

TAURUS-LITTROW EXPRESS-It was only moving at one mile an hour when this rollout photo was made on August 28, but the Apollo 17 space vehicle ber 6 toward the final Apollo lunar landing mission. The Saturn $V$ stack, lounch umbilical tower and Kennedy Space Center's vehicle assemt
ing are murrored in the still waters of the barge conal turning basin.

## Skylab 'scope mount' guppied to Cape

The Apollo Telescope Mount
ATM orbital solar observatory which will be launched aboard the first Skylab flight in 1973, was shipped last Friday to Cape Kennedy, Florida, from MSC where it recently completed extensive thermal vacuum testing

The 22.000 pound ATM was flown aboard the Super Guppy air transport to Cape Kennedy where it will undergo final prelaunch checkout

The skylab ATM is a solar observatory which will operate from earth orbit and provide a major advance in astronomy and solar physics. It will give scientists a view of the sun's activity without the distorting effects of the Earth's atmosphere.

The Skylab orbital assembly which consists of the ATM, airlock module. docking adapter and workshop, will be launched in the spring of 1973 and will be visited by three separate three-man crews for durations of up to 56 -days over an eight month period. The first manned flight is scheduled for 28 days and the second and third manned flights will be 56 days duration.

The ATM has been at MSC since mid-July and has been subjected to two major tests in the vacuum chamber in the Space En-
fironment Simulation Laboratory Building 32. The ATM was con structed at the NASA Marshall Space Flight Center, which also (Continued On Page 3)

ROUNDUP

MSC Has Goal Of $\$ 132,000$ In Campaign

MSC Director Christopher C. Kraft, Jr. in a letter to employees urged participation in the 1973 Combined Federal Campaign in which MSC's goal is to raise $\$ 132,000$
The once-a-year drive combines the United Fund, National Health Agencies and International Service Agencies and employees may spread their pledge over the 1973 calendar year through payroll deductions.

Each year MSC personnel have achieved 100 percent or more of our assigned goal, "said Kraft. "It is my sincere hope that MSC employees will once more contribute to this deserving campaign as liberally as possible. We will need your full cooperation to meet the goal of $\$ 132,000$ for 1973."

Pleage cards and optional payroll deduction authorization cards are being distributed to employees by team captains.

## MSC Credit Union

opens nominations
The MSC Federal Credit Union at its annual meeting in January will elect four directors and three credit committeemen to fill ex piring terms. Nominations should be submitted for these posts to nominating committeemen Ronald Gerlach-CD4, James Demuth-EA 5 or James Bodmer-FC9


OVER AND OUT-Families, newsmen and test technicions great astronauts Bob Crippen, Karol Bobko and Bill Thornton as they leave the 20 -foot diameter vacuum chamber in Building 7 at the end of the 56-day SMEAT (Skylab Medical Experiment Altitude Test) September 20. Crippen tried out some of his newly-iearned Russian as he greeted the crowd with, "Ocher ceived instruction in conversational Russian on closed-circuit TV and played a move-a-day chess game with Ken Snyder of Crew Systems Division to help make off-duty time pass faster. (Chess results: outsiders 1 gome (1)

## 'Not A Bad Place To Live . . .' say SMEAT Crewmen

"Skylab has a much better chance of success because of what we learned in SMEAT," said Bob Crippen Tuesday in a press conference on the results of the 56 day Skylab Medical Experiment Altitude Test

Crippen said that the 56 days in the 20 -foot diameter vacuum chamber made over into a Sky-lab-type habitat were not as bad

## Apollo 17 patch combines tribute to past with optimistic look to future

## Early in March of this vear,

 Astronaut Eugene A. Cernan put into words on paper the Apollo 17 mission patch ideas he and his fellow crewmen, Ronald E. Evans and Harrison H. Schmitt, had been discussingTheir ideas were formless in terms of design, so the words dealt with the message the crew wanted the patch to convey
"Our desire is that Apollo 17 symbolize not the end of an era, but rather the culmination of the beginning of mankind's greatest achievements in his historyachievements which only have as their bounds the infinity of space and time-symbolization that man's seemingly impossible dreams can become limitless realities," he wrote.
"We would like to recognize the historical foundation upon

which the thought of the future are based-and, so as never to forget, we also hope to pay tribute to the Apollo Program and our nation, its people and its heritage, which have made these accomplishments all possible. The symbolism which captures these ideas sounds sophisticated and complicated to create. We hope it is not, because it is our desire
to capture our theme with sim plicity.'

With these words as a guide and with further collaboration with the crew, artist Robert T . McCall designed the patch which was made public last aveek.
The dominant design element is Apollo, the Greek god of the sun. The particular image selected is the Apollo of Belvedere sculpture which is The Vatican Gallery in Rome.

