekend retreat, \$7000. Heyer, 649-2683.

Seabrook Spanish 4-2-2, carpet, drapes, refrigerator, 1600 + square ft., 6 1/2% FHA, balance, \$15,500, 6 years old, will trade. Poindexter, 877-2023.

Accountants hold Panel Sessions

The Houston Chapter of the Federal Government Accountants Association met last month to discuss "Philosophy and Procedures of NASA Source Evaluation Boards."

Panelists were Larry Lindley, William Rice, and Joseph Thibodaux, all of MSC.

On Tuesday, February 15, the chapter's dinner meeting at the Nassau Bay Motor Inn will feature a discussion on "Contractor Financial Reporting." Bob Lashbrook of North American and Bill Kelley and Robert Hood of MSC will be on the panel.

Guests are welcome. Call Ray Kaufmann, x5867, for reservations, by noon on February 14.

SAMPE to meet

The South Texas Chapter of the Society of Aerospace Material and Process Engineers will host Dr. Bernard Baum as guest speaker at their Tuesday, February 8 dinner-meeting.

Dr. Baum, Manager of the Plastics Materials Research and Development Division at DeBell & Richardson, Inc., will address the group on "Prediction of Aging Life of Elastomers."

The social hour at the Sheraton Kings Inn will begin at 6:30, with dinner to be served at 7:30 p.m.

Call Lubert Leger, x5539, or Jack Naimer, x4336, for reservations.

Lights... Action...

The Clear Creek Country Theatre is seeking experienced directors for the 1972-73 season.

If you think you might qualify, send your resume before February 8 to CCCT, Box 253, League City, Texas 77573. And, if you want to know some of the plays being considered for this year, call Hal Rosenberg, 333-3866; Leo Zbanek, 488-3121; or Roy Joyner, 948-1438.

In the meantime, why not see "Lilies of the Field," directed by Morgan Redmond. It's on at the Theatre tonight, tomorrow night, and February 11 and 12 (last performances). Curtain time is 8:15 p.m.

ROUNDUP

NASA MANNED SPACECRAFT CENTER HOUSTON, TEXAS

The **Roundup** is an official publication of the National Aeronautics and Space Administration Manned Spacecraft Center, Houston, Texas, and is published every other Friday by the Public Affairs Office for MSC employees.

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Photographer: A. "Pat" Patnesky

Why should we continue efforts to explore Space and the Universe?

An increasing number of people have been asking what the benefits of space exploration are. They want to know what we are learning about the moon, the solar system, and the Earth and what direct application space-related discoveries have in their own lives.

To answer those who write to this Center asking for such information, MSC is publishing a fact sheet entitled "Space Benefits."

In this issue of the *Roundup* and in the next issue, excerpts from that soon-to-be-published fact sheet will be printed in the hopes that you might find some of the answers to your own questions as well as ways to respond when such questions are posed to you.

* * *

Though our knowledge of the moon, and consequently our knowledge of planets in general, has increased immensely as a result of Apollo exploration, many important questions about the moon have yet to be answered.

Why are most of the lunar mare on the side facing Earth? What was the source of heat which appears to have melted much of the lunar surface? When did the surface cool to form the crust which is still evident in the lunar highlands or mountain areas? What is the internal composition and structure of the moon? And is there water vapor—a common gas in the interior of planets—deep beneath the surface of the moon?

The geologic record once contained in Earth's crust has been largely worn away by the effects of our planet's atmosphere, and we know little of Earth's surface history beyond about 3.5 million years ago. The moon, by comparison, has almost no atmosphere, and its surface features erode very slowly.

As a result, rocks barely an arm's length beneath the lunar surface remain relatively unchanged for 100 million years, while on Earth in the same period of time, water, ice, and wind will wear down an entire mountain range.

Our growing knowledge of the moon's surface and its early formation will allow us to infer things about the structure and history of our own planet's crust, from which we draw nearly all the resources that support human life and progress.

Our knowledge of Earth has advanced steadily over the past three or four hundred years, whereas our knowledge of the moon and early history of the solar system has moved forward with two great bursts of learning associated with the development of the telescope in the 1600's and

with development of space technology in our own time.

