

# Space News **ROUNDUP!**

## Gemini V Circles Earth 120 Times In 8 Days, Returns Record Breaking Crew Safe And Sound



**GEMINI V MISSION COMPLETED**—The three Mission Control Center flight directors light up a victory cigar after learning that Astronauts L. Gordon Cooper Jr. and Charles Conrad Jr. had been recovered in the western Atlantic to successfully conclude the eight-day Gemini V space flight. Shown are (l. to r.) Christopher C. Kraft Jr., John D. Hodge, and Eugene F. Kranz.



**A JOB WELL DONE**—Flight Director Christopher C. Kraft Jr. (left) and Dr. Robert R. Gilruth, director, MSC, exchange congratulations in the Mission Control Center after learning that Astronauts L. Gordon Cooper Jr. and Charles Conrad Jr. had been recovered in the western Atlantic to successfully conclude the eight-day Gemini V space flight.



**MCC AFTER RECOVERY**—One of the many scenes of jubilation in the Mission Control Center after the Gemini V mission. Shown here are (l. to r.) Donald K. Slayton, MSC assistant director for Flight Crew Operations; James C. Elms, deputy associate administrator for Manned Space Flight, NASA Hq.; and George M. Low, MSC deputy director.

After traveling 3,338,200 miles through space in seven days, 22 hours and 56 minutes, the Gemini V spacecraft and crew floated to a landing in West Atlantic waters, ending their record breaking flight at 6:55 a.m., CST, August 29.

Bearded Astronauts L. Gordon Cooper Jr. and Charles Conrad Jr. landed some 90 miles west of the prime recovery ship, the aircraft carrier USS Lake Champlain, after making 120 revolutions around the earth in just under eight days. The flight was cut one revolution short because of a storm called Hurricane Betsy in the planned recovery area.

A helicopter from the aircraft carrier picked up the two astronauts and carried them to the ship where they were greeted by the crew, given medical examinations and permitted to have their first shave and bath in eight days.

Both Gemini V crewmen were pronounced "happy, well and aware" after they arrived on the carrier.

Monday the two astronauts were flown from the aircraft carrier to Cape Kennedy for a series of debriefings and additional medical examinations.

When the Gemini V crew arrived at the Cape they were greeted by reporters and television men. To a question by a television announcer of, "Are

you tired?", Cooper replied, "No, are you?"

Cooper and Conrad were scheduled to have arrived here yesterday for six more days of debriefings before they come out of seclusion. The post-flight press conference with the two astronauts is scheduled for tomorrow plus eleven days of recuperation of the eight-day flight by Cooper and Conrad proves that man is capable of making a flight to the Moon and back. It is about the same length of time that will be required to fly to the Moon, descend to the surface and take samples, return to the Moon orbiting spacecraft and then return to Earth.

President Johnson talked to Cooper and Conrad on the USS Lake Champlain via telephone and congratulated them on their successful flight. He then asked Conrad, "After you see that family of yours, how would you like to see some of the world at ground level for a change?" Conrad answered in the affirmative.

The President then continued, "Well, you are going to get the chance. We want you to take a good rest . . . but afterwards, we

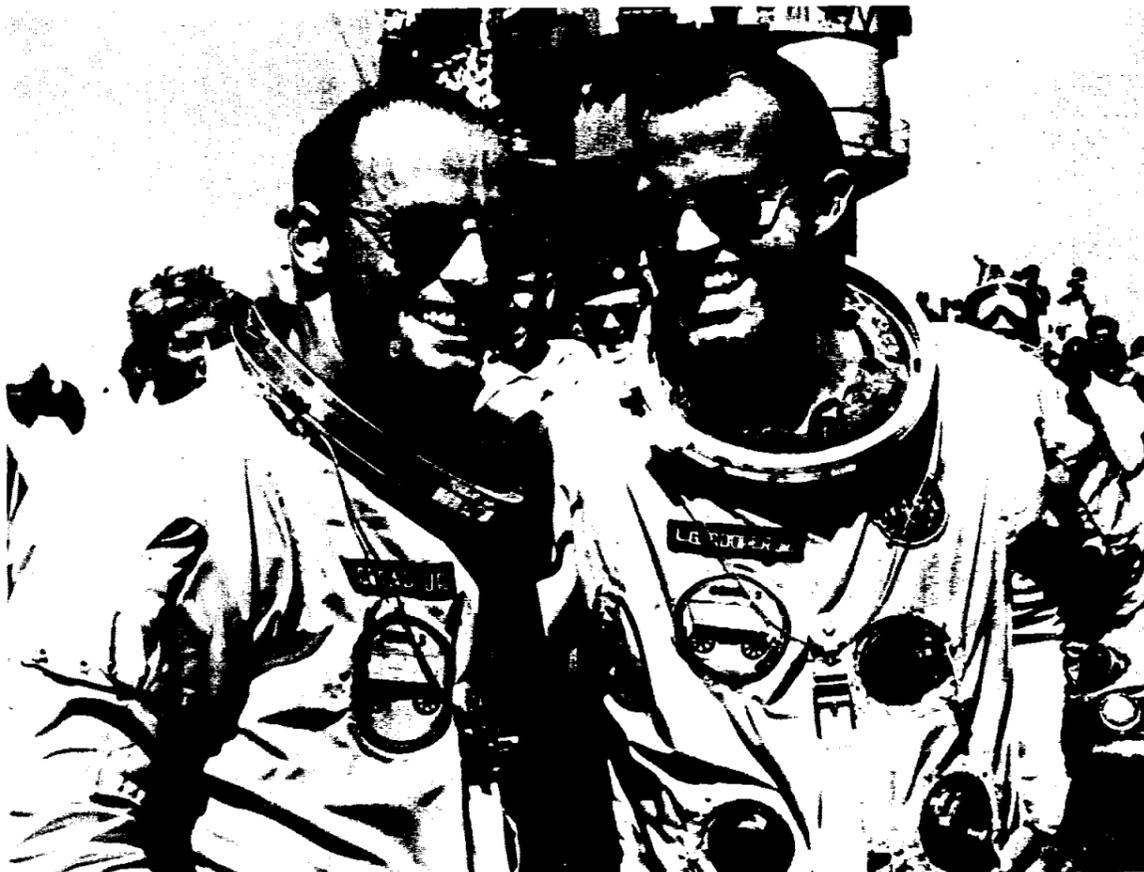
hope that both of you along with your fellow astronauts, can accept some invitations to share your achievements with the peoples of other lands."

"This Flight of Gemini V was a journey of peace by men of peace," the President said. "Its successful conclusion is a noble moment for mankind and a fitting opportunity for us to renew our pledge to continue our search for a world in which peace reigns and justice prevails."

The Gemini V spacecraft flight lifted off right on schedule from Pad 19 at Cape Kennedy at 8 a.m. Houston time, after a two-day postponement because of difficulty with the hydrogen fuel supply for the fuel cell. This was the first time an American manned launch had been launched at the precise scheduled time.

Early in the first day of the flight, trouble developed with the oxygen supply for the fuel cell. Oxygen pressure for the fuel cell dropped from 800 to 60 pounds, and fear that the pressure would drop to zero caused

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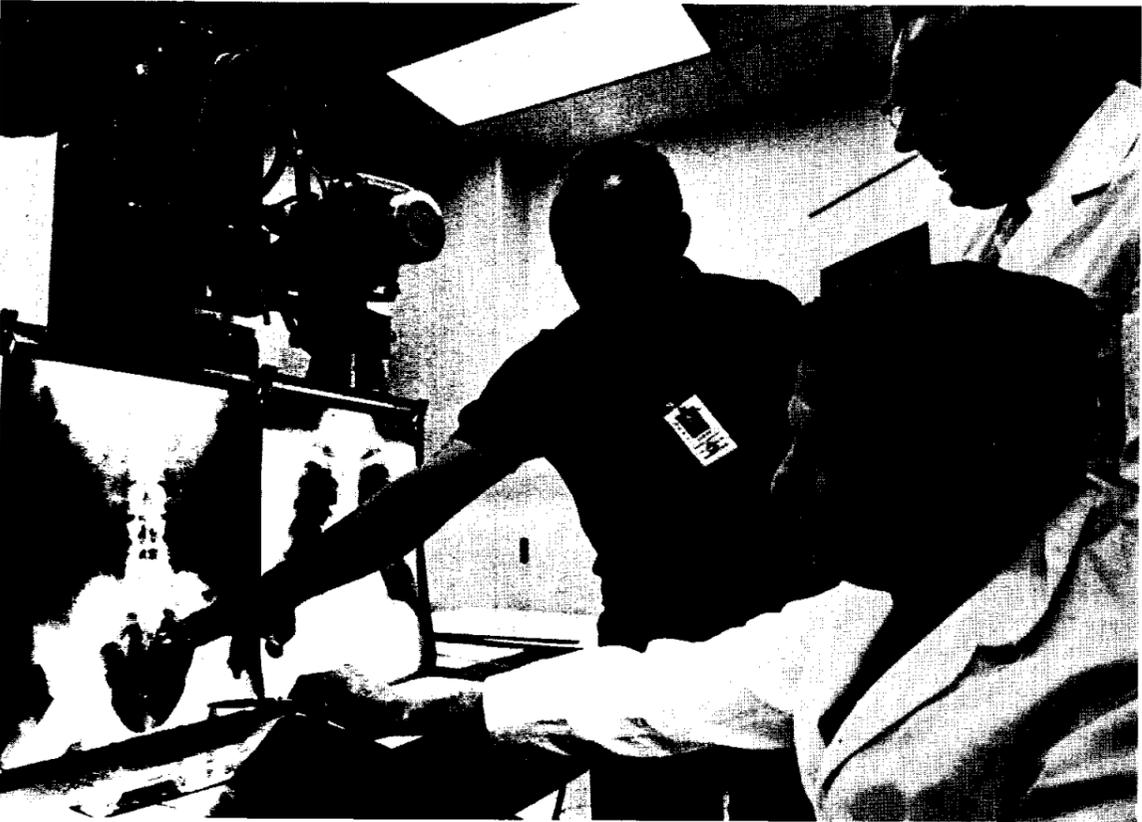
**RETURNING SPACEMEN**—Gemini V Astronauts Charles Conrad Jr. and L. Gordon Cooper Jr. smile heartily as they stand on the deck of the recovery ship USS Lake Champlain. Both sport an eight-day growth of beard.



