

# Scientific Symposium was a huge success

The groups of scientist standing about outside the lecture rooms ranged from the long-haired, bearded scientists with heavy accents and impassioned rhetoric, to mild-mannered but equally convincing experts, and even included a few Roman Catholic Nuns. They were drawn together to present the results of their work with the Apollo 11 lunar samples and to learn of the findings of their colleagues in the first such gathering of scientists ever held — the Lunar Science Conference held last week in Houston.

It seemed that the discussions in the hallways were at least as fruitful as the formal presentations occurring inside the lecture halls, for this was the first time for actual confrontations between investigators from all over the world.

The scientists agreed that many months would be required before all the data which had been presented could be absorbed, better conclusions could be drawn, room for speculation could be narrowed, and answers could start to emerge.

Some things the scientists could agree upon already: the moon, at least on its surface, is what we would call a "cinder";

at least three new minerals can be identified on the lunar surface (they were first called ferro-pseudobrookite, spinel, and pyroxmangite); there is no conclusive evidence that life as we know it has ever existed on the moon; the moon is an excellent source of information on the sun. The solar wind (actual "particles" of solar plasma) bombards the moon constantly. Thus, the moon preserves a record of the actual material of the Sun.

There is speculation concerning theories that there have been several periods of geologic activity on the Moon; that some great event occurred about 3.7 billion years ago—affecting both Earth and the Moon—perhaps an age of volcanic eruption, or bombardment from deep space.

Controversy still existed, when the Conference adjourned, concerning the actual age of the Moon. Nor were the scientists agreed as to the relationship and origin of the Earth, Moon, and planets.

They did agree that although the answers to questions raised at the Conference would be a while in coming, the investigations themselves have opened windows to the whole universe.

## Sjoberg new Chief of Flight Operations

Sigurd A. Sjoberg is the new Director of Flight Operations at MSC. He succeeds Dr. Christopher C. Kraft, Jr., who was recently appointed Deputy Director of MSC.

Sjoberg served previously as Deputy Director of Flight Operations. He has been with NASA since the early days of the NACA and STG.

As Director of Flight Operations Sjoberg is responsible for the management and direction of the Flight Control Division, Mission Planning and Analysis Division, Landing and Recovery Division, and the Flight Control Division. These four divisions



Sigurd A. Sjoberg

encompass mission planning and overall direction of flight control and recovery activities associated with all NASA manned flight activities.

## Paine outlines effects of '71 budget

The following is the text of NASA Administrator Thomas O. Paine's prepared statement presented at his press conference Tuesday afternoon, January 13.

This week I am taking actions to redirect portions of our space program to bring NASA's total operations in line with the budget which we will work with in FY 1971. Within a short time President Nixon will make an important statement on the future of America's space program, setting forth his strong support of a vigorous and forward looking program.

We recognize the many important needs and urgent problems we face here on earth. America's space achievements in the 1960's have rightly raised hopes that this country and all mankind can do more to overcome pressing problems of society. The space program should inspire bolder solutions and suggest new approaches. It has already provided many direct and indirect benefits and is creating new wealth and capabilities.

A strong space program continues as one of this nation's major national priorities. However, we recognize that under current fiscal restraints NASA must find new ways to stretch out

current programs and reduce our present operational base. NASA can move forward strongly while still achieving greater economy in 1971. This is the management challenge which we in NASA face, and I am confident that we can meet it. NASA will press forward in 1971 at a reduced level, but in the right direction with the basic ingredients we need for major achievements in the 1970's and beyond. While we will be reducing our total effort, we will not dissipate the strong teams that sent men to explore the moon and automated spacecraft to observe the planets.

In support of the decisions on the NASA FY 1971 budget, I am today taking the following actions:

1. We will suspend for an indefinite period production of the Saturn V launch vehicle after the completion of Saturn V 515.
2. We will stretch-out the Apollo lunar missions to six-months launch intervals, and defer lunar expeditions during the AAP space station flights in 1972.
3. We will postpone the launch of the Viking/Mars unmanned lander from 1973 to the next Mars opportunity in 1975.

## Myers takes over OMSF post

Dale D. Myers, formerly vice president and general manager of the Space Shuttle Program at North American Rockwell Corp., has been appointed NASA Associate Administrator for Manned Space flight.

