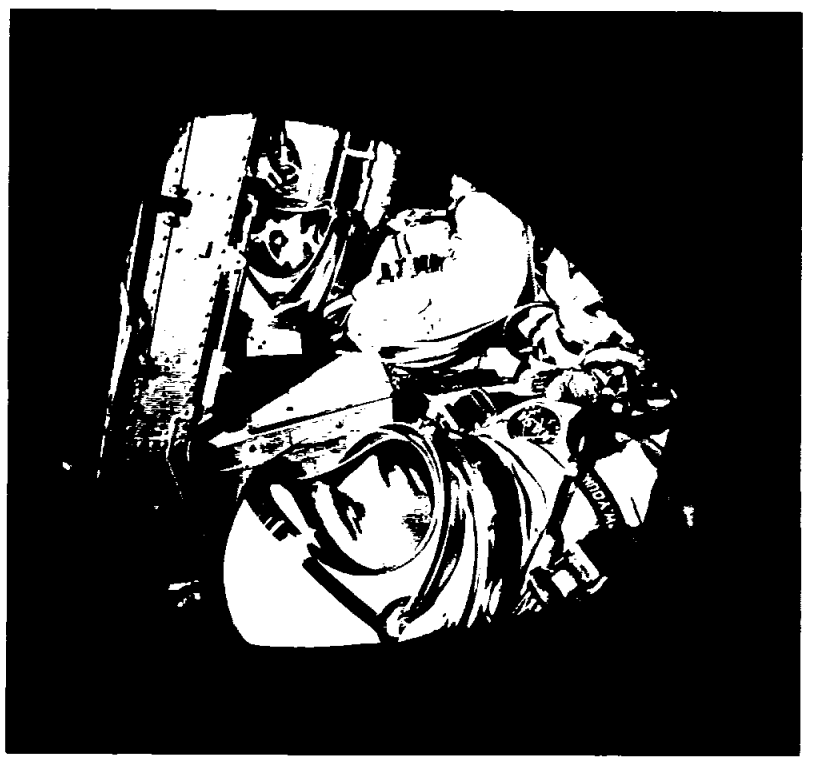
Space News NASA ROUNDUP!

VOL. 4 NO. 12 MANNED SPACECRAFT CENTER, HOUSTON, TEXAS APRIL 2, 1965

Another Winner For America's Space Program



MINUTES BEFORE LIFTOFF—This view of Astronauts John W. Young, pilot (foreground) and Virgil I. (Gus) Grissom was taken through the window of the open hatch on the pilot's side of the GT-3 spacecraft just before the hatches were closed. The National Aeronautics and Space Administration's Gemini flight was successfully launched on a three-orbit mission at 9:24 a.m. EST, March 23 from Pad 19 at Cape Kennedy.

Gemini Now Fully Operational, Crew Changes Spacecraft's Orbit

At 9:24 a.m. EST, March 23, America's second series of manned space flights got off to a successful start with the launching of Astronauts Virgil I. (Gus) Grissom and John W. Young on a three-orbit flight of the earth in their two-man Gemini spacecraft.

This first Gemini flight, launched from Cape Kennedy, was designed to validate the man-machine relationship and make the Gemini program fully operational.

Later Gemini flights will perfect the rendezvous and docking technique that will be used in the manned lunar flight.

During the four-hour and 53-minute flight, all the major flight objectives were met. The Gemini-3 pilots maneuvered their spacecraft and changed their orbital plane around the earth, an achievement that had never before been accomplished by a manned vehicle in space.

The Gemini launch vehicle, a modified Titan II booster injected the spacecraft into orbit at an earth fixed velocity of 17,600 mph. just five minutes and 34 seconds after liftoff. During the first orbit, the spacecraft had an apogee of 139.15 statute miles and a perigee of 100.05 miles, with an orbit period of 88.2 minutes.

During the first orbit over Texas, the maneuver that changed the orbit was performed by the crew of the Gemini spacecraft. The "Texas Burn" as it was called, slowed the velocity of the spacecraft 85 feet per second and changed the apogee to 101.99 statute miles and the perigee to 98.44 statute miles, and a period of 87.7 minutes per orbit.

The only delay in the countdown, a 24 minute hold, was caused by a leak in a valve.

The spacecraft, nicknamed "Molly Brown," landed in the Atlantic Ocean near Grand Turk Island in the West Indies about 60 miles short of the recovery ship USS Intrepid.

When the two astronauts learned that the recovery ship would be nearly two hours in arriving, they made the decision to be taken to the carrier by helicopter. Before leaving the spacecraft, they removed their Gemini pressure suits and made the egress in their long white underclothing.

When Grissom and Young arrived on the deck of the carrier, they had on bathrobes which had been provided by the Navy.

Astronauts Describe Flight At GT-3 Press Conference

The Gemini-3 astronauts, Virgil I. (Gus) Grissom and John W. Young held a press conference Thursday, March 25 beginning at about 5:30 p.m., in the Gemini Room of the Carriage House Motel at Cocoa Beach, Fla.

Also located in this room was the GT-3 news center staffed by NASA people as well as Air Force and Navy information people.

Nearly 1,000 news media representatives from all over the United States and many foreign countries were on hand to report the flight and to cover the press conference of the astronauts.

Participants at the conference in addition to Grissom and Young were: Dr. Robert C. Seamans, associate administrator, NASA; Dr. Robert R. Gilruth, director, MSC; Christopher C. Kraft Jr., assistant director for Flight Operations, MSC; Dr. Kurt H. Debus, director, Kennedy Space Center; and Julian Scheer, assistant administrator for Public Affairs, NASA.

The text of the conference follows:

Dr. Seamans: Less than four years ago plans were confirmed by President Kennedy and the then Vice President Johnson. These plans were ratified by the Congress that led two days ago to the most successful flight of the Molly Brown. As we stressed after the flight, I would like to stress again today, this was a very important team effort. The team made up of NASA, the Department of Defense and a wide number of industrial organizations. I would like to say that within NASA there were a large number of people who had a great deal of responsibility and I would like to just single out a few of them here this afternoon. Sitting here with us is Dr. George Mueller, who is responsible for the total manned spaceflight effort of NASA, and who himself also carried the program management for Gemini. Also, not here, Dr. Harry Goett, who is responsible for the direction of the Goddard Space Flight Center which handled all of the tracking and data acquisition. It has already been said on my right, Dr. Robert Gilruth, the director of the Manned Spacecraft Center, a person who has very great intuition and wisdom on things technical as well as a great understanding of people

(Continued on Page 2)

Grissom And Young Have Busy Week After Mission

America's newest space travelers were faced with a busy week of activities after their highly successful three orbital flight March 23, in the two-man Gemini spacecraft.