**MORNING OF LAUNCH**—Astronauts for the Gemini V mission, L. Gordon Cooper Jr., command pilot, and Charles Conrad Jr., pilot, have breakfast launch morning at crew quarters with other astronauts and members of the operation. Shown (l. to r.) Conrad, Dr. Howard Minners, and Cooper.



**GEMINI RECORD ACCREDITATION**—E. J. Reeves, a representative of the National Aeronautic Association, is seen during the early moments of the Gemini V space flight in the Mission Control Center signing the plot board charts for space flight record claim to the F.A.I. (Federation Aeronautique Internationale). The F.A.I. is a world-wide organization authenticating speed, endurance, etc., records. Reeves is a Dallas insurance executive.



**PREFLIGHT PHYSICAL**—Astronaut Charles Conrad Jr. (left), Gemini V pilot, checks his X-ray negatives during a preflight physical check. Dr. Charles Berry, chief of the medical team, smiles at Conrad's interpretation. The other doctor is Dr. Robert Moser.



**BACKUP CREW**—Astronauts Elliot M. See Jr. (left) and Neil A. Armstrong, the Gemini V backup crew, are seen in the Mission Control Center discussing the Gemini V space flight after fuel cell difficulties developed. They had just flown in from Cape Kennedy.



**ASTRONAUT INSERTION**—Gemini V Astronauts (l. to r.) L. Gordon Cooper Jr., command pilot, and Charles Conrad Jr., pilot, are inserted into the spacecraft at Complex 19, White Room prior to launch August 21.



**VISUAL ACUITY SITE**—Aerial photo of the Gemini V visual acuity experiment ground pattern is shown in this view taken August 23, the third day of the Gemini V flight. The patterns, located about 40 miles north of Laredo, Tex., consist of a series of 12 white rectangles made of white gypsum on a dark background. The sizes of the rectangles decrease as the astronaut reads off the orientations of each marking, decreasing in size much like a standard eye chart used for examinations in a doctor's office. The task of the astronaut was to give the orientation of the rectangle with respect to geographical north.

# Gemini V

(Continued from Page 1)

the scrubbing of the Rendezvous Evaluation Pod (REP) experiment, and also caused some apprehension as to whether the flight would be able to continue. But a pressure build up began and hopes of completing the

mission were raised.

Other difficulties encountered in the flight included faulty attitude and maneuvering thrusters, and accumulation of water from the fuel cell which was in danger of exceeding the storage capacity, necessitated powering down the spacecraft for periods to limit the amount of water produced in the power generating

process. Both these difficulties placed limitations on some of the experiments that were to be performed on the flight.

On the third day of the flight, rendezvous exercises with a phantom satellite were performed by the crew to gain knowledge for future rendezvous flights. The exercise was accomplished successfully.

Cooper and Conrad both remained in good spirits during the entire flight and after recovery showed no signs of dizziness or weakness.

This ninth manned space flight by the United States established several new world space flight records. New records included: the longest manned spaceflight; total U.S. man-hours in space, 639 hours and 48 minutes; the longest multi-manned space flight, 190 hours, 56 minutes; and the most manned flights.

Other records set included Cooper being the first man to

make a second orbital flight; Cooper also being the individual with the most spaceflight time; and the new altitude record of 216 miles for an American spacecraft.

Documentation of this record breaking flight will be made by the International Federation of Aeronautics in Paris who had representatives on the scene at liftoff and recovery.

The Gemini V spacecraft was visible at least on two occasions as it passed over the Houston area. It appeared as a star moving across the sky in a hurry to get some place.



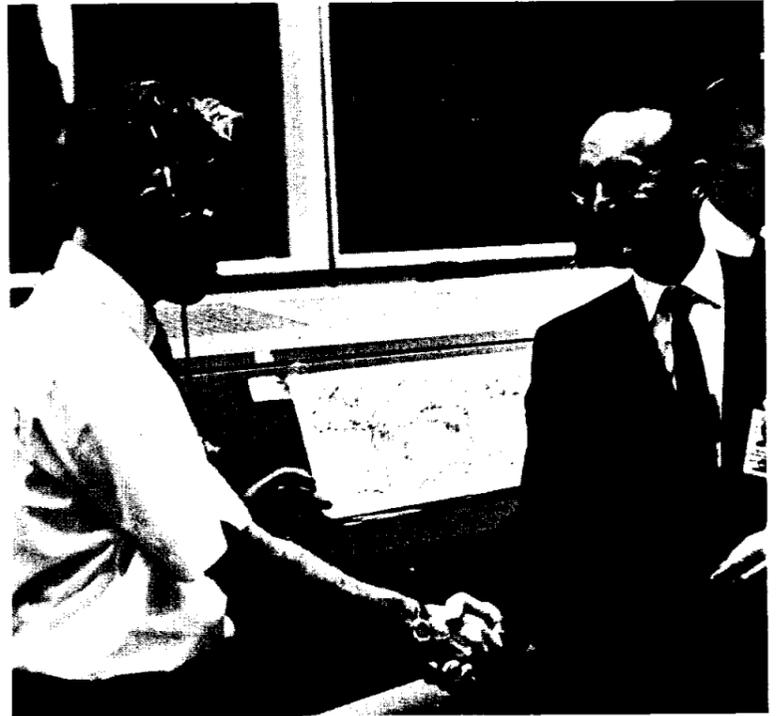
**GO-NO GO PERIOD**—Three key Manned Spacecraft Center officials are seen in the Mission Control Center while the decision was being made on whether to continue the Gemini V space flight after difficulty developed with the fuel cell's oxygen supply. Left to right, are Christopher C. Kraft Jr., flight director; Dr. Robert R. Gilruth, MSC director; and George M. Low, MSC deputy director.



**FUEL CELL DISCUSSION**—The fuel cell problem which developed early in the Gemini V space flight is discussed during a group conference held around the flight director's console in the Mission Control Center. Left to right, are Astronaut James A. McDivitt, spacecraft communicator; Richard D. Glover, electrical, environmental, and communications officer; John W. Aaron, EECOM; Astronaut Elliot M. See Jr., Gemini V backup crew pilot; Christopher C. Kraft Jr. (hand at chin), flight director; Eugene F. Kranz (foreground), flight director; and John D. Hodge (seated far right), flight director.



**MISSION DISCUSSION**—Charles W. Mathews (left), manager, Gemini Program Office, and Flight Director Christopher C. Kraft Jr., discuss the Gemini V mission in the Mission Control Center during a quiet period in the flight on August 25.



**HODGE CONGRATULATED**—Dr. George E. Mueller (right), associate administrator, Office of Manned Space Flight, NASA Hq., congratulates Flight Director John D. Hodge after learning that Astronauts L. Gordon Cooper Jr. and Charles Conrad Jr. had been recovered in the western Atlantic.



**RECOVERY BRIEFING**—Rear Admiral W. C. Abhau (left), who will take over command of Task Force 140 for Gemini VI, is shown in the Mission Control Center being briefed on recovery operations for Gemini by Robert F. Thompson (center), NASA recovery coordinator; and Christopher C. Kraft Jr., flight director for Gemini V.