Suspended in space behind the head of Apollo is an American eagle of contemporary design. The red bars of the eagle's wings represent the bars in the American flag; the three white stars symbolize the three astronauts of the Apollo 17 crew.

The background of the patch is deep blue space and within are
(Continued on Page 3)
as had been anticipated. "The preparations for the test were worse than the test itself. We have come a long way since we first started putting SMEAT together."

Karol Bobko agreed that "the place was quite liveable," and physician-crewman Dr. Bill Tho inton commented that he was struck by the absences of any changes in himself or his two crewmates; he had expected to find changes. "I guess its a tribute to the good design of the human organism," Thornton said
MSC Director of Life Sciences Dick Johnston pointed out that severeal Skylab hardware problems can be corrected because of what was learned in SMEAT, and that much was learned about the practical operation of such equipment as the Skylab food system. "We had three outstanding men in the SMEAT crew," said Johnston, "and there was never a cross word between them during the entire 56 days"

Crippen, Bobko and Thornton closed the door behind them July 26, to begin the eight-week test and emerged September 20.
The crew breathed a Skylab type atmosphere of 70 percent exygen and 30 percent nitrogen at five pounds pressure. More than 30 medical, technical and engineering experiments were run during the test to gather medical baseline data and to verify Sky lab systems and procedures.

## Handicapped seek opportunity-not preferential treatment

Going up and down a few sidewalk steps on the way to the cafeteria may not seem like much to those of us who have all the standard moving parts normally issued to humans. But it's a different story of you have to boost a wheelchair over a curb or step with main bicep strength.
It is not that handicapped people demand any special privileges; they just want an even break with the rest of us and an opportunity to make a useful con-tribution-not only to society but to fulfiilment of their own potential.

National Employment of the Handicapped week starts Monday, but it does not take a special week to have handicapped employees aboard at MSC. For the past two summers, MSC has hired on temporary appointments per sons with muscular dystrophy, cerebral palsy, mental retardation, epilepsy, severe birth defects, paraplegia and blindness. In the 1972 summer group there were five who were legally blind, one mental retardate, two paraplegics and one person with cerebral pal-
"Our goal is to give the handicapped a real experience in doing recessary and rewarding work where tangible accomplishments can be realized," said MSC coordinator for employment of the handicapped Mervin Hughes. "Along with the experience of being interviewed, employed and placed in a productive position, MSC also provides these employees with references and job credentials.'
"A few of the handicapped temporary appointees remain as permanent employees or return to


RANDY GRIPON


PAUL RICHARDSON
work again at MSC under the special program," said Hughes.
Paul A. Richardson, who is legally blind, worked in Structures and Mechanics Division developing Space Shuttle thermodynamic equations. "By having worked on these projects and others," said Richardson, "I have learned much of how the abstract
his MPAD assignment, Cross worked on space navigation tech niques for use in Skylab and Shuttle.
"I have been asked what MSC learned from me," said Cross. "If I've taught anyone anything, I hope it is that a person can funcin his own world, and that when two worlds tought everyone benefits. A healthy mind seeks op-portunity-not preferential treatment."
Randy Gripon operated stitchers and stackers in Reproduction Services' print shop. Said Gripon: "I plan to stay in the printing business, so I hope to continue here with this job which has given me so many opportunities for learning new things." He also brought home three competitive swimming medals from the International Special Olympics in Los Angeles. (See September 15 1972 Roundup) He is a mental retardate.

guidance system redundacy studies and in space navigation computer programming in Mission Planning and Analysis Division. 'To someone who has been employed most of his adult life, being able to work may not seem very important. But to someone who has spent most of his life dependent upon others, it is a wonderful experience just to have a job-especially when the job is as interesting and challeging as I found my job to be," said Shelton. He is legally blind.
One of the 1971 group of summer handicapped employees, Shirley Price, was named outstanding handicapped employee in all government, and she received a special citation from Texas Governor Preston Smith for her achievement. (See October 22, 1971 and May 12, 1972 Roundup).

These people and others like them in government and industry across the country have shown that physical limitation need not be a limitation to productivity or an obstacle to the individual's feeling of being useful.

frances caudle

## ROUNDUP

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

## NO HANDS- <br> New 'Creature-Comfort' <br> Added To Apollo Suit

An Apollo 16 crewman momentarily felt somewhat foolish when he raised his hand to scratch his itching nose while walking on the Moon in a pressurized spacesuit.
No way. The spherical plastic space helmet and the spacesuit keeps life-giving oxygen in and the deadly hard vacuum of space out.
But Apollo 17 crewmen will be able to scratch their noses when the pesky itching begins.
( Itchy noses always happen when both hands are full)

A quarter-size disc of fabric pile-and-hook fastener (Velcro) has been glued to the inner surface of the helmet at the airtight feeding port. Now all the itchy-nosed astronaut has to do to alleviate his misery is to turn his head to the left and nod until his nose reaches the rough fabric patch, then rub his nose much like a cow rubs her back on a fencepost.

