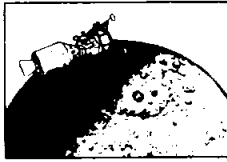


# ROUNDUP

NASA MANNED SPACECRAFT CENTER

HOUSTON, TEXAS

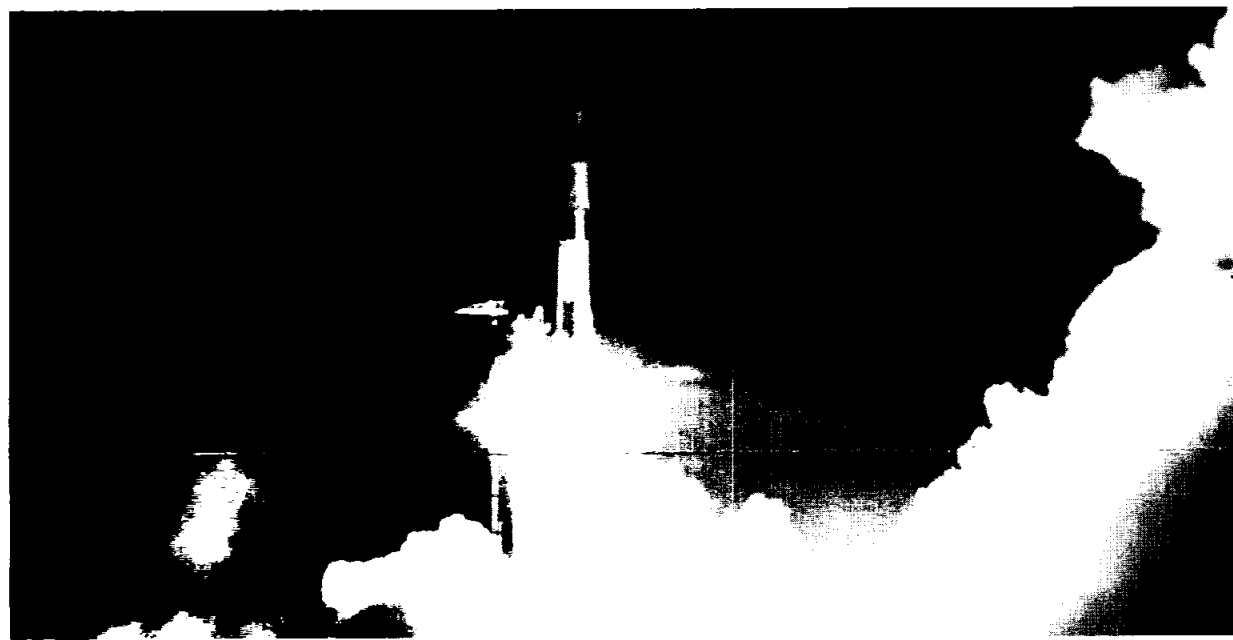


Vol. 12 No. 3

December 22, 1972



APOLLO 17 CREW PREPARES FOR LIFTOFF—The astronauts are seen leaving the Manned Spacecraft Operations Building to enter the transfer van that carried them to Complex 39's Pad A, to participate in the Countdown Demonstration Test. Successful completion of the "dry portion" of the CDDT cleared the way for the launch of Project Apollo's final lunar landing missions.



## Season's Greetings

*It was 4 years ago to the day, December 21, when the Apollo 17 crew returned to Houston, that we launched our first manned mission to the moon, Apollo 8. These intervening years are filled with memorable events for all of us as well as great accomplishments. This last mission, Apollo 17, undoubtedly the most successful Apollo mission that has been flown, brought to a close an era in which all of you here at the Manned Spacecraft Center have played an important part during the past years. Historians in future years will undoubtedly better recognize than the true significance and importance of the Apollo Program.*

*And now on the eve of a new year, 1973, we can look forward to new and challenging tasks and activities. During 1973 we will fly Skylab with three manned visits. With Skylab, man will be able for the first time to accomplish scientific investigations in earth orbit for extended periods of time.*

*It will offer an opportunity to utilize the environment of space and apply technology to benefit all mankind. Apollo rolled back the frontiers and you here at the Manned Spacecraft Center led the way. And now as on the western frontier of 100 years ago, the entrepreneurs and those individuals that will fully utilize the environment of space will assume a greater responsibility in the coming decade.*

*We are tempted to look back and reflect on our past accomplishments, but there are and there will still continue to be new challenges and new frontiers. We look forward to the Apollo Soyuz Project of 1975 and the successful accomplishment of the Space Shuttle Program during the coming year.*

*The tasks that lie ahead will be difficult ones that will require a dedicated commitment on all our parts.*

*On the eve of this new year and with the Christmas season of 1972, I extend to each and every one of you Christmas greetings and my best wishes for the coming new year. Apollo 17 and 1972 have not brought us to the end of an era but the end of the beginning.*

*Christopher C. Kraft Jr.*  
CHRISTOPHER KRAFT JR.  
Director

## Astronauts Returned to MSC

The Apollo 17 astronauts returned to the Manned Spacecraft Center yesterday for press debriefings.