**TALKING WITH HUSBANDS**—Trudy Cooper (left) and Jane Conrad (right) are shown in the Mission Control Center talking with their husbands onboard the aircraft carrier USS Lake Champlain in the west Atlantic after their successful Gemini V flight.

# Gemini VI Prime Crew Practices Water Egress In Gulf



**SUITING UP**—Gemini VI Command Pilot Walter M. Schirra Jr. and Pilot Thomas P. Stafford are given an assist in suiting up aboard the Coast Guard Buoy Tender Iris for water egress tests held in the Gulf of Mexico August 23.



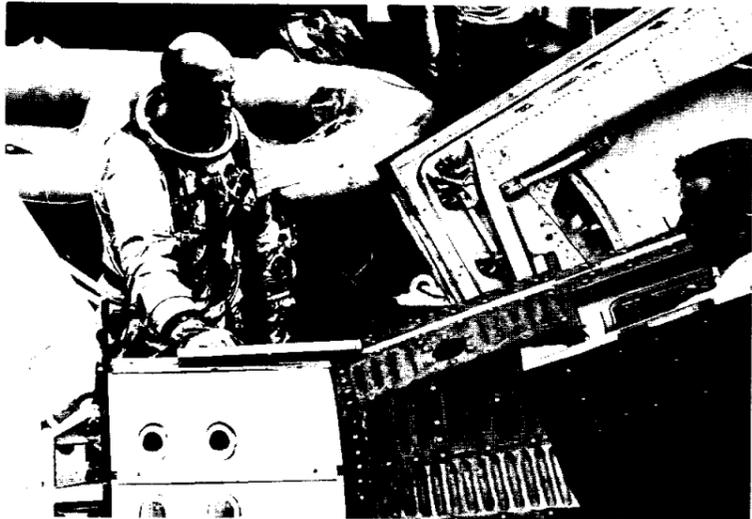
**HELICOPTER RECOVERY**—Pilot Thomas P. Stafford for the Gemini VI flight is lifted from the water by a Coast Guard helicopter during water egress training exercises in the Gulf of Mexico, August 23. He had just egressed from the Static Article Five spacecraft. The helicopter returned both Stafford and Command Pilot Walter M. Schirra to Ellington AFB after the exercise.



**SPACECRAFT BOARDING**—Command Pilot Walter M. Schirra for the Gemini VI flight boards the boilerplate spacecraft for water egress training exercise in the Gulf. Pilot Thomas P. Stafford is already on board at right.



**RECOVERY BOAT**—The prime crew for the Gemini VI mission, Command Pilot Walter M. Schirra and Pilot Thomas P. Stafford are picked up by Coast Guard and NASA crews after egress test from a boilerplate spacecraft in the Gulf of Mexico.



**ENTERING SPACECRAFT**—Gemini VI Pilot Thomas P. Stafford prepares to enter the Static Article Five Spacecraft onboard the Iris. Gordon Harvey, Flight Crew Support Division, training officer gives him instructions for the egress test.



**LIFERAFT BOARDING**—Gemini VI Command Pilot Walter M. Schirra Jr. prepares to enter liferaft after egressing from Static Article Five Spacecraft. The exercise was performed in the Gulf of Mexico.



**SUCCESSFUL EGRESS**—Gemini VI prime crew members Pilot Thomas P. Stafford (left) and Command Pilot Walter M. Schirra (right) in their liferafts after a successful egress from the boilerplate spacecraft during tests in the Gulf of Mexico August 23.

# Space News ROUNDUP!

MANNED SPACECRAFT CENTER, HOUSTON, TEXAS

## EMPLOYEE NEWS



### Remember Last Year? More Of Same Planned!

The third annual MSC family picnic with plenty of food, drink and fun for kids and adults, will be held again this year at the Galveston County Park at League City.

Tickets may be obtained from any Employees Activities Association representative and the

prices are as follows: Ages 0 thru 5, free; Ages 6 thru 12, 50 cents; and 13 thru 99, \$1.

Entertainment for the kids will include various rides and games, and for the adults, live band dancing, boating, games etc., with favors and prizes for all ages.

### Gold-Plated Space Visor



**SPACE VISOR**—This gold-plated helmet visor, the type worn on the Gemini IV flight by Astronaut Edward H. White II for his walk in space, cuts out infrared radiation and absorbs ultra violet but transmits most of the visual rays, and permits the astronaut to see clearly through it. Don Levy of Lockheed Missiles and Space Co., inventor of the Lockspray-Gold film, holds the visor for a demonstration of its reflecting ability.

## EAA-MSC Style Show And Dinner Dance To Feature Charm Club Girls As Models

The EAA-MSC Style Show and Dinner Dance is scheduled for September 11 in the Ballroom of the Crest Hotel with cocktails served at 5:30 p.m., dinner at 7 p.m., and dancing from 9 p.m. to 1 a.m.

Archie Sylvia's band will furnish the music for dancing. Dress for the occasion will be semi-formal.

Tickets are on sale now and may be purchased from members of the Charm Club for \$3 each. (Drinks are not included in the price and will be \$.65 each.) Due to a limited amount of space, only 250 tickets will be sold. Door prizes will be awarded.

The menu for the dinner is to be pineapple frappe; grapefruit-avocado salad, with special dressing; breast of capon Cordon Bleu; petit pois; dessert; and tea or coffee.

Dorothy Newberry will be the Mistress of Ceremonies for the style show which will take place during dessert. Doris Reed, Carol Daunt, Mary Ann Kelly, Suellyn Johnson, Wanda Slack,

Jean Dobbs, Bea Anderson, Yvette Sharp, Kathryn C. Walker and Judi Liles, all of the MSC Charm Club, will model.

For further information, contact Dorothy Newberry, Ext. 4136, or Rex Bauerlein, Ext. 4897.



**STYLE SHOW**—The MSC Charm Club members will serve as models for the style show that will be conducted at the EAA Style Show and Dinner Dance on September 11, at the Crest Hotel. Two of the Charm Club members, Yvette Sharp (seated) and Bea Anderson (standing) are shown as they make preparations for the event.

### Bridge Club Games Announced For Month

The September calendar of the MSC Duplicate Bridge Club includes the Club Master Point on Tuesday, September 7, and fractional master point games on the 14, 21 and 28. The fractional master point games will count toward the series award.

Winners of the Special Master Point game on August 17 were: North-South: Max Cone and Bill DeGeorge, first; Eugenia Brown and Joan Sanders, second; East-West: Elizabeth Dauman and Norma Dreszer, first; Max and Lee Holley, second.

At the rating point game on August 10, F. Tawil and David Gibson were first, with Sara and Bill Stewart, second.

The Duplicate Bridge Club meets at 7:15 p.m. each Tuesday in the NCO Club at Ellington.

### Art Club Meeting To Plan Fall Exhibit

The NASA Employees Art Club will meet at 5 p.m., Tuesday, September 7 in the Executive Dining Room of the MSC Cafeteria.

The membership of the Art Club is open to both MSC and MSC-Contractor employees. All persons interested in art activity are urged to attend.

The purpose of the meeting is to plan a fall exhibit, and to formulate classes in painting.

For further information call Eugene Brock, chairman of the Art Club, Ext. 4788.

### Traffic Request Made

The Friendswood Development Corp. has made a request that MSC employees using the Clear Lake City entrance to the site, turn right at Barracuda Drive when going toward the site and follow the newly marked trail so as to avoid the built up portion as much as possible.

## MSC Gals Offered Program For Attaining More Charm

Interested in a conscientious self-improvement program? Wish you could gracefully emerge from the back seat of a two-door car? Properly slip out of your winter coat while, of necessity, holding your handbag?

The EAA-MSC Charm Club has scheduled a meeting for 5 p.m., September 14, in the Executive Dining Room of the MSC Cafeteria. The program will include a social period with refreshments and a guest speaker, Dee Hicks, who is a cosmetologist, will give a demonstration of makeup techniques.

Memberships are available to all those who desire up-to-the-minute fashion forecasts, with individual instruction in figure control, makeup training, and poise.

This fall, the EAA-MSC Charm Club will have classes conducted by Marilyn Flowers, well-known fashion consultant and director of a dance and charm school in the Bay Area. She is a Powers Model and an expert in the field of charm and fashion.

In addition to training classes, monthly lectures are to be given by guest speakers. Previous guest speakers have included Mr. Carl, of a prominent beauty salon, who demonstrated various wigs, hairpieces, etc., and their diverse uses; and Pauline Boulware, fashion coordinator for a new dress shop in southwest Houston.

Since the formation of the club in January 1965, two fashion shows have been held in the local area. Local stores provided the fashions which were modeled by club members. The next Charm Club fashion show will be September 11, during the EAA dinner dance at the Crest Hotel. Other activities are being planned for the fall and holiday season.

For additional information regarding the MSC Charm Club, Bea Anderson, Ext. 3761, may be contacted.