Though the final achievements of Apollo lunar exploration remain to be seen, we can be sure from the scientific results already obtained that future generations will remember our generation as the one that first understood the early history of the solar system.

PRACTICAL BENEFITS

While it is not always clear at first just what the full results and practical benefits of new knowledge and exploration will be, history can provide some interesting clues.

Early experiments with electricity, nuclear energy, automobiles, airplanes and rockets were generally considered novel and interesting but of little practical value at the time they were performed.

Daniel Webster complained that the great American West encompassed in the Louisiana Purchase was a howling wilderness Americans could never occupy. The purchase of Alaska from Russia at the cost of \$7 million was derided at the time as "Seward's Folly." And the electric motor, which has revolutionized our society, found little practical use for 100 years after it was invented.

It is interesting to compare the delayed payoff from these previous investments and enterprises with the almost immediate returns we have gotten from the space program and with the clear promise of future benefits which space activities offer.

Communications satellites have already more than repaid the cost of developing and launching them and, in fact, have become commercially profitable. This new benefit from the space program is obvious to TV viewers. The largest audience in world history—over a half a billion people, one-sixth of the world's population—saw man's first steps on the moon.

In 1960 you could not send live TV across the Atlantic; by 1965 it was possible but expensive; by 1969, as a result of the space program, the quality had been improved and the cost reduced to one-fifth of the 1965 rate.

At present, communications satellites are used largely for transoceanic traffic, providing economical links across the oceans. Before satellites, a West Coast-to-Japan cable circuit cost \$15,000 per month; today the Communications Satellite Corporation offers the same service at a charge of \$4,000

It is becoming apparent that satellites will soon handle domestic communications as well as transoceanic traffic. In 1960 there were fewer than 75 million phones in America. Now we have about 120 million. In 1960 Americans

made about 18 billion calls; this year we will make about 200 billion. We are rapidly reaching the point where cables will not be able to handle the entire communications load in this country.

LOWER COSTS

The recent decision by the Federal Communications Commission to entertain suggestions for a U.S. domestic satellite system opens a whole range of potential new services, including low-cost message, data, and television transmissions coast-to-coast—and anywhere in between.

Weather satellites have yielded almost immediate practical returns from our investment in space research and now provide constant daily information to the U.S. Weather Bureau.

Tiros III gave advance information on Hurricane Carla which resulted in the greatest mass evacuation ever to take place in the United States. Over 350,000 people moved from the path of the storm.

There is no way to determine how many lives were saved.

The continual improvement in techniques of interpreting data from this type of satellite and the improvements in the satellite itself offer the possibility of accurate forecasting of weather over vast regions.

An accurate five day forecast of weather conditions over the United States alone would provide an estimated annual savings of \$6.75 billion when applied to agriculture, lumber business, surface transportation, retail marketing, and water resources management. This savings alone would be more than any single year's cost of the total national space program.

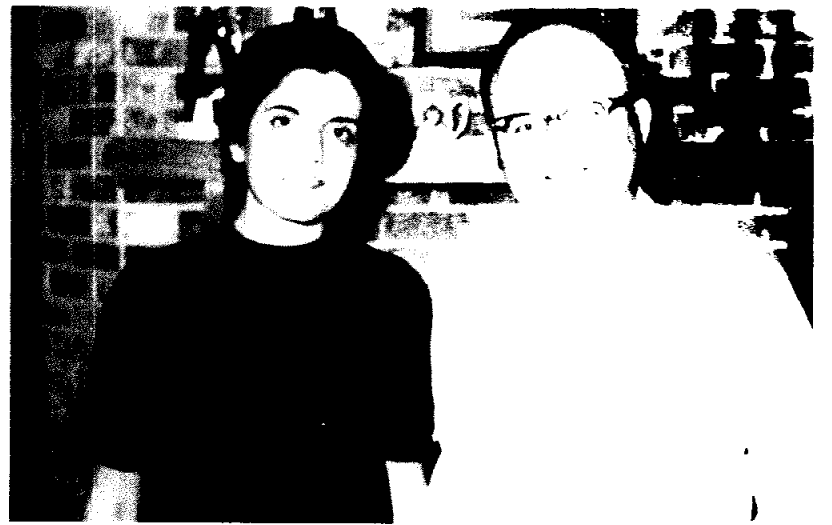
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In the next issue, "Greater Savings, Stabilizing Force," "Pollution Control," "Unlimited Potential."