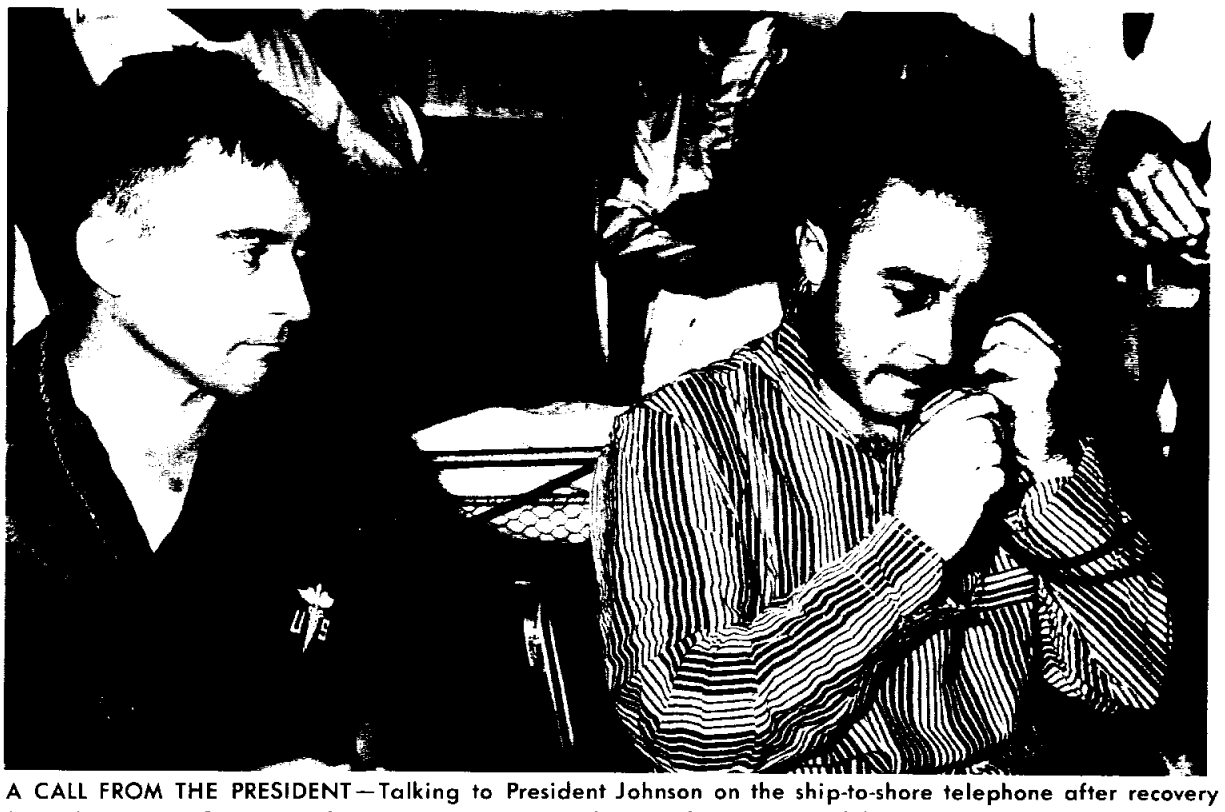
After they were picked up by the Navy helicopter and ferried to the aircraft carrier USS Intrepid, Astronauts Virgil I. (Gus) Grissom and John W. Young were given a thorough physical examination.

While they were undergoing the examination by doctors, the two astronauts received a telephone call from President Johnson and were given a personal invitation to come to the White House on Friday, March 26.

Tuesday evening after shaving, bathing and getting back into civilian garb, the Gemini crew spent a few minutes looking at the spacecraft that had carried them three times around the earth earlier in the day.

Grissom retired about 9:30

(Continued on Page 3)



A CALL FROM THE PRESIDENT—Talking to President Johnson on the ship-to-shore telephone after recovery from the Gemini-3 spacecraft, are Astronauts Virgil I. (Gus) Grissom (right) and John W. Young. The two astronauts were on board the aircraft carrier USS Intrepid after making their three-orbit flight March 23.

GT-3 Press Conference

(Continued from Page 1)

and has a great respect of all those in his Center. Also with us here at the table, Christopher Kraft, who bore the full responsibility for the mission direction on the day of the flight. Not up here with us, I would just like to mention George Low, who had the program management of Gemini when he was at NASA Headquarters and is now the deputy director of the Manned Spacecraft Center at Houston. Also, not here with us but carrying a very great load, Charles Mathews who is the project manager at Houston for Gemini. Gemini was particularly significant because we are now starting to give the astronauts real control in flight. We are giving them an opportunity to maneuver, to change course and to become more independent of the ground. This takes a great deal of skill and certainly a great deal of skill was demonstrated by the two astronauts two days ago—Major Grissom and Commander Young.

Dr. Gilruth: I would just like to make a very brief statement here. First, as you all know, this was a very clean flight, and Gus and John brought back a wonderful set of test data on all of the various systems onboard and on the various maneuvering capabilities which they will discuss with you here. The booster, as you know, was very good and the spacecraft was very good. There are a number of space firsts in this flight; such as the Texas burn which I am sure Gus and John plan to describe along with the other things they did and saw. One technical point that I thought was particularly interesting to me and will be to many of you, I think, that we can report without analyzing all the data from the controlled reentry, that is, and that is as you know in the ballistic type reentry, you get about 8-G at peak reentry. With this controlled reentry in the Gemini, Gus reported to us this afternoon that they got about 4-G peak during the reentry. This is a very significant thing and gives some of the old-timers like myself maybe a chance that they will be able to stand the rigorous space travel as we get some of these things in the future, so I think we are all very happy here and we want to get into the reports of the crew as soon as we can. Thank you.

Dr. Debus: I would like very much in behalf of all the men and women who work out at the Kennedy Space Center at Cape Kennedy and also in behalf of the community to welcome back from the bottom of our hearts our outbound traffic. We are always happy to have them back here, where in gravity it is comfortable. I would like to recognize three individuals who have had a tremendous burden of responsibility. Col. Jack Albert, who was responsible to prepare the Titan booster for its flight. Assistant director for Spacecraft, John Williams, prepared and was responsible for the performance of the capsule and for the total space vehicle. The responsibility for launch preparation was G. Merritt Preston. I want to thank those individuals for their splendid job they did. Thank you very much.