He succeeds Dr. George E. Mueller who left NASA December 10.

Myers will be responsible for the planning, direction, execution and evaluation of NASA's overall manned space flight program. These functions include manage-

ment authority over the George C. Marshall Space Flight Center, Huntsville, Alabama; Manned Spacecraft Center, Houston; and the John F. Kennedy Space Center, Florida.

Myers has been in charge of North American Rockwell's space shuttle program since June 1969. Prior to that he had been vice president and general manager of the Apollo Command and Service Module work since February 1968 and vice president and Apollo Program Manager since April 1964.

# ROUNDUP

NASA MANNED SPACECRAFT CENTER

HOUSTON, TEXAS



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Scientists from all over the world filled the lecture hall to overflowing for the first panel discussion at the Apollo 11 Lunar Science Conference. Panel members (insert) from left to right are: Dr. Gene Simmons, Dr. Harold Urey, Dr. John O'Keefe III, Dr. Thomas Gold, Dr. E. M. Shoemaker, and Dr. Edward Anders.

## NASA to close Electronics Research Center

NASA Administrator Thomas O. Paine has announced the closing of the NASA Electronics Research Center at Cambridge, Mass.

The decision to suspend operations at the center was made during the space agency's fiscal 1971 budgetary process and in planning the future course of the space program.

In his announcement, Dr. Paine explained the closing:

*"As we reduce the total program and alter its direction, we must reduce the institutional base of support. We are simply faced with the hard fact that NASA cannot afford to continue to invest broadly in electronics research as we have in the past."*

The phasing down of work at the ERC has already begun. Final plans are being worked out for placement of the personnel and disposition of real property in Cambridge.

The center was to have been ultimately located on a 29-acre site in Cambridge. Six buildings representing an investment of some \$30 million are in final phases of construction.

We already have announced the closing of our Electronics Research Center in Cambridge, Massachusetts. We estimate that the total number of Americans working in NASA programs will decline from 190,000 at the end of FY 1970 to about 140,000 at the end of FY 1971.

We can and we will fit our space program into the required budget constraints, and accept the challenge of restructuring the program without sacrificing forward vision. Let me describe some of the positive aspects of our vigorous U. S. space effort for the Seventies.

We will fly out the Apollo expeditions to the moon through Apollo 19 as planned, giving us seven more lunar voyages. One Saturn V previously scheduled for an Apollo flight to the moon will be used to launch our first experimental AAP space station into earth orbit in 1972.

We will orbit Mars with two unmanned spacecraft in 1971, send our first probe to Jupiter in 1972, and send a spacecraft past Venus and Mercury in 1973. Despite the delay in the unmanned Viking lander which will not be launched to Mars in 1975, this is a far-ranging and effective

(continued on page 4)

**APOLLO 13  
LIFTOFF  
NOW  
APRIL 11**

## An educators view of Apollo

The following letter from the President of Mackinac College, S. C. Cornell, is being reprinted as another in our series of articles on the benefits of America's space program. Dr. Rambaut, to whom the letter is addressed, is a member of the Preventive Medicine Division at MSC.

Dear Dr. Rambaut:

Thank you for the courtesy of your letter of October 23, and your invitation to say something about my own feelings regarding the space effort.

One could not help but be impressed, and filled with hope, by the general reaction around the world to the Apollo 11. It seems to have been looked upon widely as an achievement of mankind, not a proprietary feat pulled off by the United States. While I was surprised and delighted by that reaction, it is obviously a proper one. Any achievement of such magnitude is bound to be based on the skill, work, and inspiration of nationals of many countries and many periods of history.

Mankind needs such a sense of common achievement, because from it may grow a sense of what mankind can achieve in a hundred other ways if the common will is there. I am interested in what NASA's most important contributions to these space adventures really is. Not the science, surely, for a lot of that is old stuff. Technology, yes, but a lot of that must represent fairly limited extrapolation of techniques and practices already well established. I do not mean for a moment to understate the scientific and technological advances of NASA and its contractors, but those things are, it seems to me, the relatively easy part, if only because they are concrete, comprehensible, and evolutionary in nature.