### Performance Rewarded



**PERFORMANCE AWARD**—J. Donald St. Clair (left), Gemini Program Office, is presented a Sustained Superior Performance award by Scott H. Simpkinson, manager, Office of Test Operations, GPO.

**Las Vegas Air Race,  
Subject For Discussion  
At Aero Club Meeting**

The Aero Club here at the Center will hold its monthly meeting in the Building 30 auditorium at 5:30 p.m., September 6.

Information will be provided at this meeting on the 1965 Las Vegas National Air Races which are to be held in Las Vegas, Nev., September 21-26.

Fly-in facilities will be available at the McCarran, Thunderbird and Boulder City airports. Ticket prices and information on how to secure them will be provided at the meeting of the Aero Club.

**Center Employee  
Wins Three Trophies  
At Governor's Regatta**

Jerry Goodman of Crew Systems Division walked off with three trophies at Governor's Cup Regatta August 14-15 held at Lake Travis near Austin.

He took first place in the Finn Class (Olympic class sailboat), and at the same time won the Texas State Championship and first in class. For the State Championship he received a permanent trophy and for first in class he was presented a traveling trophy.

Jerry won the trophies sailing a 14 foot and 9 inch cat rig sailboat.

**MSC-EAFB  
SOFTBALL**

**Final Standings  
Fast Pitch**

TEAM	W.	L.	Pct.	G.B.
CG-Choppers	13	2	867	-
Lone Stars	12	3	800	1
Rams	11*	4	733	2
Colt 38's	11	4	733	2
IBM	9	6	600	4
2578th AB SQ	9	6	600	4
Weather	9	6	600	4
FCD	8	7	533	5
Comm. SQDN	8	7	533	5
ID	6	9	400	7
Lockheed	6	9	400	7
Wolfs	6	9	400	7
Hustlers	5	10	333	8
LoBos	5	10	333	8
Rag Mops	1	14	067	12
Firemen	1	14	067	12

\*A coin flip will be used to determine third and fourth places for the league play-offs.

**Slow Pitch**

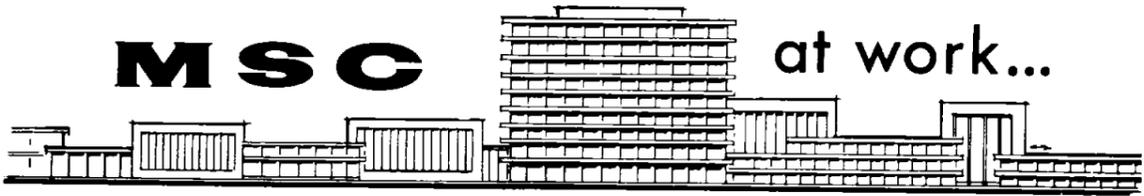
TEAM	W.	L.	Pct.	G.B.
Hustlers	15*	1	938	-
Animals	14	2	875	1
MPAD-RAB	12	3	800	2
Mets	11	4	733	3
CSD	10	5	667	4
Mis-Fits	9	6	600	5
8-Balls	9	6	600	5
RMD-Plus	8	7	533	6
Machinists	8	7	533	6
Moonrakers	5	10	333	9
Odds-Ends	5	10	333	9
Fabricators	5	10	333	9
LRD	4	11	267	10
Virginians	3	12	200	11
Lunartechs	3	12	200	11
USCH(H)	0	15	000	14

\*Animals and Hustlers were tied at end of the regular season with 14 wins and 1 loss each. A sudden-death single game play-off resulted as follows: Animals 2, Hustlers 16.

G.B. totals, for other than second place, were computed on regular 15 game season schedule.

**MSC**

**at work...**



**NETHA MAYBERRY**, secretary, Environmental Medicine Branch, Center Medical Office, plots the trend charts in the Mission Control Center on the command pilot and the pilot during the Gemini V flight, showing heart rate, respiration rate and blood pressure.



**DIANE DALLAS**, Spacecraft Operations Branch, Flight Crew Support Division, updates the Flight Plan in the Mission Control Center during the Gemini V Mission and then the Flight Plan is transmitted to the Mission Operations Control Room.



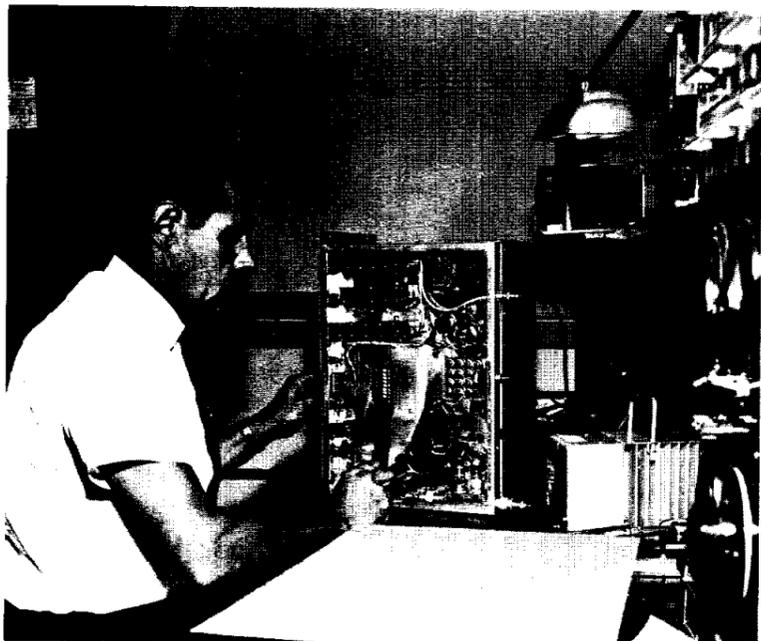
**BARBARA CORWIN**, Recovery Operations Branch, Landing and Recovery Division, prepares to place a transparency on an overhead projector for display in the MSC Recovery Control Room during the Gemini V mission. The image may also be picked up by camera and made available for transmission anywhere in the Mission Control Center.



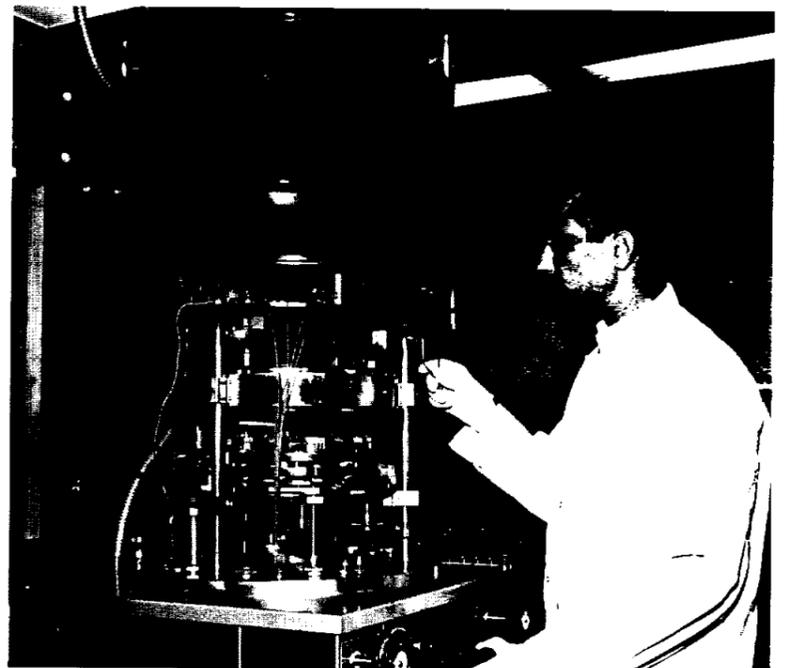
**KATHRYN HINTON**, Remote Site Operations Branch, Flight Control Division, receives teletype messages and sees that they are distributed properly in the Mission Control Center during the Gemini V mission.



**EDITH BOYD**, Operational Evaluation and Test Branch, Landing and Recovery Division, sends latest ship weather reports during the Gemini V flight to the Spacecraft Meteorology Group via pneumatic tube in the Mission Control Center.



**MILTON PEYRONEL**, Electromagnetic Systems Branch, Instrumentation and Electronic Systems Division, calibrates radio control transmitter for controlling parasail descent in drop tests. An onboard TV camera serves as eyes of the astronaut and is monitored by the ground controller.



**FRANK BAIAMONTE**, Flight Data Systems Branch, Instrumentation and Electronic Systems Division, places a substrate into the Edwards Machine for deposition of thin films under a vacuum.

# Reflections On Man's Urge To Conquer Space

(EDITOR'S NOTE: This thought-provoking article by Dr. Alan McGlashan of London, England, appeared in the June 1964 issue of the French publication REALITES. We wish to thank the author and the publisher for permission to reprint the article which was entitled "Reflections On Man's Urge to Conquer Space."