Scheer: I think we will carry on now with Gus giving us a recap from the mission with John adding the levity.

Grissom: This is another one of those occasions where I don't mind appearing before the press. It's a pretty heavy day for John and I. Two days ago we had what we think was a highly successful flight. The spacecraft performed so well that we really didn't expect it to be this good on the first flight because every system worked just as we had expected it to work with possibly one exception. John and I felt terrific throughout the whole thing. The launch went great and the zero G in orbit was just what we expected. We felt great, terrific and looking forward to other and longer flights. To start out with, right from scratch, I guess, when John and I started out in the morning. That morning for breakfast we decided—well—we would like to have a few people in to join us and so we invited the operational type managers who had the responsibility for making the decisions in the past three and four years on the Gemini program. We invited people from the McDonnell Company, from Martin, from Aerospace, the Air Force and a good number from NASA, of course, and John and I thought we would just like to see how nervous they are on launch mornings.

Young: They fulfilled our every expectation.

Grissom: But to get right down to boost, the powered flight was very smooth and smoother than we had every reason to expect and smoother than anything we had seen in our training and in our simulation. The booster runs smooth. You hear very little first stage and there isn't a jiggle or a bump in the whole first stage flight. At separation, the sudden drop from about six-G's down to maybe a half a G or one G and at that time we get a fair amount of debris flying around us and flame by the spacecraft. I sort of expected this but I think it sort of gave John a jolt.

Young: Yes, I didn't expect to see all that red fire coming up around the vehicle. The remainder of the flight was very smooth. The impressive thing about the second stage ride aboard the Gemini launch vehicle is this steady and slow and slowly increase in acceleration.

(Continued on Next Page)

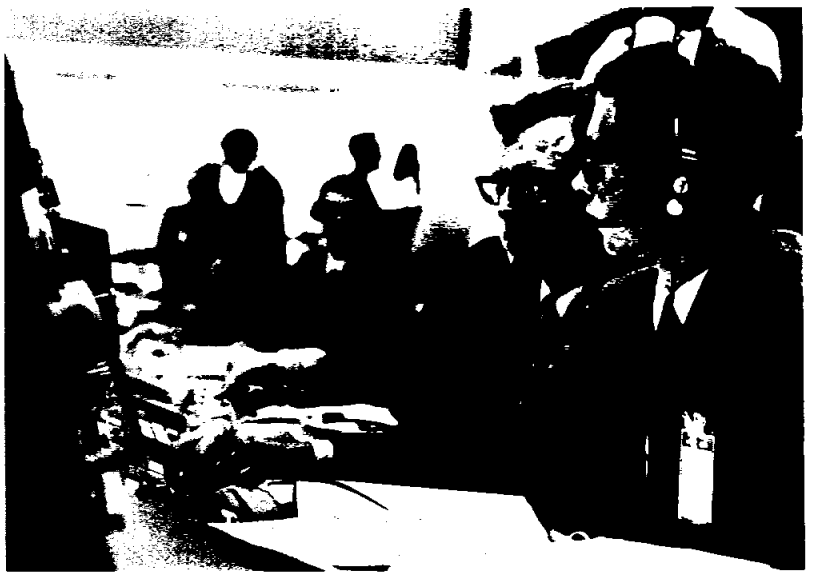
GLV REVIEW—The prime crew for the GT-3 mission, Astronaut John W. Young, pilot, and Virgil I. (Gus) Grissom, command pilot, hold a discussion at the Gemini Launch Vehicle Review Meeting on March 20, with Astronaut Edward H. White II, pilot for the GT-4 mission. The meeting was held in the Manned Spacecraft Operations Building, Merritt Island Launch Area.

PREFLIGHT SIMULATIONS—Astronauts Virgil I. (Gus) Grissom (right), command pilot for the National Aeronautics and Space Administration's GT-3 flight and Walter M. Schirra Jr., Grissom's backup for the mission, converse during suiting and preflight medical checks in the Pad 16 Ready Room prior to flight simulations conducted Thursday, March 18, in the GT-3 spacecraft on Pad 19.

MCC-Houston Operational During GT-3 Mission

HOUSTON CONTROL CENTER—Mission Control Center-Houston was in full operation during the GT-3 mission paralleling the actual flight control by Mission Control Center-Cape Kennedy. In a huddle at the Flight Director's console are John Hodge, seated, and Glynn Lunney, standing left, co-flight directors, and Joe Roach, assistant flight director. The monitoring of GT-3 by the Houston Control Center was aimed toward developing operational readiness of the Center by exercising the computer programs and the interface of flight control equipment and flight controllers.

CENTER MEDICAL—Biomedical responses of the GT-3 flight crew are observed at the Flight Surgeon's console in Mission Control Center-Houston by Dr. George B. Smith, assistant chief for Flight Medicine, Center Medical Office, and Dr. Rufus R. Hessberg, assistant chief for Medical Support, Crew Systems Division.



FLIGHT CONTROLLERS—Manning the Operations and Procedures console in Mission Control Center-Houston were George F. Chandler, left, and John H. Temple, both of Flight Control Division.

GT-3 Press Conference

(Continued from Page 2)

and when that vehicle pitches over and reaches the horizon you know you are really hauling the mail.

Grissom: It guides very nicely and very smoothly after separation, after staging. We were a little bit high on our flight path during our first stage of flight and so after staging the radio guidance takes over and pitches us down to where the nose came down below the horizon and then as it steered I could tell it was steering out to – the nose cone steered back up towards the horizon and steered right across the horizon to cut off. It was really a beautiful sight, very smooth, no sharp movements any place and the booster is just all that Martin advertises it to be.

Grissom: At separation, or at SECO, we waited our 20 seconds and then the computer gave us an answer on whether we were under speed or over speed. And I've forgotten the exact numbers now, but it gave us an indication that we were slightly over speed, but we have to burn ten feet per second anyway in order to separate from the spacecraft. John punched the separation-spacecraft button and we immediately – I immediately fired the amp firing thrusters and drove the spacecraft away from the booster. This is sort of a new first in space also. We were able to guide ourselves right on along the track, roll the spacecraft upright and keep right on thrusting with the nose on the horizon. After that, I don't know – do you have anything else to add to separation?