With the landing of Apollo 17 on Tuesday, December 19, 1972, the United States completed the last and probably most scientifically-successful of the lunar missions.

"I have never seen a more perfect mission," Christopher C. Kraft, MSC Director told a press conference about an hour after the astronauts boarded the Ticonderoga.

Dale E. Myers, Associate Administrator for Manned Space Flight said at the conference, "I feel that the Apollo Program has set a milestone in history that will take a long time to beat."

WHAT A LIFTOFF! — The huge, 363-foot tall Apollo 17 space vehicle was launched at 11:33 a.m. (CST), December 6, 1972. Apollo 17, the final lunar landing mission in NASA's Apollo program, was the first nighttime liftoff of the Saturn V launch vehicle.

Prior to Apollo 17, the major areas of understanding that came out of the unmanned exploration and the five manned landings are:

—a rather definite and reliable time scale now exists for the sequence of events in lunar history. In particular, it has been established with some confidence that the filling of the mare basins took place between 3.1 and 3.8 billion years ago.

Since these surfaces represent the major features of the lunar surface, it can be inferred that the bulk of lunar history recorded on the surface took place before 4 billion years ago.

This is quite different from the terrestrial situation where most of the Earth's ocean basins are younger than 300 million years and rocks older than 3 million years make up an almost insignificant proportion of the Earth's surface.

—The relative importance of volcanic and impact produced features on the lunar surface is today rather well established.

There is almost unanimous agreement that the dark mare regions are, indeed, underlain by extensive lava flows. Almost all craters appear to be caused by impacting projectiles.

—The moon has crust more than 60 kilometers (36 miles) thick.

—A much more detailed understanding now exists about the Moon's magnetic field. The Moon has a surprisingly strong but variable field.

—None of the three theories regarding the origin of the Moon that is, separation from the Earth, capture from a circumsolar orbit or formation from a dust cloud surrounding the Earth—can be ab-

*(Continued On Page 4)*

## Employees Struck By Brainstorms

From time to time employees are hit by brainstorms which assist in making certain jobs at MSC more efficient or more economical.

On December 5, six employees were awarded a total of \$765 for their suggestions.

The largest award of \$250 each went to David E. O'Brien III and Joe F. Melugin for recovering the voice data from the heat damaged magnetic tape aboard the NASA T-38 aircraft.

Following the crash of NASA T-38 and the subsequent death of two pilots on January 20, 1972, it was vital that the cause of the crash be determined. The tape was so damaged that it was at first believed that the voice information could not be recovered.

Through exceptional analysis, careful procedural planning and the development of a unique technique, complete recovery of the voice data was accomplished under the leadership of O'Brien and Melugin.

A \$100 award was presented to Joseph D. Atkinson of the Contractor Equal Opportunity Programs Office.

*(Continued on Page 3)*



WELCOME BACK—The Apollo 17 Crew returned to Houston early yesterday. Each astronaut made a short statement at Ellington AFB thanking the public for making the mission possible.