The predicaments of a man in outer space and a child in the womb have a startling resemblance. Both are carried in sealed capsules through a potentially hostile environment, both are ingeniously cushioned against external shocks and extremes of temperature, both nourished by highly specialized feeding arrangements. The atmosphere of outer space, inconceivably thin, inconceivably cold, would be instantly fatal to the astronaut—but not more so than the air we ordinarily breathe to the embryo: neither could maintain life for a moment apart from the elaborate and precarious protective devices with which they are surrounded. And for the astronaut almost as for the embryo, there runs, in the to and fro radio beams, a kind of invisible umbilical cord, along which floods a ceaseless stream of delicate adjustments, corrections, assistances, from the ever-watchful maternal organization.

But perhaps the most curious of their shared experiences is concerned with gravity. On his astral journeys man in space is weightless and unencumbered. For him gravity, least understood of all natural forces, is suspended, and it does not matter to him in the least which way up he happens to be. Intra-uterine life also possesses this engaging quality. For months on end, as never again in our terrestrial lives, we are about equally content to stand on our heads or our heels, with, if anything, a slight preference for the former.

There is, of course, one big difference. The womb is "natural," the capsule "artifi-

cial." But what precisely do we mean by these terms? Space capsules are constructed by human intelligence, and the human brain (I speak of brain, not mind, for the latter is a mystery) is itself an evolutionary achievement of nature. On this particular level, therefore, which seems still to be the most readily acceptable to modern man, the level of life seen as an evolutionary process, all products of the human brain, however technical—jet planes, electronic computers, sputniks, and the like—are in the last analysis works of nature created by nature's latest and most highly evolved instrument, the human brain box.

Now if this striking parallelism between the astronaut and the embryo were all, it would be fascinating—and unimportant. But it is not all. These complicated capsules, each guarding and enclosing a single spark of living substance, carried with maternal care, or thrown hopefully into space, have we not seen this before? And when there was neither human nor animal eye to watch, has it not all happened before, millions and millions of times through millions and millions of years: the acorn falling softly to the forest floor, the sycamore seed equipped with tiny helicopter wings to further its flight from the parent tree, the horse chestnut capsule pronged and spiked like any sputnik . . . ? I suggest that the manned spaceship is only the latest of an almost infinite series of such attempts: the ceaseless, compulsive efforts of life to propagate itself, to survive somehow, somewhere, to find new lodgments and new possibilities of growth: efforts stretching backwards to the first unicellular stirring in some primeval mud bank, and forward to the unimaginable hybrid life-forms of intercommunicating worlds.

Seen in this light there is no real break in continuity between man flung into outer space in

search of a hospitable star, and a single spore blown by the winds of chance on to some remote and alien but accepting soil. Both are means of propagation, crazily irrational, hazardous, magnificent, dauntless: life dicing against the forces of destruction, pitting her almost illimitable wealth of fertility against destruction's astronomical odds: losing a game here and there with the extinction of this or that species, but usually winning in the end, often with a truly desperate gambler's throw. In this giant game of chance the spaceship can be seen as life's current wager.

Like all gambling games this one is tediously repetitive in essence but infinitely variable in detail. Life's simple and recurrent aim is the protecting and then the scattering of seed: the founding of new centres and colonies of healthy growth as far as possible from the parent organization. But success in this is no simple matter. It is a fierce game, a contest of bewildering complexity against an opponent who never rests and never gives in, an endless war of wits against a master player, in which all that can be hoped for is not final victory but fleeting touch-and-go triumphs wrested from the enemy by sheer courage and tip-toe alertness, by sharp surprise attacks, brilliant improvisations, and above all by the readiness to risk everything on a single, freakish chance.

Luckily for all creation, life is a born gambler. Some of her improvisations have to be seen to be believed: the means, for example, used to complete the life cycle of the adult tapeworm *Dibothriocephalus latus*, one of man's rarest and least attractive of parasites, the length of whose name is well matched by the length of its body, which can be anything up to twenty-six feet. Seen in early embryonic life, the prospects of *Dibothriocephalus* reaching maturity are, actuarially speaking, far from rosy. Consider what has to happen if this ungainly monster is to survive: an infested fresh-water crab has to excrete on some river bed where a trout comes nosing for food; this particular trout has to be caught by a fisherman, insufficiently cooked, and eaten by a human being; the excreta of this human being must then somehow be carried to a stream that happens to be the habitat of a fresh-water crab, which has to pick up the worm-segment in its food, and so complete the cycle. It is rather like a biological variant of *The House that Jack Built*: "This is the Girl that cooked for the Man that caught the Trout that swallowed the Worm that came from the Crab that ate the . . ."

The odds against all these events occurring at the right time and in the right order must be incalculable. Yet *Dibothriocephalus*, unluckily, has not become extinct. Sufficient numbers of them fulfil these next-to-impossible demands to keep the

species in existence and hundreds of human beings in peculiar discomfort.

This is, of course, an extremely wasteful method of propagation. The lives of myriads of budding *Dibothriocephali* are blighted for one that succeeds. It is recorded here simply as an example of the odds life is prepared to take, if necessary, in order to win even one small, difficult point of the game. In less harsh conditions her fancy takes wing, and she throws up a glittering wealth of invention, a virtuoso display of ingenious and delightful mechanisms for seed-scattering—many of which have an uncanny resemblance to our own devices for space exploration.

There is, for instance, the balsam plant, whose seeds are shot out when the sun-ripened capsule explodes; or the wild cucumber, whose fruit as it matures fills to bursting-point with liquid, till a moment comes when a weak spot at the distal end of the fruit suddenly splits open and the pressurized fluid within shoots into the air, scattering the wet seeds like silver spray from a fountain. This was before life hit on the admirable idea of giving her creations wings and fins so that they were able to do their own seed-scattering—an improved facility of which certain species, including *Homo sapiens*, have taken the fullest possible advantage.

And further afield, in the silent forest depths of Brazil, there is a tree called *Hura crepitans*, the sandbox tree, with a truly remarkable launching apparatus. On ripening, its large woody fruit, about the size of a tennis ball, not only bursts violently apart, launching its seeds at high velocity into space, but also accompanies this with a bang that can be heard half a mile away—for all the world like a miniature Cape Kennedy . . . All discovery is at the deepest level rediscovery. In the long-established laboratories of nature the manned spaceship, pride of the mid-20th century, is only the modification of an archaic prototype.

The present attempt, nevertheless, has its unique feature. For the first time in the history of the world man is consciously co-operating in the great gamble. Life has co-opted the human brain box, her latest improvisation, to help in the most daring and imaginative of all her earthly ventures—the attempt to fling her precious seed across the abyss of outer space, and find a new lodgment for it among the stars.

And now that we have taken a deliberate hand in it the game has altered. Life's prodigality as a gambler, recklessly flinging in her pawns by the hundred thousand, does not suit modern man at all. Conscious, in this sole sense, of his individual importance, he hedges his attempts on outer space with every conceivable precaution, and risks but

one or two lives at a time. Though in this, too, he is perhaps only following life's own lead. For as her creations advanced in complexity and inner organization, so her previously lavish views on their expendability diminished, until at the mammalian level life changed her approach entirely, and began to guard the individual embryo with almost as much care and anxiety as man now devotes to a Gagarin or a Glenn.

But, however cautiously, the attempt is actually being made; and it is an attempt whose grandeur makes the heart stand still. Do not think of a spaceship as one more ingenious scientific experiment, whatever the electronic engineers and astrophysicists may say. See, rather, the image of this pale blue spinning ball on which we live, this dancing mote of a world, miracle of self-contained, self-sustaining life, hurtling vertiginously through the vast silence of interstellar space, and daring at last to shoot out its infinitesimal seeds, its atoms of living matter, towards other remotely spinning worlds.

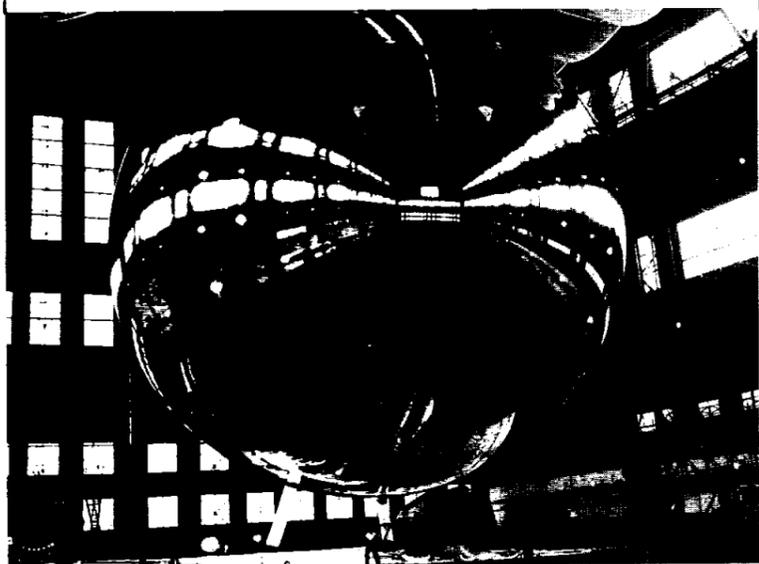
The manned spaceship is no scientific toy. It is a unique and numinous symbol—a union of opposites, of the very old and the very new—whose ultimate meaning may one day reverberate through the galaxies and fatefully alter the majestic pattern of the cosmos. To have a part in so great a venture is an inconceivable honour for that handful of dust which is the mortal part of man.