Young: No, it was fairly straightforward. There again, there was a lot of debris came around from the booster at separation. You could see this. You could see – it looked like a lot of large flakes of snow disappearing over the spacecraft and off ahead of the spacecraft and out to the side of it for a tremendous distance – I guess, maybe, a 150 yards. It was a pretty fascinating phenomenon. The view out the window was unbelievable. You can't take your eyes away from that window the first few seconds of weightless flying. It's incredible. There aren't words in the English language to describe the beauty. I felt this way during the last part of powered flight. I was supposed to monitor the inertial guidance system performance but it's really a chore to get your – as soon as the spacecraft pitches over and you ride on the horizon, you can't – it's just tremendous effort to get your head back in the cockpit and look at those instruments. I think it's the sort of thing that one is really fortunate to get to be able to do. I was impressed.

Grissom: Well, to carry on with the flight – things went very well and as we expected from there on across the Canary Islands. We were busy completing our post-insertion checklist. And we'd just passed the Canary Islands when the first – and I guess, really, the only failure we had on the spacecraft occurred and we lost part of our electrical system. But we had a secondary to go to – we immediately switched to it and everything

(Continued on Page 4)

Busy Week

(Continued from Page 1)

p.m. and was up at 6:40 a.m., on Wednesday. Young got to bed about 11 p.m. and was up at 6:30 a.m.

Both consumed a breakfast of milk, apple juice, coffee, eggs, sausage, and toast. Most of the day Wednesday was spent in debriefing sessions.

Wednesday evening the two astronauts addressed the crew of the USS Intrepid and thanked them for their part in the recovery.

Early on Thursday, March 25, Grissom and Young along with other people on board the aircraft carrier, were flown to the Cape Kennedy skid strip in Navy aircraft.

After meeting their parents and the press at the skid strip, the two Gemini crewmen went to the Bio-Astronautics Support Area (BASU) at Cape Kennedy where they were greeted by their wives and children. Then more physical examinations were the order of the day for the two.

Later in the afternoon the two astronauts and their families led a parade in open convertibles from the Cape to the Carriage House Motel Gemini Room in Cocoa Beach for a 5:30 p.m. meeting with the press.

On Friday the astronauts and their families flew to Washington, D. C., to meet with President Johnson. After a 30-minute parade up Pennsylvania Avenue, the two were presented NASA distinguished service medals by the President.

Friday night the astronauts and their families flew back to Cocoa Beach for the weekend.

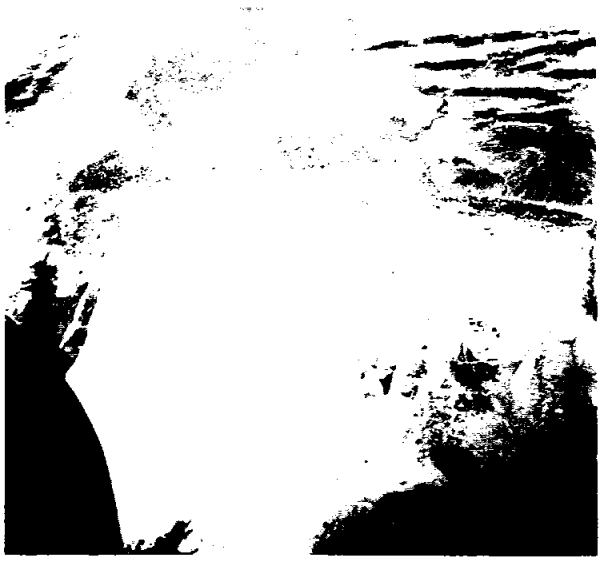
On Monday a ticker tape parade was held in New York City for the two space travelers.

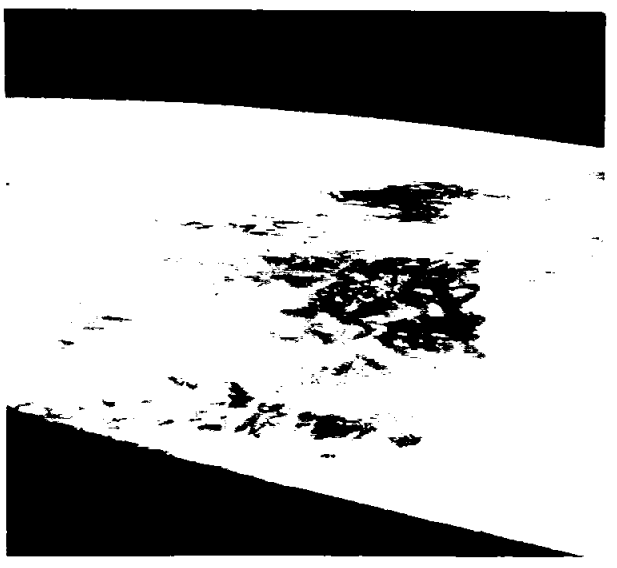
Tuesday another parade was held for the astronauts and their families in Chicago.

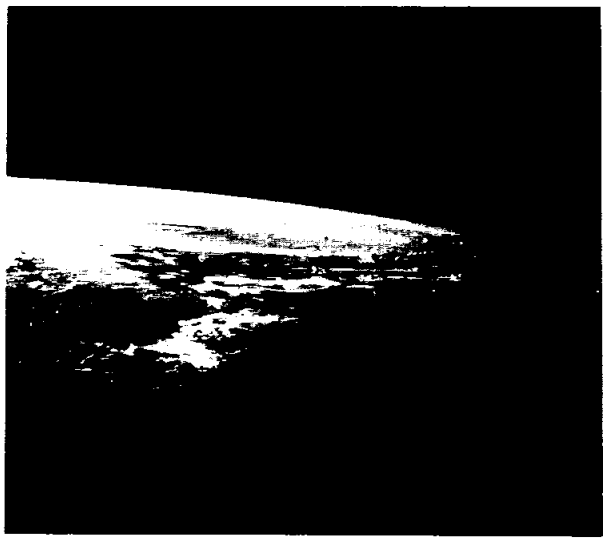
Wednesday was homecoming day for the astronauts. They arrived at Houston's International Airport in the afternoon where a special reception awaited them.

Plans are underway for a welcoming ceremony at the Manned Spacecraft Center for the Gemini pilots.

CAPE KENNEDY MISSION CONTROL—The flight controllers are shown at their consoles in the Mission Control Center during GT-3 flight simulations. In the background is the animated display map of the Gemini-3 orbital track as seen from the viewing room at the rear of the Control Center.







EARTH PHOTOS—GT-3 Astronauts Virgil I. (Gus) Grissom (left) and John W. Young, examine some of the negatives they took on their three-orbit flight March 23. Shown at right are some of the photos taken by onboard cameras.