# Men Conferred on Earth as Astronauts Explored Moon

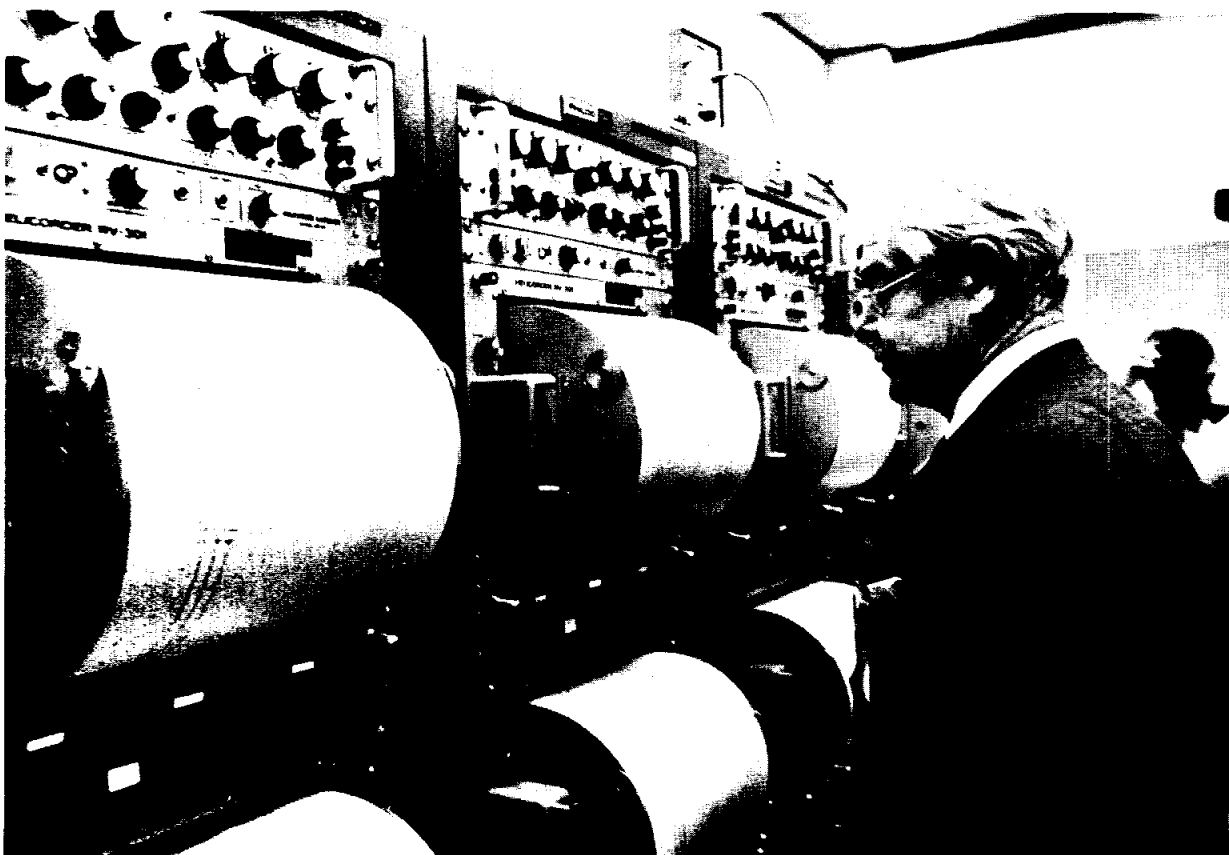


(Top left) Three Apollo 17 flight directors discuss the lunar landing mission in the Mission operations control room at MSC. They are, left to right, Neil B. Hutchinson, Eugene F. Kranz and Gerald D. Griffin. (left center) These five men ponder the solution to the problem of the damage to the right fender of the Apollo 17 Lunar Roving Vehicle. (See story on page 3) Clockwise are Astronauts John W. Young, Charles M. Duke, Donald K. Slayton, Dr. Rocco A. Petrone and Ronald V. Blevins. (below) The seismometer readings from the impact made by the Apollo 17 Saturn S-IVB stage when it struck the lunar surface are viewed by Dr. Maurice Ewing, professor of geophysics of UT at Galveston.

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some away.**



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APOLLO 17 TV PICTURES — Scientist-Astronaut Harrison H. Schmitt (top) chisels samples from a large boulder during the first Apollo 17 extravehicular activity (EVA-1) at the Taurus-Littrow landing site. Apollo 17 (center) commander Eugene Cernan operates the Apollo Lunar Surface Drill. Schmitt (bottom) is seen anchoring the geophone module with a flag. The geophone module is part of the Lunar Seismic Profiling Experiment, a component of the Apollo Lunar Surface Experiments Package (ALSEP). Other ALSEP components are visible in the picture.

## Poetry Society Elects MSCers

Virginia R. Defoy of NASA's Photographic Technology Division was recently elected president of the Houston Chapter of the Poetry Society of Texas.

Donna Dean, an employee of Technicolor of NASA, was elected treasurer and Dea Womack, also employed by Technicolor, was elected assistant publicity chairman.



# Mrs. E. Jean Gilruth Dies of Heart Attack

Mrs. E. Jean Gilruth, wife of space pioneer, Dr. Robert Gilruth, died recently of a heart attack at her home in Dickinson, Texas.

Dr. Gilruth, Director of the Manned Spacecraft Center during the 10 years that saw the manned space program grow from its early pioneering to the Apollo lunar landings, was in the Mission Control Center at the Manned Spacecraft Center observing Apollo 17 operations when his wife was stricken.

The Gilruths attended the University of Minnesota together where they both received aeronautical engineering degrees. They were married in 1937, shortly after graduation. She was born in Sudbury, Ontario, Canada, on October 24, 1912.

MSC Director Christopher C. Kraft made the following statement:

"We at the Manned Spacecraft Center are deeply saddened at the loss of Mrs. Jean Gilruth."