But of course we go too far. With typical human cocksureness we imagine it is all our own idea, that we are free to carry on or give up this tremendous project. Eminent divines warn us gravely not to pervert space travel to evil and destructive ends: leading scientists and politicians proclaim that, come what may, man must never turn back from the gleaming road of human reason and technology; power-drunk dictators nurse secret and insensate dreams; while poor Everyman shakes his turnip head at the fantastic cost of it all, and proves, over a couple of drinks, that the money would be far better spent on hospitals and houses.

Everyman may well be right. None can know what triumphs and evils may spring from this most literal leap into the dark. But the fact is we have no choice. There is an infinite pathos about these anxious voices that rise in automatic protest against every forward movement of life since life began. The antique chorus of frogs round any moonlit pond, which started before man did, may be an endless antiphonal argument between those who press on to the brave amphibian life, and those who hold that it would have been wiser to stay tadpoles. And earlier still, when the first crustaceans struggled, clumsy and gasping, out of the

(Continued on Page 7)

## Scheduled For Launch



100-FOOT SATELLITE—Inflation test of a 100-foot spherical satellite to be used in the National Geodetic Satellite Program. It is nearly identical to Echo I and will be named PAGEOS from the title Passive Geodetic Satellite. NASA intends to launch PAGEOS in 1966 into a near-polar orbit at an altitude of about 2,300 miles. As the large sphere reflects sunlight falling upon it, it will appear as a point of light in the sky. Ground camera stations will simultaneously photograph it against a star background to gather precise data for locating any point on Earth.

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## On The Lighter Side



"That liftoff was supposed to be from Cape Kennedy, not from an island in the South Pacific."

## Gemini V Track Display Map

The liftoff of Gemini V was right on schedule from Cape Kennedy at 8 a.m. on August 21, but a tracking map display in the Gemini V news center in Houston for newsmen to view showed the liftoff spot to be from near the Canton Islands in the South Pacific.

A somewhat perplexed George Coletto from Goddard Space Flight Center hurriedly checked the connections behind the display and discovered that two of the orbital leads that light the path of the Gemini spacecraft on the world map had been crossed.

However, the prankster that

crossed the leads had by this time had his fun, and a somewhat red faced Coletto said his main concern was that it could have possibly short circuited the orbital mechanism and caused considerable damage.

Coletto's good natured reply to "where they gonna land," was "Miami Beach, I think."

The manned space flight tracking network display is furnished for manned flights by the NASA GSFC in Greenbelt, Md. Coletto, a Goddard public information officer, is in charge of the traveling display map, which also gives the revolution number and the flight time.

## A Space Program Admirer

August 19, 1965

Dear Sir:

I just heard your news man say on T.V. that this space program is costing every American 20 cents, so here is mine.

Thank you  
A Firm Believer

(Enclosed were two shiny dimes taped to the letter. The return address on the envelope containing the letter was Mrs. James Goad, 6417 Premier Dr., Nashville, Tenn. The postmark was also from that city, with N.A.S.A., Houston, Texas the address on the envelope.)

## MSC PERSONALITY

### Dr. Jeannette Piccard, MSC Consultant, First Woman To Venture To Stratosphere

Dr. Jeannette Piccard, the first woman to venture to the stratosphere to do research on the Earth's upper atmosphere, is now a consultant to the director of the Manned Spacecraft Center, a position she has held since April 1964.

In her present capacity, Dr. Piccard helps keep the nation's scientific community and the general public informed of events and results of manned space flight development at MSC.

Her active schedule, which includes conferences with school

teachers, making speeches, being interviewed by various news media and working directly with the Educational Programs and Services Branch of the Public Affairs Office, requires an average of two weeks per month away from her home in Minneapolis, Minn.

An experienced scientific researcher herself, Dr. Piccard with her husband, the late Dr. Jean Felix Piccard of the University of Minnesota, participated in scientific projects including riding a balloon to an altitude of 57,579 feet October 23, 1934. With the help of a cloud chamber, 168 geiger counters and other equipment onboard, by rotating the balloon throughout the flight, they were able to get east-west effects of cosmic rays and proved for the first time that electrically loaded corpuscles were not rays but actually matter. For this exploit, she was awarded the Clifford B. Harmon International Trophy.

Dr. Piccard recalls that her first solo flight was made in a balloon nicknamed "Patches," so called because on an earlier flight the balloon had to be brought down by a shotgun. On this early balloon flight, she indicated that she was a little uneasy, but when asked if she would like to make a space flight, her answer was a quick and unreserved "Oh, yes."

She holds the Spherical Balloon Pilot's license granted June 27, 1934, by the Federation Aeronautique International, and is the first and only American woman to hold such a license.

In addition to her research on the Earth's atmosphere, Dr. Piccard was executive secretary, Housing Section, Minnesota State Office of Civilian Defense from 1942 to 1943; counselor, Waldorf Paper Products from 1943 to 1944; Red Cross Nurse's Aid from 1944 to 1946; Aerospace Consultant, Aerospace Research Department, General Mills in 1947; and consultant, Office of Naval Research in 1955. She is currently president and chairman of the board of St. Paul's Episcopal School in St. Paul.

She has received the Certificate of Performance and the Certificate of Honor from the National Aeronautics Association, and has been named one of Minnesota's Women of Distinction.

Dr. Piccard is an active member of the Alumnae Associations of Bryn Mawr College and the University of Minnesota. She also belongs to the Daughters of the American Revolution, American Association of Uni-



DR. JEANNETTE PICCARD

versity Women, New Century Club, American Meteorological Association, University of Minnesota Sigma Xi (associate member), and Iota Sigma Pi.

Dr. Piccard was born in Chicago, Ill., and attended an all girls' school in Evanston, Ill. She earned a Bachelor of Arts degree in philosophy and psychology from Bryn Mawr College in 1918; a Master of Science degree from the University of Chicago in 1919; and a Ph.D. degree from the University of Minnesota in 1942. Her chief graduate-level subjects were organic chemistry and education.

While attending the University of Chicago, she met her husband. She said that she graduated with an M.S. degree and three weeks later received her Mrs.

All three of her sons were born in Switzerland, where she and her husband resided for about seven years. Dr. Piccard now has 12 grandchildren.

Her sons are in a variety of professions. Her eldest son, John, is a mechanical engineer in the research division at DuPont and works with synthetics. Paul is a professor of Political Science at Florida State University. Don Piccard, the youngest, is carrying on the family tradition in the balloon field by building and selling balloons for sport flying.

Dr. Piccard has a summer home on Lake Vermilion in Minnesota where she likes to spend her spare time in the summer swimming and fishing. She also enjoys knitting when time permits.

## SPACE QUOTES

COUNSEL OF UNIVERSITIES IMPORTANT TO GOVERNMENT. Administrator, James E. Webb, Rose Polytechnic Institute, Terre Haute, Indiana, May 1, 1965.

"With its university program, the National Aeronautics and Space Administration is approaching a goal established early in its history. That goal, when achieved, will provide a substantial, increment to those trained men who are capable of guiding this country's undertakings in science and technology confidently toward future needs that are only pursued in institutions of higher learning where men teach and practice their specialties in the context of other highly refined fields of interest. Surely, this concept is broader than the space program itself. We often hear our times described as the age of the specialist. And insofar as this description denotes intense application of talent to a given area, it is certainly valid. But the problems that confront our society will not submit to specialists working in isolation from each other. We have come to a point in time when complexity demands a new melding of disciplines. The engineer cannot discharge his responsibilities without the counsel of the scientist. The industrialist cannot succeed without the economist. The government does not undertake solutions to problems without the counsel of the universities."

## Welcome Aboard

During the last reporting period, 17 new employees joined the Manned Spacecraft Center.

Administration Services Division: Betty R. Hardy and Lee O. Sewell.

Procurement and Contracts Division: Linda L. Field.

Technical Services Division: Norman F. Deloof.

Management Services Division: Jon Farbman and John R. Jones.

Resources Management Division: Rudolph O. Willmann.

Astronaut Office: Joseph P.

Kerwin.

Computation and Analysis Division: Paul S. Shrager.