GT-3 Press Conference

(Continued from Page 3)

was normal and so we had no more problems in that area. About the next big event that really took place was our first OAMS burn over Texas. And, again, this was very straightforward maneuver. We've done it many times in the simulator. The procedures are simple—all we do is turn on the OAMS maneuvering attitude system and pull out the throttle I have on the left side, put the nose on the horizon, and start thrusting. With the control system we have, the spacecraft is very stable, it's easy to hold the exact attitude I wanted and, beforehand, the computer had been updated with the proper Delta V to take out of the flight, actually, to burn. And this came up on the computer as we expected and we were able to burn this right on down in very nearly the exact time that we expected to use to do this. The burn was a 48-foot per second burn—I've forgotten now many seconds it took now—

Young: 114.

Grissom: John was doing the counting on the burn.

Young: One minute, 14 seconds—74 seconds.

Grissom: This was the biggest—really a big event to us to use those forward firing thrusters and drop our—change our orbit from—I believe it was 87/140—right, Chris?

Kraft: 87/125.

Grissom: 87/125? OK. And then drop it to a 90 average. I guess, up to this time, there had been some discussion about a slight yaw drift we had in the spacecraft. That was no real difficulty—it was a little bothersome, since I wasn't initially able to determine what caused it. But now we feel it was the water boiler that hadn't finished working—and it was spilling water—and giving just enough thrust to keep me drifting around the horizon in yaw.

Young: Speaking of the water boiler, the reason that this yaw drift stopped was that about 37 minutes after launch, we went for the first time in space flight on the space radiator and stopped using our water boiler. This is a most significant first in space flight. This space radiator enables us to keep both ourselves and the equipment cool, by using coolant pumps and conducting the heat away and venting it into space. This is really—for people that aren't familiar with this kind of work, this is really a significant first for space flight. And it worked perfectly throughout the mission. It kept us cool and it kept the equipment cool and it kept the things warm that we have to keep warm. Not us.

Grissom: Now, let's see. Where do we go from here. Where did we go from there? After the burn—let's see that was on the—

Young: We took a picture of Bermuda, I think.

Grissom: That's right. As we came on across the States, why, John saw Bermuda clearly and we got one very good picture of Bermuda. As you know, most of the world was covered with clouds and so we really got to see very little of the land masses around the world. We saw some of North Africa and some of Mexico and the very southern part of California—but the rest of it was covered with high sirrus and low clouds. But John did get some very spectacular pictures—only a few—but each one that he took was very good quality.

Young: Pure luck.

Grissom: Let's see, the things—we went on to—

Young: Eat.

Grissom: Eat. OK. John can tell you all about eating. He's the cook on board and prepared all the food—he did an excellent job, I might add.

Young: Well, there's no problem to eating in zero G, as everybody might suspect. We have a specially packaged food. It's dehydrated food and you reconstitute it by putting water into the package and kneading it with your fingers. On that flight, we had applesauce, grapefruit juice, chicken bites—which are bite-sized cubes of food — and brownies. And, of course, the purpose of—the brownies are the best tasting thing in the flight—what we were trying to check here was whether or not these packages would leak water into the spacecraft during the flight. You see, water aboard a spacecraft in zero G is always a problem because, if it gets around and starts leaking all over the place in zero G, this water would crawl all over everything and tend to short out your electrical connectors. Of course, we have about a 100,000 splices in a spacecraft like the Gemini—all well insulated, I'm told. But we found no problem with reconstituting the food, the packaging was adequate, the—after you eat the food, you put a germicide tablet in it to keep it from developing gas, which it would in a semi-closed system and eventually blow the package apart. The water system on the spacecraft worked, as well as the waste system on the spacecraft. We feel that this proved that you can live aboard the Gemini spacecraft for extended periods of time, doing the normal process that a human being has to do to stay alive.

Grissom: OK. I guess, to get on with the rest of the flight—we performed some control mode checks and a few things that were just to get data on how the systems worked. The next big thing—the next important part of the mission was the controlled retrofire and the controlled reentry. And we got set up for this coming over the Australian station and went through a pre-retro checklist and starting just 12 minutes prior to retrotime just as we came in sight of Hawaii, we started our last OAMS burn—our OAMS to reduce our orbit from an average 90-mile orbit to a 45-mile orbit—a 40-mile perigee. And again the burn went off perfectly. We had no problems there. The time—we've computed the time it should take to change our Delta V 96 feet per second—which is what we were shooting for—and the time and our computer came out together, indicating that the computer was keeping track and navigating properly. As we came up to retrofire, at minus one minute to retrofire, we have to get rid of this section of the spacecraft back here—from this point on back—the retro rockets are in a package here. I can't take this one apart—it doesn't come apart — but the retro rockets are in here.

Young: The real one does. That's one of the things we proved.

Grissom: But that was one of the big milestones we had to get to—There's a charge all around this thing that blows it off. And when this thing fires, there's no doubt in your mind that it's gone because you see little pieces of metal flake around and you get quite a boot in the tail, to let you know that it fired off. You can hear the pyros go and there's no doubt in your mind that your retro rockets are clear and ready to fire.

Grissom: And as we got down closer to retrofire, we armed the retro rockets, and held a retrofire attitude on our gyro and cross-checked it out the window.

Grissom: Did I lose my retrorockets? No, it won't.

Grissom: Well anyway, we went ahead and did a retrofire very similar to the ones we did on Mercury and it looked very similar to the one I did on Redstone about four years ago. Immediately got the sensation that reversed direction and headed in the opposite direction that the retros fire. All four of them fired pretty well on time. There was a slight pause between the second and third, probably on the order of a second or less, but it seemed like a long time to me at that point.

Young: I want to say here that the toughest task in the Astronaut business is holding a steady retrofire, and Gus held that retrofire within one degree, which is phenomenal. He doesn't usually do that good in training.