HEADQUARTERS EUROPEAN TRIP—

The journey begins with a Washington to London flight on May 28 and ends with a return set from Paris on June 18. Final payments must be in by March 20. Contact B. Maggin, Code RG, Headquarters for more 'skinny.'

ATTENTION, SKIERS—If you're still thinking about a skiing holiday, come and join the NASA-Clear Lake Ski Group from March 4 to March 11 in Aspen. \$259 includes 7 nights lodging, 6 days ski-lift tickets, and round trip fares from Houston to Denver to Aspen. If you're interested, call Veit Hassen 877-4749 or x3946.



The Chaffees

How'd you say you met your wife?

Back in 1953 when Norm Chaffee of the Propulsion and Power Division was a high school student in Tulsa, Oklahoma, his Spanish instructor suggested Norm's corresponding with a student in a Spanish-speaking country, as a language-learning aid.

Norm took the advice and wrote several letters to schools in Latin America. One response came from Olga Paulina Milone, a young lady in Montevideo, Uruguay—a lady who seven years later would become Norm's wife.

When the letter exchange began, Olga was a student at the British School where her father, an Uruguayan, was business manager.

In the years that followed, Norm graduated from high school, attended Rice University, received his bachelor's degree in chemical engineering from Tulsa University, and began work on his master's degree at Tulsa University.

Olga was graduated from the British School and took a two-year correspondence course from Cambridge University for which she was awarded an education certificate.

When Norm began graduate work in 1959, he was having some doubts about his specialty, petroleum refining. His letters to and from Olga had tapered to about one a year. It occurred to him that reviving his correspondence with Olga might help him with his uneasiness about a career decision.

The tempo of their letter flow increased and it seemed inevitable, considering their growing interest in each other, that Norm should propose marriage. He did.

In the fall of 1959.

Olga's father reacted. If Norm wanted to marry his only daughter, Senor Milone said, Norm would have to come to Montevideo—some 7500 miles from Tulsa—for family approval.

Without doubts, Norm *now* says, that her family would approve the marriage, he pooled his resources in June 1960 and bought a ring, a round trip air ticket to Montevideo, and a one way ticket for Olga's return to Tulsa.

Olga and Norm met face-to-face for the first time at the Montevideo Airport after Norm's 24-hour, multi-stop flight from Miami. He doesn't recall their first words or whether they spoke in Spanish or English.

He does remember the weeks that followed in the Milone's home, the wedding, and the six-weeks-after-arrival return trip to Tulsa where he would introduce Olga to his family and begin his last year of coursework at the University.

In that year, Norm gave up his interest in petroleum refining and developed an interest in the space program. He almost went to work at Langley Research Center, but a last minute offer from MSC brought the Chaffees to Houston in May 1962.

Norm and Olga have two youngsters, Elena Raquel, 10, and Brian Douglas, 7. Norm says that when he reads occasionally of other couples who have met as "pen pals," he wonders whether their marriages are successful. He has no doubts about the happiness of his own.

1972 EAA Athletic Schedule

SPORT	COMPETITION IN	ORGANIZED IN
Men's Volleyball	February - April	February
Women's Volleyball	February - April	February
Mixed Volleyball	February - April	February
Women's Softball	April - May	March
Men's Softball	May - August	April
Men's Softball	September - October	August
Women's Softball	September - October	August
Women's Volleyball	October - November	September
Mixed Volleyball	October - November	September
Men's Basketball	November - February	October

A volleyball organization meeting will be held on Friday, February 11 at the Ellington Gym, beginning at 5:30 p.m. A volleyball clinic and practice round are set for Saturday, February 12, also at the Ellington Gym.