From my obviously inadequate knowledge of the matter, I look for the greatest accomplishment of NASA in such areas as these: Morale - the building in a vast organization of the sense of dedication to a common goal that makes men perform at their own best and expect the best of their fellows, not because they are being paid to do a job but because they are caught up in a purpose that they regard as both worthy and demanding. Organization - the structuring of a system relating each person and unit to every other person and unit in such a way as to give each an understanding of his role, a respect for it, and the freedom and opportunity to give his best to it. Management - the techniques by which an incredible number and variety of efforts are related so that overall progress is made in the desired direction in an efficient way. And Public Relations - in the best sense, the way in which the goal is kept before the public and the organs of government (Congress), progress is reported, and support for the goal is won.

I think Apollo 11 gave mankind a hope. Along with Earl Hubbard I feel that the problems of the ghetto, of race, of conflict in the world can take a long stride toward solution through a sense of common goal and achievement of mankind in space. The frontier has a fascination all its own. It turns people outward. Its opening up is bound to affect a wide range of everyday matters, just as the American frontier did in the last two centuries, even though only a tiny fraction of the people ever go there.

Perhaps one of the greatest achievements of NASA was to give people an impression that the accomplishments were made by people. The personalities of the astronauts of course give a powerful focus for that impression. NASA and its contractors constitute an organization of gigantic magnitude. But the impression is of an organization in the service of the efforts of people with high human aims, not of people in the service of a vast organization with inscrutable goals.

I know little except what I read in the papers about struggles within NASA over plans and objectives. Such struggles must exist, and are doubtless necessary. But I give NASA very high credit, from the top down, for showing how human effort can be mobilized and managed to achieve a goal requiring incredible organization, the latest in a wide variety of technologies, unprecedented reliability of components, and a very great degree of devotion on the part of a very large proportion of those involved. The importance of this lies at least as much in the realm of spirit as in that of material advance.

Please don't feel any obligation to reply to this. I am glad of the chance to express some of what I feel.

With all best wishes,

Sincerely,  
S. D. Cornell  
President

Astro-Bluebonnet  
Queen



Fairest of them all

Bluebonnet Queen, Pat Patnesky, beams at the camera as she reigns over the annual Astro-Bluebonnet Bowl. And no wonder the picture's so good—her Dad's the Roundup staff photographer!

## Announcements

### Nonlinear Analysis to be offered

A last-minute entry has been made to the list of courses to be offered at the Houston Clear Lake Graduate Center (see the January 2 "Roundup"). The course, "Nonlinear Analysis", (ME 760), will be offered on Monday and Wednesday, from 4-5:30. Registration requirements are the same as for the other courses listed in January 2 issue.

### Table Tennis Tournament

Interested in participating in an MSC-EAA sponsored Table Tennis Tournament? Contact Steve Jacobs, x4564. All welcome.

### Stargazer's Handbook Available

For those interested in what astronomical events will take place in 1970, the Observers Handbook is now on sale at the MSC Cafeteria (Bldg. 3). This Handbook contains the positions of the planets, times of sunset, moon size, and much more, all for \$1.50. Proceeds help the MSC Astronomical Society.

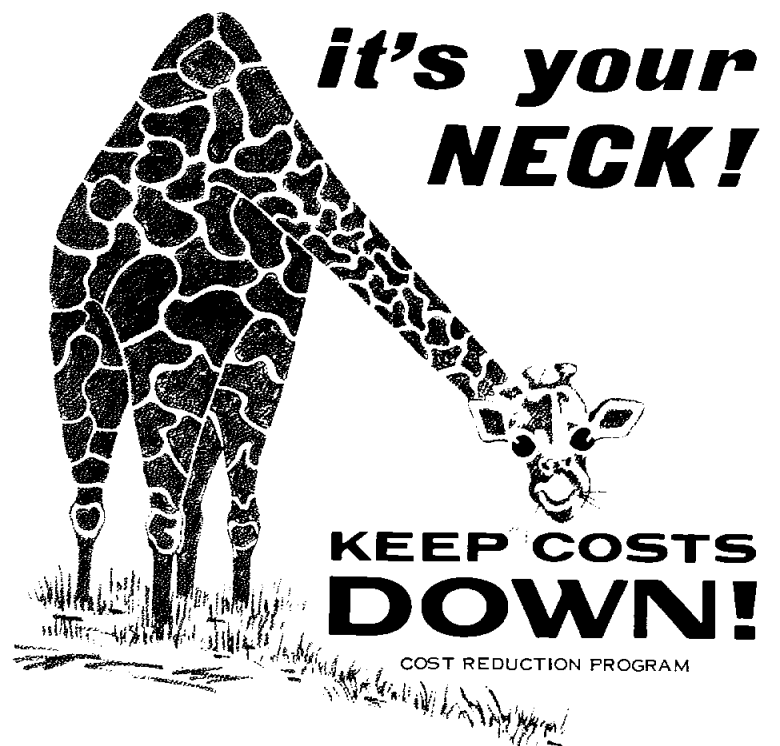
For information about the club call William Chanis, x3048.