"The wife of a great man, she was a great lady and very much a part of the space program in her own right. Jean loved life and

her spirit set an example for all of us from the early days of the manned space flight program back in Virginia through the successful Mercury, Gemini and lunar landing programs here in Houston. She was particularly loved by the astronauts' wives who found her a great source of strength when their husbands were in orbit or on their way to the moon."

"Our heartfelt sympathy goes out to Bob Gilruth and his family in this time of grief."

Funeral services for Mrs. Gilruth were private. The family asked that donations be sent to the Jean Gilruth Memorial Heartfund which is presently being established.

Donations for this fund should be mailed to Guy Thibodeau, code EP.

Tired of buying presents that have a life span of one day? Buy a gift that will last — U.S. Savings Bonds.

### MOON OF EARTH

*Up there, beyond air,  
Pale, pristine, bare;  
Beauty too, when lovers woo,  
Moon of Earth, mystery's fare  
For countless eons, kings, peons,  
High and low, eyes aglow,  
Watched her steady come and go,  
More and more the need to know,  
Some of our best began to test  
Traditional views of the rest;  
The great Italian seer,  
And others to map the lovely  
sphere.  
Charted seas, plains hills,  
Named marias, mountains, rills;  
The thought, "to go"  
Thrills, thrills.  
Long centuries need  
From thought to deed;  
Learning, lurching,  
Probing, searching.  
The dream transcends  
The span of man,  
Passed down, hand to hand,  
Until, at last, "we can, we can."  
Given to the chosen few,  
As brave as ever flew,  
Whose courage would dare  
The task beyond compare.  
Then trembling man,  
With bold embrace,  
Stepped up and touched  
That awesome face.*

George E. Dye



MRS. E. JEAN GILRUTH

## Brainstorms

(Continued From Page 1)

Atkinson devised an attention-getting decal for each restroom at the Center which encourages careful handling of the paper-towel dispensers.

He also proposed that the support contractor be directed to pack the towels in the dispensers more loosely.

The Engineering Division reported that significant savings have occurred from the adoption of this suggestion.

Joe F. Naples and Francis R. Carter of the Technical Services Division received \$50. each for designing a small vacuum chamber with a probe. This device controls the closing of the orifice in the plastic bags used in the Inflight Medical and Surgical Supply Kit.

Bertha M. Corbett of the Financial Management Division received \$40. for her suggestion to incorporate recording of taxable and nontaxable travel payment and payment of uniform allowances and awards in the payroll system.

Jean P. Burgan of the Earth Observations Division suggested that the new NASA Form 1492 Typing Template used for preparing viewgraphs and other documents be changed in that it was not completely satisfactory.

The suggestion, for which she received \$25, was adopted in a slightly different format by the Form Management Officer, who devised a new form to be used solely for preparing viewgraphs.

## Earth "Mechanics" Aid Moon Drivers

During the first lunar surface EVA, a hammer got underneath the fender of the Apollo 17 Lunar Roving Vehicle and a part of it was knocked off.

"That dust without that fender is almost unacceptable," Cernan told mission control at MSC.

John Young, Apollo 16 commander and Apollo 17 backup commander suggested a makeshift repair using lunar maps and clamps.

This suggestion, which gave the astronauts a fender the shape of one found on older model cars, was carried out by Cernan and Schmitt.

## Roundup Swap-Shop

Swap Shop advertising is available to MSC and on-site contractor personnel. Articles or services must be offered as advertised without regard to race, religion, sex or national origin. Ads should be 20 words or less, including home telephone number. Name and office code must accompany, but need not be included in ad copy. Typed or printed copy must be received (AP3 Attn: Roundup) by Thursday of the week before publication.

### MISCELLANEOUS

Regular 8mm movie projector, camera and lights, \$50., blond console radio, record player, \$35. Pittman, 488-1243.

Massberg bolt action 12 gauge shotgun, model 395 KA C-Lect Choke w/ case, \$30. McKee, Baytown, 424-7927.

Crystal stemware service for 12, Bavarian china, Hoffman TV, table lamps, radion, bric-a-brack, Dinette set w/4 chairs, Wanda, 944-2317.

Danish modern coffee & 2 end tables, \$10 set, Gerlach, 488-1348.

Shotgun, Browning, lightning grade over/under, 12 gauge skeet model beautiful forearm, nw cndn, \$375, 488-0343. Piano lessons, 6 yrs of teaching experience aft BA degree in piano, member MTNA, near MSC, 488-4390.

2 gold overstuffed chairs, long taffeta dress, size 5/6 junior, 488-1143.

\$1200 Conn organ, individual voicing, Leslie speakers, xlnl cndn, \$675, 474-4041. Encyclopedia set 1969 \$20 aft 4:30, 482-6122, also motorcycle battery 12V-9A, nw, \$10.