Grissom: You can tell why he was watching that time, anyway. When the retros fired, we separated the retro package and again you could . . . we could hear it go off and a little bit later we saw it. But, I would describe it later if I don't forget. Then we end up with a spacecraft just like this at the time we were heads down. I don't know if you can see the little windows up here or not, but at that time we are about this attitude flying this direction after we completed retrofire. From there on we got out to our control or guided reentry and rolled up-side-down so that we were flying heads down and with this nose setting just about on the horizon. It's easy to see and easy to control attitude looking out the window. Of course we have our eight ball gyro inside to control our bank pitch and yaw attitude also. And we come on in and starting about four minutes after retrofire time we're down to 400,000 feet which is the time that we start getting indication on our computer that we are going to get guidance. The computer at this time tells us to roll heads down which is a max-lift position for the spacecraft and, as we keep coming on down, the Cape at this time computed the bank angle time to use, in case the computer or the guide reentry didn't work. And passed up a bank angle of 45 degrees left to hold and a reverse bank angle time of 11 minutes and six seconds after retrofire. The scheme we were using to decide whether the computer was working or not, I'd hold this bank angle that the ground had called up to me rather than flying the angles—rather than fly the bank that the computer was telling me to fly. Then if my computer indicated that a cross range error was being cancelled out that I was starting to guide, then I would believe the computer and fly the computer the rest of the way in. And this is exactly what happened. As we came on in, heads down, with only a 45 degree left bank the cross ranger zeroed out, my down range error indicated that we were about 60 miles short. And as cross range errors zeroed out, then I went to the max-lift position which is pure heads down and held that attitude the rest of the way in. My computer indicated from then on in that we were 60, 50 to 60 miles short and we were not correcting this out. As it turned out this was exactly right. When we stopped . . . when the computer stopped guiding at 80,000 feet, it was still indicating that we were on track but about 50 to 60 miles short. Now, John, maybe you would like to describe some of the things we saw on reentry.

Young: Well, I don't know if any of you have seen the pictures of GT-2 out-the-window in colored film, but that's exactly how the reentry looked. It's difficult to describe the colors, the first thing that you know—you notice at about six, six and one half minutes after retrofire on your reentry the series of sort

(Continued on Next Page)

MORNING OF LAUNCH—Astronaut John W. Young, followed by Virgil I. (Gus) Grissom walks up the ramp to the elevator that will take them to the white room atop the Gemini launch vehicle on the morning of March 23.

LAUGH BEFORE LIFTOFF—Astronauts Virgil I. (Gus) Grissom (left) and John W. Young have a good laugh on the morning of the GT-3 mission. Astronaut Walter M. Schirra Jr., command pilot for the backup crew greeted the two GT-3 crew members dressed in an old and somewhat battered training suit and told them, "In case either one of you don't want to go this morning, I'm your backup."

GT-3 Press Conference

(Continued from Page 4)

of a quiet orange haze that envelops the spacecraft and this haze layer increases and changes color to a dark green, it's a very beautiful thing. And then orange sparks ablative material start flying forward and all the time this ionized layer is being projected behind the spacecraft, looking out the window you can see the horizon. At one point there, I remember seeing, over Florida, I could see the path that we'd come down on and it was a long funnel-shaped path you can see that this inoized layer persists, which you couldn't see in the movies. It persisted to a long funnel-shaped rounded layer. You could see the spacecraft coming down, you could detect the oscillations from onboard, and I want to say that they were very mild oscillations. The thing is dynamically as stable as it can be. Gus was holding the lift-vector at full lift, I want to emphasize that the whole reentry was flown properly. The one thing that was different from Gemini Titan–II was that, on the reentry following us in at about I guess maybe half a mile or maybe a mile we looked up and could see the retropack and as it came on in it ablated and the four retrorockets turned into us as they disappeared in a complete buff of ionization. Just exactly like a contrail disappeared into a whisp of air. It was some sight, very impressive.

Grissom: You could see the whole retropack burning up as it came in right behind us, it was something.

Young: You could see the horizon all this time, and you had a tremendous field of view.

Grissom: Do you think there is anything else we ought to cover on the flight? That we skipped. Okay, well ah, as we came on down through 50,000 feet I employed the drogue chute and this seemed to stabilize the spacecraft, we were very stable. The spacecraft was very stable prior to this time, we deployed the drogue chute, it started picking up slight oscellation, it seemed to be increasing so I had John turn the control system back on. Previous to that, I had had him turn it off and he turned it back on. This stablized it out and we turned the control system off again. As we came on down to 10,600 feet and deploy, the main parachute which came on out normally just as we expected. It came out in a reefed position for eight seconds, 10 seconds, and deployed in its full open position. There were no holes in it, no tears in it, it was a perfect, beautiful chute. Really beautiful thing.

Young: Sure was.

Grissom: Then, right after that the only real surprise we had on the whole flight when we, as this thing is coming down at this attitude and then we go to a three-point landing attitude like this for a landing in the water with the chute hanging up over like this. But when I went to the three-point attitude this thing flops down very hard and John and I both hit the windshield. And on my side there is a little knob that sticks up that we fasten the reticle to and it knocked a hole in my face plate and put a big scratch on John's, but didn't break his. This was the biggest surprise to me in the whole day. I thought for a minute that the chute was gone.

Young: At a three-point attitude you can still see the chute, and reassure yourself right away.

Grissom: But the chute was normal, the rate of descent on the chute was 30 feet per second, the landing in the water was softer than the landing we had in Mercury. After we were out of the water, our first report when we were coming down in the chute, was that we were only five miles from the carrier so when we were on the water, we decided in the pressure suits, since we would only be a few minutes before being picked up. Well then our next report was that we were 55 miles from the carrier and so shortly thereafter we decided to take off our pressure suits, we were getting quite warm at this time and the spacecraft is very stabile in the air, but not in the water. And not being a sailor like John, why, I had to use one of the bags we had on board.

Young: The world will never know how close I came.

Grissom: This hit me rather rapidly and I tossed it all up and felt fine after that. But after that we got out of the pressure suits and by this time the frog men were in the area, they had strung the flotation from the flotation collar on the spacecraft and we opened the hatch and we were much cooler and felt much better then. I think that maybe we made a mistake in not getting off the pressure suits sooner because it got quite hot and built up quite a heat load. After we had the suits off, I got word that it would be an hour and a half before the carrier would be along side, so we elected to get out on one of the rafts that one of the frogmen had alongside there and pick us up and take us to the carrier. Anybody have anything else to add. Oh, that's right, when we hit the water, I had to jettison the parachute manually, so we hit the water, I was waiting to bounce back up to the surface before I got rid of the chute and we didn't bounce back up to the surface we saw nothing but green water across the windshields and normally I expect to see green water over John's because the spacecraft rolls slightly to the right. So in about just a very few seconds I punched off the parachute and we immediately popped to the surface and the chute was, we had about 20 knots of wind blowing–the chute was evidently still inflated and was dragging through the water in a nose down position and submarined us slightly, I guess. We got no water in the spacecraft, we heard no gurgling and we felt very comfortable.