### Lost In the Shuffle

Three Apollo 11 passes to Cape Kennedy, autographed by the flight crew, have gotten lost somewhere between the astronauts and the owner of the passes, Fred Chalfont. Please return them to him at BH5.

### Last day for sign-ups

January 16 is the last day to make your reservations for the February 21 trip to Nuevo Laredo, sponsored by the Spanish club. Take your check to Harry Kline, Building 13, room 114.



## Your Job in Focus

### Annual Evaluations

Annual performance evaluations will be conducted during January for permanent employees, except those serving probationary periods. These evaluations should be considered as constructive endeavors from which both employees and supervisors can benefit. The employee learns how his supervisor feels about his overall work performance and the supervisor has the opportunity to discuss with the employee how his performance can be improved for career progression.

The Personnel Division hopes you will give serious thought to questions or topics you might wish to discuss during these evaluations, and hopes that you will actively participate during the evaluations, as they are considered one of the most effective means of informal communications between you and your supervisors.

### Bond Tax Loophole

Those of you who have purchased bonds for your children's educational fund should remem-

ber a special tax savings advantage to which you are entitled: bonds which are purchased in a child's name, either alone or with a parent as beneficiary, become an outright gift from parent to child. The Federal income tax liability can be shifted to the child by filing a Federal return in his name at the end of the first year of bond purchases, listing the increase in bond value as income to him.

This initial return establishes the intent, and no further returns need to be filed as long as the child's total annual income is less than \$600. No tax will be due if the bond interest, plus other income, comes to less than \$900 (\$600 personal exemption plus \$300 standard deduction).

Assuming that the child never exceeds this \$900 income figure in any year, the total interest accruals on his bonds will be tax-free when he cashes them for his education. As protection for the taxpayer, a copy of the initial return establishing the intent should be retained for possible proof in later years that the interest has been reported.

### 30-year Men



Dr. Maxime A. Faget (center), Director of the Engineering and Development Directorate, presents 30-year Service Awards to Caldwell C. Johnson, Jr. (l), Chief of the Spacecraft Design Office, and to Joseph N. Kotanchik (r), Chief of the Structures and Mechanics Division at MSC.

# Roundup Swap-Shop

(Deadline for Swap-Shop classified ad is the Thursday preceding Roundup publication date. Ads received after the deadline will be run in the next following issue. Ads are limited to MSC civil service employees and assigned military personnel. Maximum length is 15 words, including name, office code and home telephone number. Send ads in writing to Roundup Editor, AP3.)

**PETS**

Beagle, male, AKC, 1 yr old, DHL shots, sired by field champion, good hunter and pet, \$25, 487-1714, Cone.  
2 female puppies, 10 weeks old, part American Sheepdog, 877-2146 (El Lago)  
Silver mini-toy poodles, male, 6 weeks old, \$40, x4897, Cox, or 487-3605.

**WANTED**

Female roommate to share 1 br furnished apt., 488-5200 or 946-3724.  
Sensibly priced Nassau Bay or Clear Lake City brick home, 3-2-2, den, fireplace; assumption & low equity desired. No realtors., HUB-0125 or HUB-3901, Sam.  
Ride wanted, near Ellington, 944-8287, or x4586.  
Drivers to join carpool from Broadway-Gulf Freeway area, 8:30-5, Davis, x4191 or Adams, x4528.  
Need daily ride to and from Alvin, will share expenses, 8-4:30, x5972, Chambliss, or 658-5376  
Electric heater, 220 volt, 877-3048, Moser.  
Black kitten, prefer female, full or part Persian, 488-4372, Brenton.