Mens bowling ball, bag, size 7 1/2 shoes, \$15, mens black pro type shae roller skates, \$25, early Heathkit stereo w/ multiplexer, xlnl cndn, \$40, Sunbeam Mix-master mixer, \$12, 334-1946.

Sear's 3-way Exercise, xlnl cndn, \$25. 19" part B/W TV with stand, \$25, port babybed, xlnl cndn, \$6.95 bed fr, dble, \$5. clothes line & post, \$3.50, 946-7028.

Mauser 7mm mdl 94, matching nos, stock, barrel shows some wear, \$40. Arisaka 7.7 orig cndn, \$35. Remington 03-43 30.06 barreled action in white \$45. Mauser 7mm barreled action in white, \$35. 334-1946.

Baby hi-chair, stroller, car seat, car bed, swing windup, cheap, 488-2713.

Set of "mag" wheels, 14 x 7 rims, full polished, oval slots, all hardware included, li nw, \$125. York, 488-2188 aft 5 p.m.

### HOUSEHOLD ARTICLES

G. E. TV 16" screen, table modl, BW, seldom used, \$65, 334-2261.

Beautiful carved teakwood screen, \$350, lrg carved chest, \$250, gold velvet tufted benched antique iron legs, \$50.

NW Grandfather clock, German Movement, Westminster Chime, special design solid walnut case, guaranteed, tempus Fugit brass dial, \$300, 488-2797.

Dishwasher, GE Mobile Maid, Top loader, 2 yrs old, prfct cndn, \$80, Morrison, 333-2754 aft 5 pm or weekends.

Coldspot refrig, 16 cu ft, 2-dr, stup for ice maker, white, \$150, 482-6122.

Caloric gas range, 36" wide, white, \$200. Kenmore part dishwasher, nds handle, white, \$50, firm mattress, Sealy, bx springs, bk case, hdbd, \$20, tan vinyl sofa, makes dble bd, \$25. Underhill, 482-6122 aft 4:30.

RCA 23" color TV, about 6 yrs old, works well, nds some work, \$45, 472-5243 aft 5 p.m.

### VEHICLES

67 Country Sedan, pwr s/b, radio, lug rack, clock, gd cndn, \$650, 938-7848.

67 wheel camper folding ht trailer, stove, sink, ice box, heater, air, 3 nw tires, gd cndn, \$925, 488-2797.

72 Ford F250 pickup, 390 V-8, auto-trans w/ cooler, pwr, air, dual battery, 40 gallon tanks, wiring & br controls, 649-1597.

71 Honda SL100K-1, orange/white, gd cndn, \$285, Craig 422-6367.

66 VW 1 owner, lw mil, xlnl cndn, see & drive to appreciate, Kochner, 488-5619

63 Chevy Impala, 4-dr, nw tires, gd cndn, \$350 firm, 488-2713.

61 Ford, 4-dr, auto, air, radio, best off, 488-0035.

71 (late) Toyota Corona Mark II, 2-dr ht, air, 4 spd, side moldings, C-78 tires, 1100 mi, \$2050, 482-6122 aft 4:30.

65 Pontiac Bonneville, st wgn, ps, pb, ac auto, trans, gd running cndn, nw tires & battery, Witter, 337-1956.

### BOATS

John Allmond 23 ft fiberglass 1/O., flying bridge w/ dual controls, marine head, sink, \$4650, xlnl cndn, Munroe, 538-1206.

Fully equipped Chrysler Conqueror w/ 120 hp outboard trailer, mint cndn, list ovr \$4400; now \$2995. Bland 333-4580.

Credit Union repossession---1969 Chris-Craft Lancer, O/I drive, 19 ft, 283 cu, in. Chevy V/8; Volvo 200 outdrive, bg wh trailer, to inspect, call Campagna, x4901.

19" boat Fiberglass hylt 100 hp, interceptor, Eaton outdrive, 24 gal fuel tank, bg wh tr, nvr in water \$2,850, Pearce-Simpson depth indicator, gd cndn, \$55, 334-1946.

21" Sloop Fiberglass, 2 suits sails, motor, trailer, fixed keel, running lites, bunks head available, Sutton, 485-3069 aft 6 p.m.

### PROPERTY & RENTALS

La Marque, 4 br, 2 bth, central a/h, residential area close to schools, cyclone fence, lrg wkshop, 13 mi from NASA MSC, gd price, 938-7848.

Mobile home, 14 x 70, 3 dr, 2 bth, carpeted, air/heat, washer/dryer, car-pt,

anchored, strapped/skirted on 2 lots, League City, 332-3152.

Pecan Forest League City, contemp 3-2-2, fireplace sha2, fenced, cul-de-sac, 1 1/2 yrs old, Ratcliff, 554-5075.