Seamans: Before you start answering questions, you might like to introduce your families.

Grisson: Oh, yes indeed. I have some friends sitting over here. I'd like to introduce my wife, Betty, who has been introduced here before, the two boys, Scott and Mark, would you stand up. And then two other people that sweated it out are my mother and father sitting back there in the second row, Mom and Dad would you stand up too, please. John I'll let you introduce your family.

Young: Well, this is my wife, Barbara, would you stand up, please, my son, John and my daughter, Sandy, real interesting group.

Grissom: And speaking of John's family, I hope that everybody had the chickenpox.

Young: He's not in the contagious stage. Here're some people that I'm very proud of, my mother and father, Mr. and Mrs. Young, and Barbara's mother and father, Mr. and Mrs. White.

Scheer: Will we start the questions and answers now and if you will stand up and wait for a microphone I think it will help everyone and then be recognized. Chuck –

Question: John and Gus you have described this trip as a very routine and very enjoyable trip. I wonder if you could tell us what is next for you in the spaceflight program and what you hope is next for you.

Answer (Grissom): Right now we have been tied up with this flight, 24 hours a day for almost the past year. Immediately, I know that we have to get out a report and hope to get a few days off and go skiing or something.

Bill Hines (Question): Gus, you said that the computer seem to be working properly and you were doing what you were told to do on the ground, yet you missed your landing point by 60 miles, this would seem to leave the spacecraft as the element in the flight that was at fault. Can you clear this up for us?

Grissom: No, I don't think we can say that at this time. There are several things that could be at fault or a variety of things. We are still not absolutely sure of the Delta V we got out of the retrorockets over – at retrofire. We've got to confirm what Delta V we got out of our last OAMS burn over Hawaii. We want to take a look at what the CG (center of Gravity) position is on the spacecraft to see if that has shifted and maybe we weren't getting the lift we expected. I think we want to take . . . we want to check the computations on the ground to make sure they were accurate. There are a great number of things that have to be done yet. But this is an area that we will be working on hard to clear up in the next few days.

Question: Gus, rightly or wrongly you have been portrayed as introverted and shy and sometimes downright moody among the astronaut team, compared to some of the others over here. Based on your performance here at the news conference, does this indicate that space

(Continued on Page 8)

SUIT TECHNICIANS—Radiation film packs for the astronauts suits on the GT-3 mission are examined by Al M. Rochford (left) and Joe Schmitt, suit technicians from the Crew Systems Division, Manned Spacecraft Center. Four of the packs were placed in each flight suit to measure any radiation that the astronauts may encounter in space.

MISSION REVIEW—Crew members for the GT-3 mission go over the map of the orbital track with Donald K. Slayton, assistant director for Flight Crew Operations, Manned Spacecraft Center. Shown (l. to r.) are: Astronauts John W. Young, pilot; Slayton; Virgil I. (Gus) Grissom, command pilot; and Thomas P. Stafford, pilot for the backup crew. The group got together at the GT-3 Mission Review Meeting Saturday, March 20 in the Manned Spacecraft Operations Building on Merritt Island. Items covered at the review included: mission description, spacecraft, launch vehicle, experiments, world-wide tracking network, recovery, and the weather.

Builds Digital Data Handling Systems

Radiation Inc. Plays Vital Role In NASA's Global Network

A young and fast growing company, Radiation Incorporated, founded in 1950 at the dawn of the space age, has designed and built many prime equipments employed here at the Manned Spacecraft Center and throughout NASA's global tracking and command network.

These advanced digital data handling systems provide the NASA manned space flight projects with a vastly improved command capability when compared with the limited go/no-go tone-control system used in Project Mercury.

A major producer of telemetering, telecommunications, digital control, and information handling systems, the Florida-bred firm produced the twin Master Digital Command Systems (MDCS) which will play a commanding role in the Gemini manned space flights to be directed from the Mission Control Center, here in Houston: the Digital Command Systems (DCS) and Telemetry Output Buffer (TOB) used in SCATS (Simulated Checkout and Training); and in the laboratories of the Electronic Systems Test Facility (ESTF). Other systems and subsystems designed and built by Radiation Incorporated can be found throughout the NASA Gemini and Apollo global tracking network.

DR. J. A. BOYD
President, Radiation Inc.

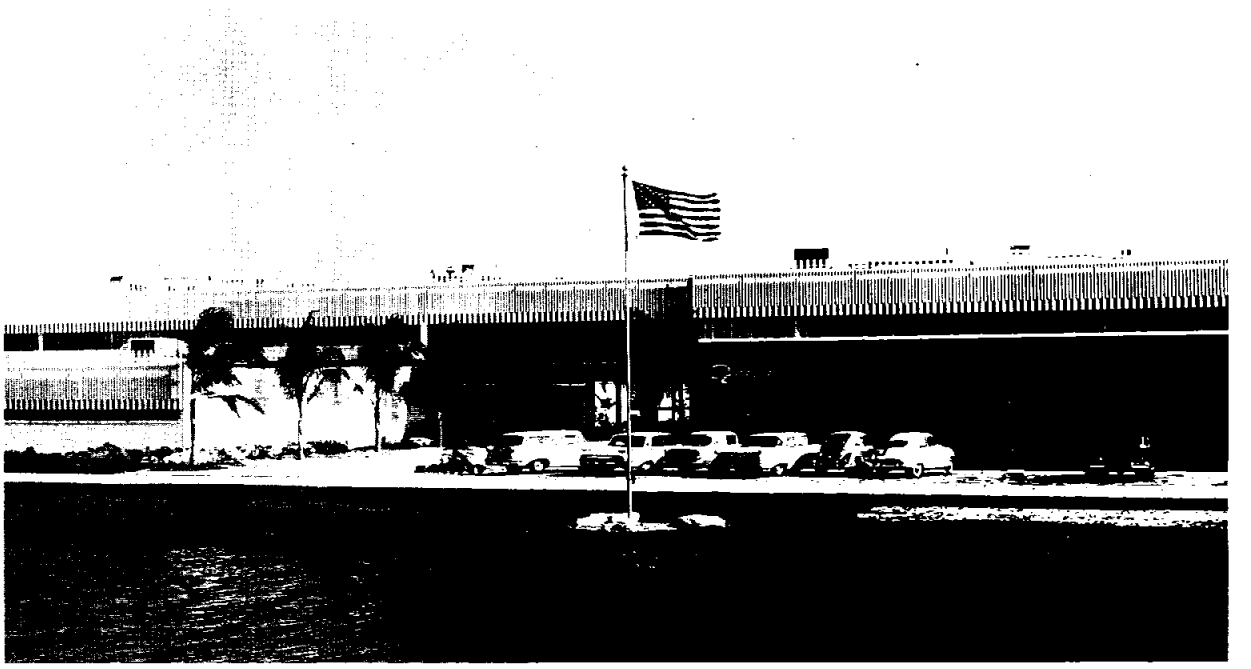
To accurately and reliably command and control capsule system functions during orbit, Radiation's versatile computer-driven Master Digital Command Systems will receive, store, check and transmit real-time and command data to remote sites around the world. While both units can be used for operational missions, normally one MDCS is used as the master unit with the companion system acting as the slave.