**REAL ESTATE**

Furnished house for rent: Clear Lake Shores, must see to appreciate, 2 br, fenced yard, a/c, \$90/mo, M19-1805 or M13-9738 after 6pm.  
Rent Clear Lake City townhouse, 3-2-1-2, Ramada Drive near rec. center, immediate occupancy, Wieland, 488-2593.  
Lease 3-2-2, fenced yard, Clear Lake City, available Jan 30 for one year, Teixeira, HUB-4412  
Rent 2br beach cottage, fenced, Clear Lake access, Glen Cove addition, 877-2978, Stoker.  
Large corner lot overlooking Lake Travis at Lago Vista, assume 5% loan and equity, 944-2901, Davis.  
3-2-2 home in Webster for rent, lease, or sale, available about March 1, 932-5983 after 5 pm.

**AUTOMOBILES**

67 Thunderbird, full power and air, new poly-glass tires, \$2495, Bragg, 534-2672.  
67 Mustang fastback, 390, 4-speed, air, extras, \$1500, Rainey, 474-2937 after 5.  
66 Ford Fairlane S/W-289 V8, auto, air, clean, 39,000 miles, new tires, \$1350, Giralda, WA1-7212  
67 Gold Firebird, black vinyl top, automatic, power, air, extras, 326 cu. ins., \$2395, Davis, x5141 or 861-3963.  
65 Mustang, V-8, automatic, console, power steering, air, radio, extra nice, 488-2897, Robertson.  
68 Dodge Sportsman, 225 slant six engine, LWB, deluxe features, 16,500 miles, a bargain at \$1875, Morrison, x2457.  
62 Mercury 2-dr hdtip, air, automatic, power steering, radio, excellent condition, Holloway, 941-0262.  
61 VW, sun roof, rough, \$275, 473-7745 after 5  
66 Bonneville Brougham 2-dr hdtip, luxury auto, loaded, steelbelt radials, new brakes and H.D. shocks, \$1750, Ream, 877-4308.  
Two "trail 90" Hondas, 1965 and 1970 models, both in good running condition, Thompson, 591-2123  
63 Studebaker station wagon with air, power, runs well, \$500, x5545, Kimbriel, or 946-8581 after 6pm.  
67 Toyota Corona, 24,000 miles, excellent condition, \$1,245, x5131, Jones.  
64 Corvair Monza, 2-dr, maroon, 110 hp, \$450, Bauch, 591-3382.  
60 Opel Rekord, 46,000 miles, good second car for work while wife keeps family wheels, \$125, 932-4472, White.  
65 Impala, 4-dr sedan, 327 V-8, air, power steering, excellent condition, 877-4297, Lee.  
62 Ford Falcon, radio, heater, 47,000 miles, good condition; 66 Buick LeSabre, 4-dr sedan, air, heater, radio, tinted glass, good tires, new brake linings, 877-4103, Bond.  
69 Corvette green convertible, 350 engine, automatic, positraction, power steering, AM-FM radio, radial tires, 10 months old, low mileage 932-5622, Cobb.  
53 Chevy, good work car, 1970 inspected, \$150, Foster, HU7-0155.  
67 VW sedan, radio, air, leatherette, original owner, \$1,050, 591-4641, Sauter.

**MISCELLANEOUS**

R. C. Allen, full size, desk model, typewriter, \$25, x7351 or 487-4531, Nitschke.  
Wurlitzer console organ, walnut finish, excellent condition, sacrifice at \$1500, Wessinger, 946-4609.  
Beautiful 2-piece Kroehler living rm suite (danish) brown couch and orange chair, recently upholstered, like new, \$150 firm, HUB-3901 or HUB-0125, Sam.  
14' mahogany runabout, large wheel trailer, \$120, excellent fishing or skiing, 877-1666, Gillen.  
Black vinyl top for 1968-1969 Corvette, \$150, 488-1874, Milam.  
Exercycle and electric reducing couch, \$100 or will trade for guns of equal value, Ataman-chuk, HU7-1568.  
SCUBA outfit, regulator, tank, back pack, mask, snorkel, wet suit, fins, knife, spear gun, weights, etc., 482-1031.