### PETS

Xlnl breed of Labrador puppies, 3 male, \$75 ea, 3 female, \$50. ea, 1 mo old, 858 Voyage Dr, aft 6.

Beautiful English Setter at stud, tri-colored, reg, shots, Mimi 941-0064.

6 yr old Buckskin horse, nw saddle and bridle, \$300, Hughton, 483-3018, aft 5 pm, 337-1839.

AKC Boxer puppies, brown w/ white markings, xlnl blood lines, born Nov. 13, 1972, 479-5152, Pratt x3651.

AKC miniature Schnauzer puppies, warmed, all shots, ad bloodline, 1 male, 2 females, 10 weeks, \$100 ea, 783-5116.

Free puppies, 3 males, 1 female, mother Chihuahua/Terrior; father? 472-5243 aft 5 pm.

### WANTED

Spanish or contemp, 4-2 1/2 Oakbrook West or equiv, Bullock, 774-6602.

Insulated dog house, lrg enough for Shepherd, 488-4467 aft 5 pm.

Wrecked, broken or basket case mini bikes or motorcycles, up to 125 cc for boy to learn mechanics, aft 4:30, 482-6122.

## ATTENTION

Nominations for the Credit Union Board and Credit Committee should be submitted to R. Gerlach, CD4, J. Demuth, EA5, or J. Bodmer, FC9 by December 29 in order to be placed on the ballot.

## JIMMY WARREN MEMORIAL BOWLING LEAGUE

12-7-72

Ascenders	33	19
Spoilers	32	20
Ball Busters	32	20
Hexes	29	23
Team No. 9	29	23
Alley Oops	28	24
*Jokers	26	22
Strikeouts	25	27
Hertz	24 1/2	27 1/2
*Pin Pounders	21	27
Clowns	12 1/2	29 1/2
Chokers	21 1/2	30 1/2
Mixers	20	32
Fabricators	16 1/2	35 1/2
* Games Postponed Due Launch High Team Set (3 games)		
Clowns - 3112		
Alley Oops - 3128		
High Team Game		
Spoilers - 1121		
Ball Busters - 1089		
High Individual Set		
Gene Rice - Hertz - 714		
Ken Hecht - Alley Oops - 758		
High Individual Game		
Pete Peterson - Alley Oops - 283		
Michael Bankey - Hexes - 285		
Individual Scratch Highs		
* 256 - 211 - 225 Ken Hecht 692		
232 Gene Rice 627		
* 255 Michael Bankey 606		
225 Ken Baker 599		
222 Henry Kaupp		
222 Don Gross		
221 John Sargent		

Make a New Year's resolution that is easy to keep, and will pay off handsomely. Join the Payroll Savings Plan where you work, or the Bond-A-Month Plan where you bank.

**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.

Photographer: A. "Pat" Patnesky Editor: Janet Wrather

# Newsman And MSC Employee Say Space Program is Significant

At the beginning of the space program, public support and enthusiasm were almost overwhelming.

Then when lunar exploration began, everyone anxiously awaited the moment the first man set foot on the moon.

Since Apollo 11, however, it seems that public support of the space program has decreased somewhat.

Questions often arise concerning the significance of the space program in general and the Apollo program in particular.

Following are excerpts from statements made by two men, one program in particular.

a NASA employee—Thomas L. Wilson of MSC's Flight Simulation Branch, and the other a non-NASA employee—Howard K. Smith, well-known news commentator of ABC.

Both men strongly support the space program and attempt to assert significance to its past and future.

The first ideas—those of Howard K. Smith were reprinted from the American Institute of Aeronautics and Astronautics newsletter:

Every moon trip, enthusiasm is a little less, the cry a lot louder—stop squandering money in the sky when we can't solve problems on earth.

Every moon trip I cannot forebear answering—that money in the sky does solve problems on earth, as nothing else would. Think of its effects so far. It provoked the National Defense Education Act, which has made US higher Education in mastery of the earth the best in the world. Youth from poor nations crowd our colleges to learn from it how to meet their problems at home.

The rich spin-offs are in the thousands, like the pacemaker, lengthening life against our most costly disease . . . satellite communication which brought us live contact with Peking and is the first condition for one day making the world one . . . computer technology which has become our most competitive, indeed world-dominant, export in a time when our older industries lag.

If there is ever a disarmed world, it will be because spy satellites of the space program have opened every nation's secrets to the other's inspection.

And the very system of problem-solving it invented provides team methods we would not otherwise have known to save the cities and clean the environment, whenever Congress gets around to legislation to apply those remarkable methods.

I mention only in passing the

vast expansion of knowledge and resources, bound to eventuate in sudden discoveries to come but which could not have happened without this long investment.