## Roundup Swap-Shop

 Swap Shop advertising is available to MSC on on-site contractor personnel. Article or services must be offered os advertised, without regard to race.religion sex or national orgin. 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


## Apollo 17 Patch <br> (Continued From Page 1)

the moon, the planet Saturn and a spiral galaxy or nebula. The moon is partially overlaid by the eagle’s wing suggesting that this is a celestial body that man has visited and in that sense conquered.

The thrust of the edge and the gaze of Apollo to the right and toward Saturn and the galaxy is meant to imply that man's goals in space someday will include the planets and perhaps even the stars.
The colors of the emblem are red, white and blue, the colors of the American flag, with the addiition of gold to symbolize the golden age of space flight which will begin with the Apollo 17 lunar landing.

Co-op of Month


CO-OP OF MONTH--University of Houston physics major Barbaro Clinton was named MSC Cooperative Ed-
ucation Student of the month for unation Student of the month for
August. Barbara is with the Eorth August. Barbara is with the Eorth
Observation Division-S\&AD during Observation Division-S\&AD during
her work cycle, and received her her work cycle, and received her
co-op certificate from Applications Office chief Bryan Erb.


## Quality Group Installs Officers

The South Texas Section of the American Society for Quality Control met September 12 at the Ranch House Restaurant to install new officers.
ASQC regional director Orde Weaver of Phillips Petroleum Chemical Laboratories charged the incoming officers with their responsibilities for the 1972-73 season
New officers are: Chairman Jack H. Cohen, MSC; vice chairman Richard V. Perry, MSC; secretary Barry Branyon, Kentron Hawaii, Ltd; and treasurer Edward C. Franklin, Jr., Maxwell House Foods

ASQC is a professional organization developed to create, promote and stimulate interest in the sciences of quality control, reliability, and quality engineering. The South Texas Section meets every second Tuesday at the Ranch House Restaurant 8215 Telephone Road, Houston, at 6 pm . The Section is seeking new members. Call Barry Branyon at 333-2068 or write to chairCohen at 1653 Neptune Lane, Houston 77058.

## ATM Shipped- <br> (Continued From Page 1)

manages the ATM experiment program.

Skylab astronauts will control all ATM experiment operations in acquiring the data, including "space walks" to retrieve exposed film from the "sun end" of the ATM.


JIMMY WARREN
MEMORIAL BOWLING LEAGUE
Ascenders

## Alley Oops

Team \#9 9

Spoilers
Mixers
Clowns
Strikeouts
Hertz
Chokers
Hexes
Fabricators
Jokers
Pin Pounders
High team set to date: Spoilers 2990; 9/21 Asenders 3000. High team game to date: Spoilers 1093; 9/21 Chokers 1063. High individual set to date: Les Goodheart/Clowns 665; 9/21 Vern Swenson/Ascenders 674. High individual game to date: Pete Peterson/Alley Oops 283; 9/21 John Dornbach/Chokers 253.
Individual scratch highs on 9/21 (game/set): Durkee, Clowns 214/618; Cooper, Mixers 213/601; Dornbach, Chokers 236/599; Sargent, Chokers 227/ 595; Jevas, Pin Pounders 212/ 594; Peterson, Alley Oops 268/ 597.

Samsonite card table with 4 chairs, $\$ 20$ or best offer, Goodman 488-1458. Green-gold-white cut velvet oarly-Ameri-
an style chair, like new, $\$ 50$, Goodman can style chair, like new, $\$ 50$, Goodman
$488-1458$
19-in Zenith B and W TV, good recop, Kenmore elect washer/dryer comb, coppertone, year old, cost $\$ 500-\mathrm{sell} \$ 250$. Haw
kins $332-2306$. kins 3322306 .
AM-FM/record plyr
xclnt condition,
first $\$ 75$. Stembination,
xclnt condition, first $\$ 75$. Stewart 1014
Cedar Lawn, Alvin $585-2698$.
Double bed $585-2698$.
15. Godeke 332.1815 evngs and mattress,

Twin-size rollaway bed, fame and mat-
tress in good condition, $\$ 10$, Bohac 944 -
8205
8205
Eico
Eico 4 -chan cnvtr $\$ 15$; Epiphone Ensign
guitar amp \$200, Peterson 332-1731 after
AM-FM stereo revr/amp 125, Peterson, 332-1731 after 5.
Inlaid-leather top coffee table $\$ 20$. belt
vibrator 10 ; record player with remote spkr and record collection (over 50 albs)
$\$ 15$. White 488 -3409. 15. White 488-3409.