Women's ski boots, size 7 narrow, M. Wash, 482-1031 or 483-3436.  
57 tri-Pacer, 1065 TT, 105 STOH, 150 HP, full panel, many extras, 60 amp alt., R.B., MK-2, MK-5, ADF-30, new wing fabric, new annual, \$4500, HUB-3265.  
Savage rifle .22 caliber, bolt action with clip, includes 4x scope, carrying case and complete cleaning kit, hardly used, only \$50, 877-3288, Rubenstein.  
Modern dinette table with leaf and 4 chairs, very nice, used 7 months, \$40 cash, 591-3245.  
12" b/w TV portable, 1969 Philco, will sell or give to charity, x4926, Goodrick.  
Steelman monoral record player, 3-speed, mahogany cabinet, \$15; Heywood Wakefield overstuffed chair, needs slipcover, \$10, Venetian blinds, two 42" wide by 35" long, one 34"x34", plus hardware, excellent condition, 479-1295.  
Office desk, typing, center section folds away, \$15, x5927, DeMoss, or 488-4019.  
Electric clothes dryer in good working condition, 120/240V operation, \$50, Whittle, 932-5239.

Michigan Technological University Alumni: attend the local dinner reunion February 13, x2503, Noncarrow, or 946-5075  
Fly retractable with Aero Club, Inc., P&K Bonanzas, IFR, 195 mph, \$17/hr wet; Cessna 172, \$9/hr; 150, \$8/hr; instructor, \$5/hr, Ward, 877-3187.  
4-piece sectional sofa, cocoa brown custom slip covers, \$50, x3171, Boykin, or 946-5782.  
14' sailboat, fiberglass, cabin, 2 bunks, equipment includes anchor, compass, electrical system, cushions, etc., \$1000 with trailer, x2848, Cree, or 487-1158.  
Firewood, \$25 per 1/2 cord delivered, HU2-1664, Price.  
R. C. Allen typewriter desk model, \$25, x7351, Nitschke, or 487-4531.  
5' redwood planter box, ideal for patio, \$10; Air Conditioning-York compressor and clutch assembly for Ford Mustang, 488-4372, Brenton.  
Single horse trailer, \$200; Utility trailer, \$60; Antique double barrel with hammers, \$50, Allman, 932-5652.  
500 lb Little Dude trailer for Sail or Sun Fish, \$20, 877-4198, Dornbach.  
Emdeko Super 8 movie camera w/zoom lens, automatic light adjust, variable speed, \$65; regular 8 and super 8 movie projector, automatic threading, still and reverse, \$65, 944-2901, Davis.  
9 1/2 x 9 1/2 Metrick umbrella tent, external frame, cross ventilation, excellent condition, \$25, x5455, McCreary, or 946-5285  
12' Sailfish flat-bottom boat with sails, \$75, 877-2978, Stoker.  
Blonde dnyel curly wig, never worn, x5309, Garnuch.  
8' custom stereo cabinet with receptacles for KLH-6 speakers (or same size), walnut formica, excellent condition, best offer; 96" green contemporary sofa, good condition, \$100, x4588, Bednarczyk.  
Bundy b-flat clarinet with case, 4-months old, same as new, \$100, 946-5182, Ward.  
GNN trombone, used 6 months, same as new, cost \$180, sell for \$90, 877-1657, Ham-mack.  
Fiberglas Penguin sailboat, 14', SITA spruce mast, dacron mainsail, 263 crew trailer, \$300, 944-2367, Trout.  
Complete your pilot training — learn aerobatics in the indestructible Stearman biplane, \$25/hour, 944-9152, Graw.  
Two Jensen stereo three-way speaker systems, modern 29"x34"x14" walnut cabinets, \$425 new, \$250 now, x3841, Gandy, or 422-6929.

## Driver Earns Hood



Robert E. Driver

Bob Driver has been working toward a Masters Degree since 1963, under the MSC Graduate Study Program. He just finished the last of the 66 hours required for his degree. His studies have been funded almost entirely by the Graduate Study Program.

Soon Bob will be granted leave from MSC for a year of full-time study at the University of Texas toward his PhD degree.

## Attention Volleyballers!

There will be an organization meeting for the MSC Men's Volleyball League on Tuesday, February 10, in bldg. 2, room 316, at 5:15 p.m. Team managers are urged to attend. This year we are offering two Leagues: Competitive and Recreational. MSC and active military personnel are eligible. Any further questions? Contact D. Doherty, x2741.