The space program is the one unconditionally good thing we have done lately. Cutting it back after this beginning is one of the silliest.

The next statements were printed with permission from Thomas L. Wilson. Wilson hopes to get his ideas published in Science magazine but first wanted to share some of them with fellow MSC employees:

The finest thing that man can do is what he does for Man. With the End of the Apollo program now at hand in Apollo 17, it is fitting and proper to assess the meaning of Man's first lunar landings not only in terms of human science but human understanding as well. What does it mean for Man?

The answer lies in search for self. In Man's search for himself, the moon has proven to be an immutable gift from time, a rose-ta stone for endless years the same.

Living in an age of anxiety and a time of uncertainty, little did we see in Nature that was ours. We had forsaken ourselves and the wilderness bestowed upon us by our mother Earth.

The despair of modern man and the insecurity of our time had conspired against him. A whole generation had lost its way in the dark wilderness of our minds, with no clear picture of what we were or what we ought to be.

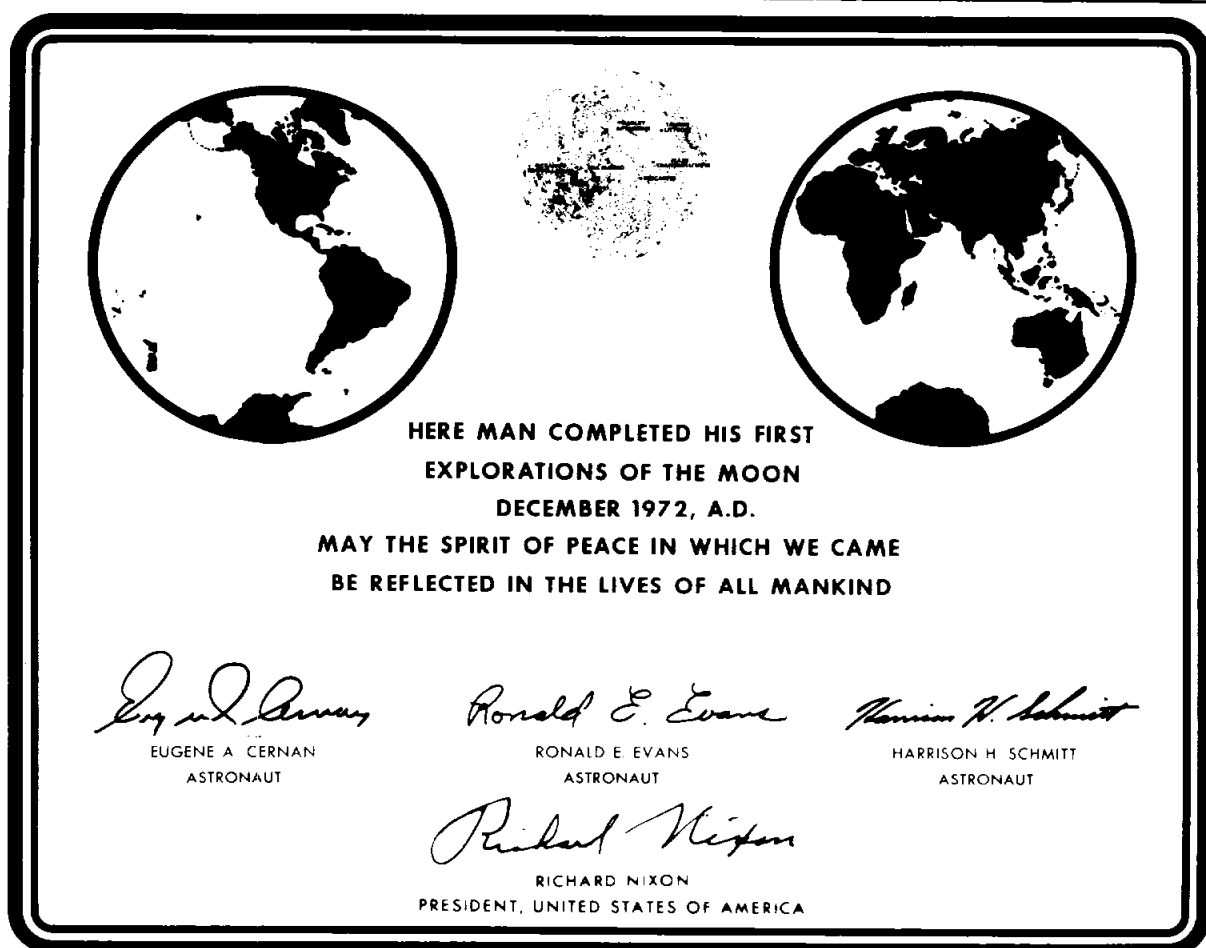
But Apollo 11 brought about a decided end to that. For a few moments there was peace on Earth while Man looked aloft, taking his thoughts away from himself toward something bigger than his comparison with other men.