Antique loveseat and matching chair, $\mathbf{\$ 2 5 0}$
Keith $488-1174$.
PETS
Mischievous puppy, any offer, Green 331 -
${ }_{\text {AKC-reg female min Schnauzer, year old, }}^{3001}$
needs lots TLC, loves children. Evan, 488 -
3282
and pet qual, 4 mos old perm shot and pet qual, 4 mos old, perm shots,
wormed, $332-1909$ One Gerbil with cage and sack of food
S1.50, Richeson $482-1064$.

## ASTP working groups agree on basic timeline

The Academy of Sciences of the USSR and NASA have approved the results of the fourth meeting of Joint Working Groups on the Apollo Soyuz Test Project (ASTP), held at Houston July 6. 18, 1972. The ASTP calls for the U. S. and Soviet manned spacecraft to rendezvous and dock, by means of compatible systems, in mid-1975. Commitments for this project were signed by President Nixon and Premier Kosygin at their May 24 summit meeting.
The working groups agreed that future work would be based on three documents for ASTP: Project Technical Proposal, Organizational Plan, and Project Schedules. The working groups also agreed to a series of supplementary technical documents.
During the course of the meeting, the working groups decided that, in the 1975 mission, the Soyuz spacecraft would be launched first and the Apollo second at agreed times of day. They further agreed on the principles of manufacture and exchange of recovery communications equipment. They concluded that the technical requirements for the compatible docking systems and other system and mission technical areas were sufficiently advanced to allow system design and development to proceed.
Areas requiring further study and decision include: possible crew transfer by extra vehicular activity (EVA) in an emergency situation, study of whether changes can be made in the space-
raft pressures to shorten the time required for crew transfer; use of a television system for docking; use of attitude control propellant after docking; and the choice of after docking; and the choice of
a specfic date in July 1975 for conduct of the mission.
It was further agreed that in future there would be five working groups instead of three:
Working Group 1. Mission Model and Operational Plans
Working Group 2. Control and Guidance
Working Group 3. Docking Mechanism

Working Group 4. Means of Communication and tracking
Working Group 5. Life Support Systems and Crew Transfer
The next meeting of working groups will be held in Moscow in October 1972.

## NR contracts for design aid

Space Shuttle prime contractor North American Rockwell last week signed contracts with Grumweek signed contracts with Grum-
man Aerospace Corporation and McDonnell Douglas Corporation for specilized engineering in the initial design of the Shuttle orbit-

NR expects the FY73 values of the contracts to run in excess of $\$ 8$ million for Grumman and more than $\$ 4$ million for McDonnell Douglas, with direct engineering manpower running about 300 and 140 people, respectively.
It was further agreed that in .
 8 million for Grumman ond

2 Rm 261.

## Game Tickets <br> Marked Down

Theater, football and ice hockey at a discount are available through the MSC Employee Activities Association.
MSC night at the October 11 Dean Goss Dinner Theater performance of "Once Upon a Mattress' has a $\$ 2.50$ discount, with tickets priced at $\$ 6$ each and available from Joanne Naponic at 4303. Theater opens at 6:30 buffet from 7 to 8 and curtain goes up at 8:30.

Tickets to the October 9 Oilers vs. Oakland Raiders game in the Harris County Domed Stadium are marked down from $\$ 7$ to $\$ 5$ to MSC employees. Get them from Milt Heflin, Bldg $30 / \mathrm{Rm}$ 2054A or from Clayton Forbes, Bldg. $17 / \mathrm{Rm} 263$, Kickoff is at 8 .

The Houston Aeros will open their ice hockey season October 12 vs. Chicago Cougars in the Coliseum. Tickets are marked down 30 percent for MSCers to $\$ 4.55, \$ 3.85, \$ 3.15$ and $\$ 2.10$ and will be available starting Monday from Claudia Hess, Bldg.

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The weatherman and the ants cooperated...


1. Off and running in the tricycle race, knees to chins. 2. As long as it moved, rides were great with the younger set. 3. And don't hold the onions! 4. Time was when hayrides were horse drawn. 5. Some people are always clowning around.
2. Sharing is a virtue. But cotton candy? 7. In bingo, many were called but few were chosen. 8. Deke is the dunkee as a direct hit unseats him 9. The day was such a hectic one that some folks had to sleep it off. The next issue of the Roundup
will carry some interesting statistics on the MSC Election 72 Picnic, such as who sold the most tickets, how many tons of potato salad were eaten and similar useful data. (Photo by Virginia DeFoy)

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