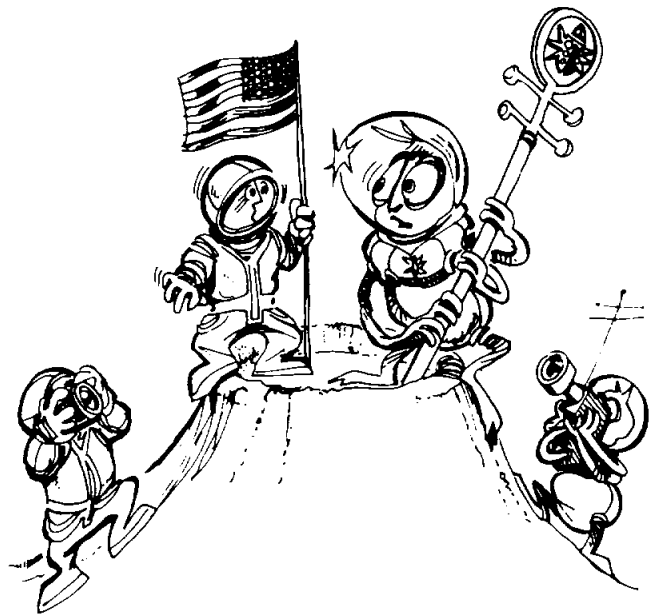
## Beauty and the Bean



Finalists in the Azalea Trail Festival from Mobile, Alabama, were in town the other day for the Astro-Bluebonnet Bowl. Romaine Stein (l) and Lisa Stapleton (r) presented astronaut Alan Bean with a souvenir book and some azalea plants during their visit to MSC. Looks like being a spaceman isn't all hardship!

## THE ASTRONUTS

courtesy of TRW's gordon a. south



## SPOTLIGHT



## Henry C. Stearns — Football In the 30's

"We weren't as big or as fast as they are now," Hank Stearns says, "and our training wasn't as complete — it couldn't be. We didn't have the time to practice. We had to hold down two or three other jobs to make enough money." He's talking about the days back in '32 and '33 when he played professional football for the Los Angeles team then called the "Bulldogs". Now Henry Stearns is working as a Reliability and Quality Assurance man here at MSC.

Back then football was nothing like the mammoth spectacle that it is today. "There were no stadiums out there like there are now", Hank explained in a recent interview. "Usually we just played in the city parks, or at the high school stadiums, or at a junior college." A crowd of 5,000 was enormous then, with most games drawing more like 1,200 to 3,000 spectators. Tickets cost from 50¢ to \$1.50.

At the time, the West was more thinly populated than it is now, of course, and football did not yet have the following that it did in the East, where the Packers and the Bears and Giants were big.

The Bulldogs eventually disbanded, and a team called the "Rams" came out from Cleveland to capture the Los Angeles football fans.

Does Hank think the players of today are pampered? "No, I look at it this way: it's just different now. Back then we just played because we liked football. We only got \$50 or \$75 a game. There was only one platoon, so you played the whole game. We had the leather helmet, none of those plastic faceguards or anything. The only thing you might have was maybe a rubber nose-guard."

Yep, times 'is changed.

# ROUNDUP

NASA MANNED SPACECRAFT CENTER HOUSTON, TEXAS



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Editor ..... Sally LaMere  
Staff Photographer ..... A. "Pat" Patnesky

# Buying a trip to the Moon

The job of a buyer might seem simple—just decide what kind of contracts are best suited to the particular items or services to be obtained, and fill in the blanks in the form. In reality, even the simple parts of the job aren't that simple. The buyer must also be

the central point for changes, safety, reliability and quality assurance, legality, incentive fee awards, and cost and schedule matters. Of course he gets this information from responsible organizations throughout NASA, but it is the Contracting Officer

who is the ultimately responsible Government representative. It is he who faces a jail sentence if his contracts reflect any irregularities, whether or not they were intentional.

Nor are the strictly contractual matters easy. The realities of contracting for studies or hardware in the aerospace industry, where much discovery and development may be required, can be, a headache in itself. A contract which appeared to entail only an off-the-shelf procurement item and a simple cost + fixed fee contract may turn out to be a full-scale research and development program. Mission requirements may change. The hardware described may turn out to be impossible to produce. Necessary interfaces may prove incompatible. The contractor may use up all allotted funds, with a break-through just around the corner. Does the buyer cancel the contract, or give more money? Lower the boom, or be accused of coddling?