Guidance and Control Division: William B. Michel.

Structures and Mechanics Division: Warren L. Nelson.

Landing and Recovery Division: Frank Janes.

Flight Support Division: Ralph W. Cole.

Gemini Program Office: Linda K. Marsh.

Apollo Spacecraft Program Office: Jackson D. Harris, Joseph P. Loftus, and Dolta Jo Morgan.

## Out Of Texas' Past . . .

(EDITOR'S NOTE: To acquaint MSC employees with the rich historical background of the Galveston Bay area, and of Texas in general, a series of historical articles prepared by the Historical and Library Services Branch will appear in the Roundup.)

Over on the east shore of Trinity Bay, just 25 miles northeast of Clear Lake, is the site of Fort Anahuac (an ancient name for Mexico (locally pronounced "ANN-you-wack"), where some of the hottest disturbances of colonial days helped touch off the Texas war for independence.

Juan Bradburn, commandant of the fort, started the troubles in 1832 by disbanding the Liberty town council and arresting the local land commissioner, his surveyor and two Anahuac citizens, Pat Jack and Buck Travis.

Remember that second name? Travis was a 23-year-old lawyer from Alabama and a firebrand of the independence movement.

Colonial political leaders at Anahuac adopted the Turtle Bayou Resolutions, a document denouncing the dictator Bustamante and endorsing his ostensibly liberal rival, Santa Anna. Then a company of volunteers under Henry Smith sailed to Velasco (near present Freeport), borrowed a cannon and enlisted some reinforcements, but found their return passage challenged by Ugartechea, commanding the government fort. Outnumbered

two to one, the Texans captured the fort on June 26, 1832, spilling the first blood in the war for independence.

Returning to Anahuac, the 100-odd volunteers forced the withdrawal of Bradburn and the closing of the bitterly hated government customhouse. But in 1834 the "liberal" Santa Anna dissolved the national congress and the legislature of the state of Coahuila-Tejas and proclaimed himself dictator. A year later a company of soldiers under Antonio Tenorio garrisoned Fort Anahuac again and reopened the customhouse.

On a summer's day in 1835 Clint Harris, of Harrisburg (now a part of Houston), took a sloop down Buffalo Bayou and across the bay to Anahuac, intending to buy some goods from Andrew Briscoe (whose descendants still live in Houston).

At Anahuac, Tenorio warned Harris and Briscoe not to try to load the sloop until the duties were paid on the cargo. So they filled some boxes with bricks and hauled them to the landing, intending to bait the guards, then explain that they were only hauling ballast.

Instead, there was a free-for-all when the guards tried to examine the boxes, and a citizen named Smith was shot. Harris and Briscoe were arrested and thrown into the juzgado at the fort.

Tenorio let Harris go home the following day, but he held Briscoe. In Harrisburg, 30 volunteers elected lawyer Buck Travis, now 26, their leader, mounted an old cannon on sawmill truck wheels and made it fast in the bow of the Harris sloop *Ohio*, skippered by Dave Harris, brother of the town's founder.

One round from the cannon, on June 25, 1835, and Tenorio and his 44 men released Briscoe and surrendered. The defeated commandant and some of his men returned with their captors to Harrisburg on June 30, and four days later they were permitted to join the fun and frolic at Harrisburg's Fourth of July barbecue.

On the 5th Tenorio and his men marched off to San Antonio de Bejar to report the second abolition of the Anahuac customhouse.

Buck Travis was a hero. But his finest hour was to come just eight months later, when his name would become deathless as Colonel William Barret Travis, commandant of the Alamo.

## Space News Of Five Years Ago

SEPT. 3, 1960—Aircraft telemetry requirements were deleted from the Mercury Atlas 2 (MA-2) unmanned mission intended to gain data on maximum dynamic pressure and maximum heat on the spacecraft afterbody.

SEPT. 8, 1960—President Eisenhower formally dedicated the NASA George C. Marshall Space Flight Center at Huntsville, Ala.

SEPT. 10, 1960—The X-15 was flown at more than 2,100 mph and to 80,000 feet.

SEPT. 13, 1960—NASA gave bidders briefing to industry representatives on Project Apollo study contract at Space Task Group, Langley AFB, Va.

SEPT. 13-14, 1960—The first meeting of the NASA Advisory Committee on Space Biology was held.

## Gemini V Flight Controller Teams



**RED TEAM**—The "Red Team" flight controllers for the Gemini V flight are as follows: (front row l. to r.) James A. McDivitt, spacecraft communicator; Christopher C. Kraft, flight director; Dr. Charles A. Berry, flight surgeon; Paul Haney, public affairs officer; (back row l. to r.) Perry L. Ealick, remote site advisor; William Platt, assistant flight director; Jones W. Roach, operations and procedures officer; Thomas F. Carter Jr., retrofire controller; Jerry Bostick, flight dynamics officer; Charles Parker, guidance officer; Richard D. Glover, electrical, environmental, and communications systems engineer; Gerald D. Griffith, guidance and navigation systems engineer; Bill Gravette, flight dynamics support specialist; and Ernest Randall, head network contractor.



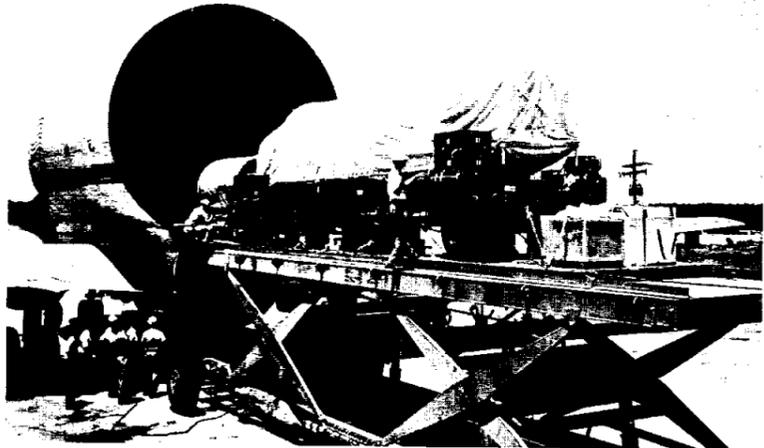
**WHITE TEAM**—The "White Team" flight controllers for the Gemini V flight are as follows: (front row l. to r.) Lawrence L. D. Armstrong, operations and procedures officer; Stewart Davis, remote site advisor; Larry Keyser, Apollo trainee; (second row l. to r.) Manfred Von Ehrenfried, assistant flight director; Eugene Kranz, flight director; (back row l. to r.) Neil A. Armstrong, spacecraft communicator; Edwin E. Aldrin, spacecraft communicator; Dr. Duane Catterson, flight surgeon; William E. Fenner, guidance officer; David V. Massaro, retrofire controller; Don Bray, head, technical support section; Al Chop, public affairs officer; Henry B. Stephenson, guidance and navigation systems engineer; John W. Aaron, electrical, environmental, and communications systems engineer; Bill Johnson, public affairs officer; Capt. A. A. Piske, network controller; Ron Cagle, Philco-maintenance and operations; and Russ D. Nickerson, network controller.



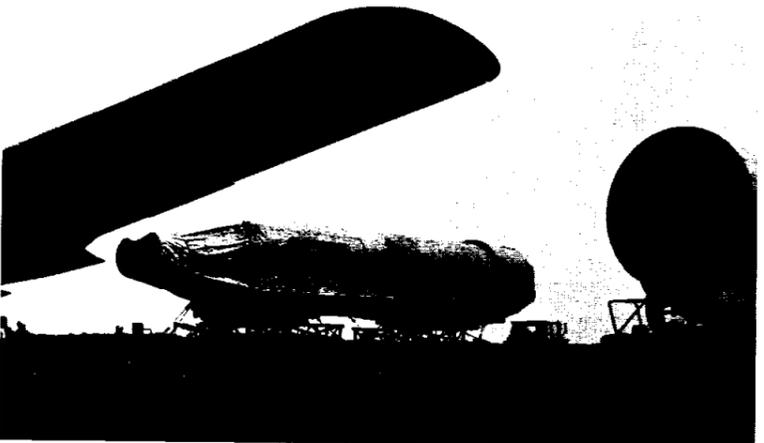
**BLUE TEAM**—The "Blue Team" flight controllers for the Gemini V flight are as follows: (front row l. to r.) Elliot See, spacecraft communicator; John D. Hodge, flight director; David R. Scott, spacecraft communicator; Capt. W. J. Arellano, network controller; (second row l. to r.) Dr. G. Fred Kelly, flight surgeon; Terry White, public affairs officer; Edward Pavelka, flight dynamics officer; W. Merlin Merritt, electrical, environmental, and communications systems engineer; Charles S. Harlan, assistant flight director; Arnold D. Aldrich, guidance, navigation and control officer; Richard Schultheiss, operations aid; (third row l. to r.) Larry Weidman, public affairs officer; Bill Molnar, operations and procedures officer; Kenneth Russell, guidance officer; John Llewellyn, retrofire controller; and Douglass Wilson, maintenance and operations.