For once we could see beyond the miserable duration of human life.

Through Apollo we have seen ourselves reaching out, not to exploit but to explore and to understand—to understand ourselves and the world about us. We have lit a candle so that man can stop cursing darkness and learn how to conquer himself.

Now we understand better why we went to the moon and why we shall go beyond. We did not just go there just in the name of human science, for science is not enough. Nor did we go there to mend the broken wings of man. We went there to save the Dignity of Man.

It is man's space. It is the Alpha and the Omega, the Beginning and the End of Apollo.



APOLLO 17 MOON PLAQUE—This is a picture of the plaque which the Apollo 17 astronauts left behind at the Taurus-Littrow landing site. The commemorative plaque was unveiled at the close of the third extravehicular activity (EVA-3). The plaque is made of stainless steel measuring nine by seven and five-eighths inches, and one-sixteenth inch thick.

## Astronauts

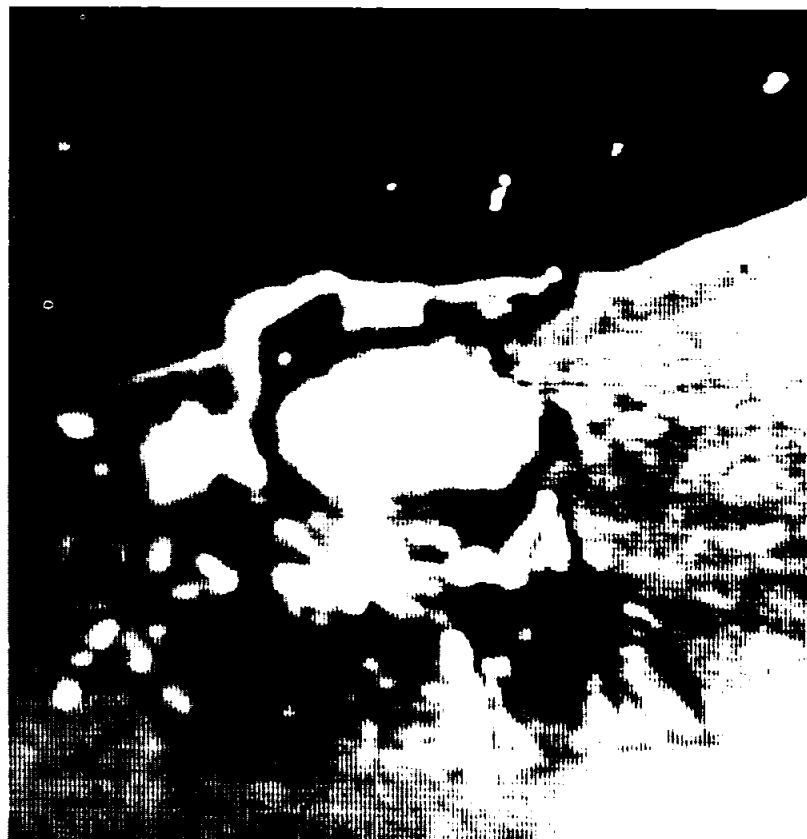
(Continued From Page 1)

solutely ruled out from the present data.

The chemical difference between the Earth and the Moon, however, must be explained if the Moon was torn out of the Earth.

After liftoff of Apollo 17, the Apollo Lunar Geology Investigation Team made the following preliminary report:

The successful return of Apollo 17 marks the culmination of an era of manned lunar exploration. The area examined is probably the most geologically complex of those visited in the Apollo program. The crew described and sampled highlands units similar to those examined by Apollo 16, and, in the same area, found mare basalts similar to those returned by Apollos 11, 12, and 15. We are confident that the detailed descriptions by the crew along with the returned samples and photographs will permit us, in time, to understand the complex relations between highlands and mare material in this area, and to extrapolate these relations to similar areas in other parts of the Moon. In addition, crew descriptions of the dark mantled areas in Taurus-Littrow valley will be directly applicable to large areas of Serenitatis basin, where similar mantling relations are seen. Finally, a remarkable discovery of bright orange material circumferential to a crater suggests rock alteration by volatiles and a possible volcanic fumarole. The mission benefited greatly from the presence of a trained geologist on the Moon, and will be remembered as the most scientifically sophisticated, not as the last, manned lunar landing.



APOLLO 17 LM LIFTOFF—The Apollo 17 astronauts bid the Taurus-Littrow landing site farewell as the Lunar Module "Challenger" makes its spectacular liftoff from the lunar surface. The pictures shows two stages of the lunar liftoff.