When a purchase request arrives in Procurement, it is the duty of the buyers to track down whatever it is that the P.R. entails. And that covers everything from rubber stamps to green-liver monkey tissue. "Standard" purchasing procedures are employed whenever possible. Then the buyer grants the contract to the lowest responsible bidder. Like procurement in private industry, MSC buyers try to lower



Trying to ignore the cameraman, buyers pursue the details of government contracts. It may not look glamorous, but the work they do is fundamental to every MSC operation.

## Dr. Paine's press conference

(continued from page 1)

planetary exploration program. We will also continue to fly the scientific satellites which are bringing us so much new information about the universe.

We will start design of the reusable space shuttle. This rocket plane will be able to take off vertically and land horizontally. It will travel between the earth's surface and orbit on a regular schedule, carrying men and supplies to and from space stations at low cost. This space transport will be suitable for a wide range of future scientific, defense, and commercial uses.

The first experimental space station—using present-day Apollo technology—will be launched in 1972 as previously planned. This AAP program will emplace a large workshop in orbit in which men will learn how to perform useful tasks in space over periods of several months. The major scientific experiment will be a large solar telescope which astronauts will use to study solar phenomena for extended periods using wave lengths which cannot be observed from earth. The 1971 budget will also enable us to move ahead with the design of an advanced space station, which will provide permanent base for men in earth orbit.

We will move ahead to provide nuclear power for space. Chemical rockets and electrical power have sufficed for the initial space ventures of the 1960's, but we will need to harness the power of the atom for future major ventures. The 1971 budget allows us to continue work on the joint NASA-AEC NERVA project.

We will hasten practical earth applications of space technology. The 1971 budget allows us to proceed with the previously approved Earth Resource Technology Satellites which can help in such varied tasks as surveying crops, locating mineral deposits, and detecting air and water pollution and show us how to use satellites to assess our environment and use our resources more effectively. The budget also provides for advances in other applications of space-related technology in fields such as meteorology and communications.

These program elements will produce a space program for 1971 which, although austere, is forward-looking and contains the basic ingredients needed for an effective space program in the 1970's. It will extend our space capabilities, expand our scientific knowledge, and make available new applications of benefit to people here on earth.

costs and forecast future requirements — when they can. Often, however, it is impossible to define everything that will be needed in the beginning. Then buying becomes a complex job. MSC needs many items which must meet very unique and unconventional specifications. Cost may not be the overriding concern when skill and reliability become basic requirements.

The success of this philosophy paid off, it is interesting to note, as the "score" for Apollo 11 shows. Of 15 million parts in the Apollo-Saturn vehicle, only one non-critical part failed. That is a demonstrated reliability of .999,999,996. A record of which all the buyers, engineers, planners and manufacturers in NASA can well be proud.

Procurement at MSC is structured on a project basis. Its four

buying branches and its special procurement office are arranged to support different technical functions:

Under J. P. Harris, the Support Contracts Branch was recently responsible for getting the LRL built and furnished on time for Apollo 11.

The Space Sciences Procurement Branch, headed by Don Cherry, buys such things as the experiments and studies which Apollo involves.

In Mission Operations Procurement, buyers contract for such things as equipment and software to support the MCC, under the direction of Branch Chief Bob Kline.

The engineering support needs of the Center are met by the Research and Development Branch, under Wayne Corbett.



Apollo 13 crew—Modern Day 49-ers?



**MOON PROSPECTING**—The Apollo 13 crewmen, Command Pilot James Lovell and Lunar Module Pilot Fred Haise, photograph, select and collect samples on a simulated lunar traverse during a training exercise on the Island of Hawaii.

The lunar-like surface is the result of a 1960 eruption called Kapoho, which deposited thousands of acres of lava and cinders onto sugar cane fields and also destroyed a small village. The training was conducted December 17-20. Backup Apollo 13 crewmen John Young and Charlie Duke along with support crewmen Jack Lousma and Vance Brand, took part in the training exercise.

Other training sites on the trip were in the Hawaii Volcanoes National Park on the Island of Hawaii, in the vicinity of Kilauea Caldera and the Kilauea Iki crater. While in Hawaii the crewmen observed a small eruption of a new volcano vent on Chain of Craters Road. About ten days later the eruption sent lava cascading some 1600 feet into the air.