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**Cape Arrivals For Gemini VI**

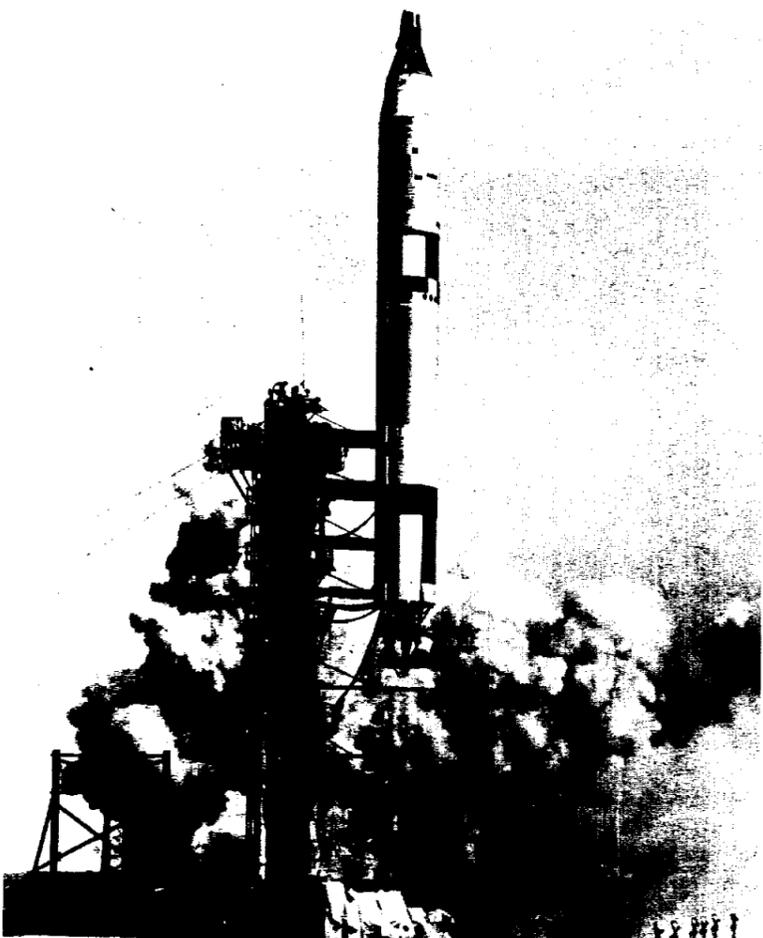


**AGENA ARRIVAL**—An Agena is rolled out onto a high lift skid transporter at Cape Kennedy from inside a "Pregnant Guppy" aircraft, in late July. The Agena will be a part of the next Gemini mission.



**GLV-VI ARRIVES**—The first stage of the Gemini Launch Vehicle VI is shown being unloaded last month after arrival at Cape Kennedy aboard the "Pregnant Guppy" aircraft.

**Gemini V Off On Schedule**



**LIFTOFF RIGHT ON SCHEDULE**—The Gemini V flight lifts off from Cape Kennedy at 9 a.m., EST, August 21, right on schedule.

**Goal To Be Announced**

**Center's 1966 United Fund Drive To Get Underway September 9**

United Fund, the annual drive to raise funds to benefit some 65 health, welfare and youth agencies during 1966 in Harris County, will begin September 9 for employees here at the Manned Spacecraft Center.

Wesley L. Hjernevik, assistant director for Administration at the Center, is co-chairman of the federal unit for the United

Fund. This unit includes all Federal agencies in the Houston area.

Heading up the Center UF drive will be Philip Hamburger as chairman and Stanley Weiss as vice chairman. The drive is scheduled to end October 15.

The goal for this year's Center UF drive has not yet been announced. Last year the UF goal

at the Center was exceeded when over \$52,000 was raised.

This is the 15th annual UF drive in Harris County and over 17,000 volunteers will be working throughout the county to raise a record \$7,242,528. This is an 8.5 percent increase over last year's budget. The budget for the UF is determined by a volunteer committee from within the community.

Of all health and welfare funds raised in the Houston area, 90.3 percent go through the United Fund. The cost of raising each dollar for the UF is 4.3 cents and the year round administrative expense is 3.0 cents, according to UF officials.

Persons working at the Center who do not live in Harris County may give to the UF drive in their own county through the MSC/UF drive.

To do this and still give credit to the MSC/UF drive, indicate on the pledge card the area in which you live, other than Harris County, and specify that it is your wish to contribute in that area's UF drive. The UF headquarters in that area will be notified of your wishes and receive your donation or pledge card.

**MSC Technical Symposium Program Subjects Announced**

The monthly Manned Spacecraft Center Technical Symposium will be held at 6:15 p.m., next Tuesday in the Building 1 Auditorium, with the meeting open to MSC employees and certain contractors.

Admission to the symposium requires a security clearance at the confidential level and contractors with permanent MSC badges are invited to attend this meeting.

The program for the September 7 meeting will consist of four presentations:

1. "Applications of Generalized Matrix Inversion," by Dr. Henry Decell, Computation and

Analysis Division.

2. "TV Bandwidth Compression for Spacecraft Application" by Bryant Seay, Instrumentation and Electronic Systems Division.

3. "The Mariner Mission" by Richard K. Sloan, Mariner Project scientist, Jet Propulsion Laboratory.

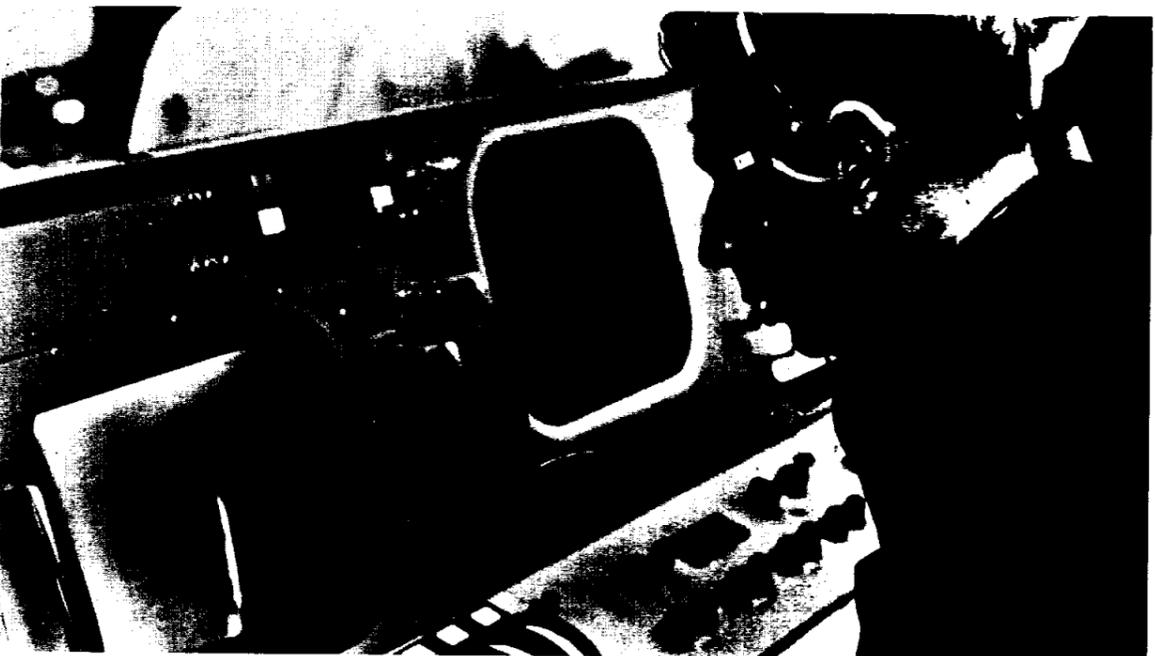
4. "Gemini V Highlights" by Kenneth S. Kleinknecht, deputy manager, Gemini Program Office.

The meeting will be preceded by dinner in the MSC Cafeteria from 4:45 to 6:15 p.m. The symposium is scheduled to be over by about 8:15 p.m.

**Control Center Launch Day**



**COUNTDOWN**—Christopher C. Kraft Jr., flight director, is seen at his flight director's console in the Mission Operations Control Room in the Mission Control Center during the countdown for the Gemini V launch.



**LAUNCH**—Dr. A. D. Catterson, Gemini V flight surgeon, is seen at the flight surgeon's console in the Mission Operations Control Room in the Mission Control Center during the early seconds of the Gemini V space flight. Liftoff can be seen on the console TV monitor.