The MDCS has a non-destructive core memory system of 1,024 sixty-bit words. It operates at a 200 cps data bit-rate.

Commands emanating from the MDCS are transmitted over high-speed land lines and high frequency radio links to stations at Corpus Christi, Texas, Bermuda, Cape Kennedy, or to any or all of the nine Digital Command Systems strategically located worldwide.

The Corpus Christi and Bermuda stations and three islands of the Air Force Eastern Test Range are real-time sites. Serial digital data received by these locations are processed, checked, and modulated by Radiation-built Down Range Up-Link Systems (DRUL) for subsequent transmission in real-time. Transmissions from Houston are timed to coincide with the orbits of a spacecraft over these sites.

Commands sent to the three islands of the Eastern Test Range (Grand Bahama, Grand Turk, and Antigua) and to the Cape Kennedy launch site are routed by a unique system, designated Data Router and Error Detector (DRED), developed by Radiation Incorporated. DRED is employed to check, resynchronize, and route command data to the DRULS at the island sites for uplinking to spacecraft. Essentially a big switch with two inputs and one output, the Radiation system is also the routing interface for commands initiated in the Cape Kennedy Control Center.



RADIATION, INC. HQ.—Sprawling facilities of Radiation Incorporated are located in Palm Bay, Fla., on Florida's east coast midway between Jacksonville and Miami. In these quarters, twenty-two hundred scientists, engineers and skilled personnel build advanced telecommunications and information handling systems.

The nine Radiation-built Digital Command Systems of the NASA global tracking network play key roles in the command system. Somewhat similar to the larger master units here at MSC, the DCS units receive, store and transmit both real-time and programmed command data to spacecraft in flight.

In addition to command data, the DCS is also used to handle transmission of velocimeter and several clock-time functions to correct or update on-board counters. Units at the Cape Kennedy Control Center are also configured to perform as backup radio guidance links during the boost phase. The DCS systems are under the technical supervision, operation and maintenance of the NASA Goddard Space Flight Center.

The DCS are designed to provide redundant transmission paths, plus multiple parity and validity checks on all data to insure accurate transmittal and receipt. There are three basic ground data checks before transmission, plus a fourth in the flight loop.

A non-destructive core memory system is used which has 512 by forty-bit word capacity. However, for the GEMINI program, only 364 command words are implemented. This total will exceed GEMINI command requirements considerably. The memory can be easily expanded to 1,024 sixty-bit words for APOLLO Programs which may be considerably more complex than those for GEMINI.

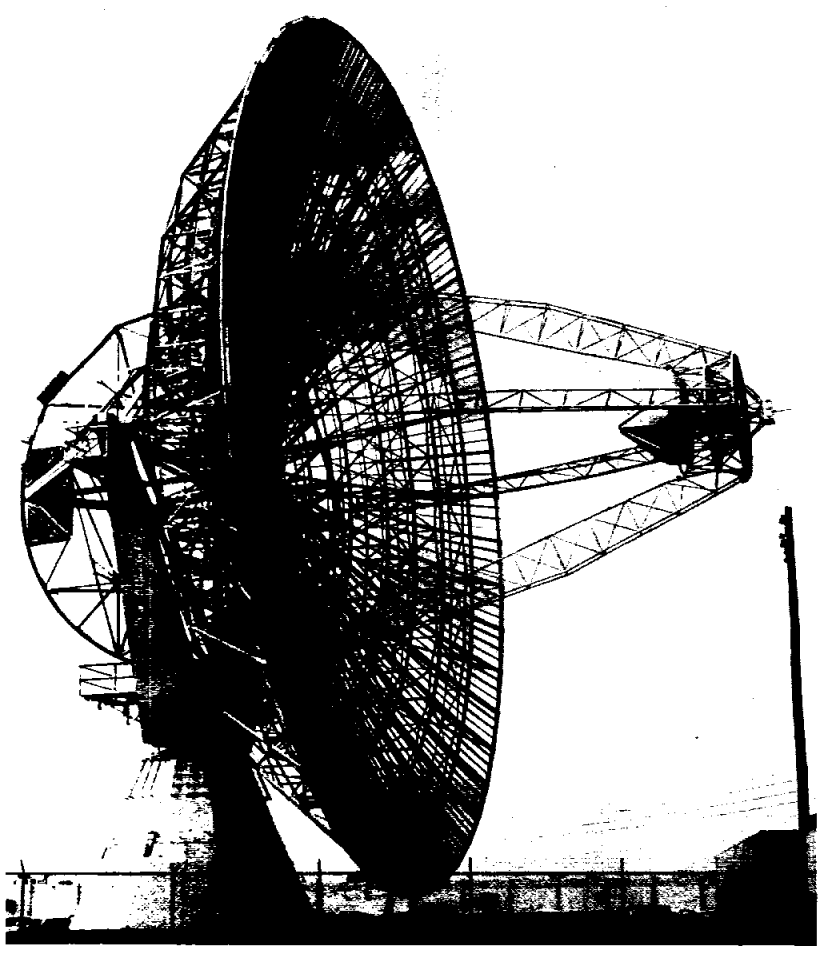
Radiation has used a functional modular packaging concept on all MDCS and DCS units. Standard 1" x 1⅛" digital logic modules are assembled in a "building-block" configuration that provides easy access to modules, test points, and system wiring.

The component interconnections within the modules are welded. The assembly is then transfer-molded in epoxy. Modules mate with panel-mounted connector blocks which are wire-wrap interconnected. The combination of welded and wire-wrap connection techniques assures a greater degree of reliability than other connection methods. The panels mount into vertical slide drawers, each drawer accommodating up to 800 modules. Approximately 200,000 modules are used for the nine DCS and two MDCS.

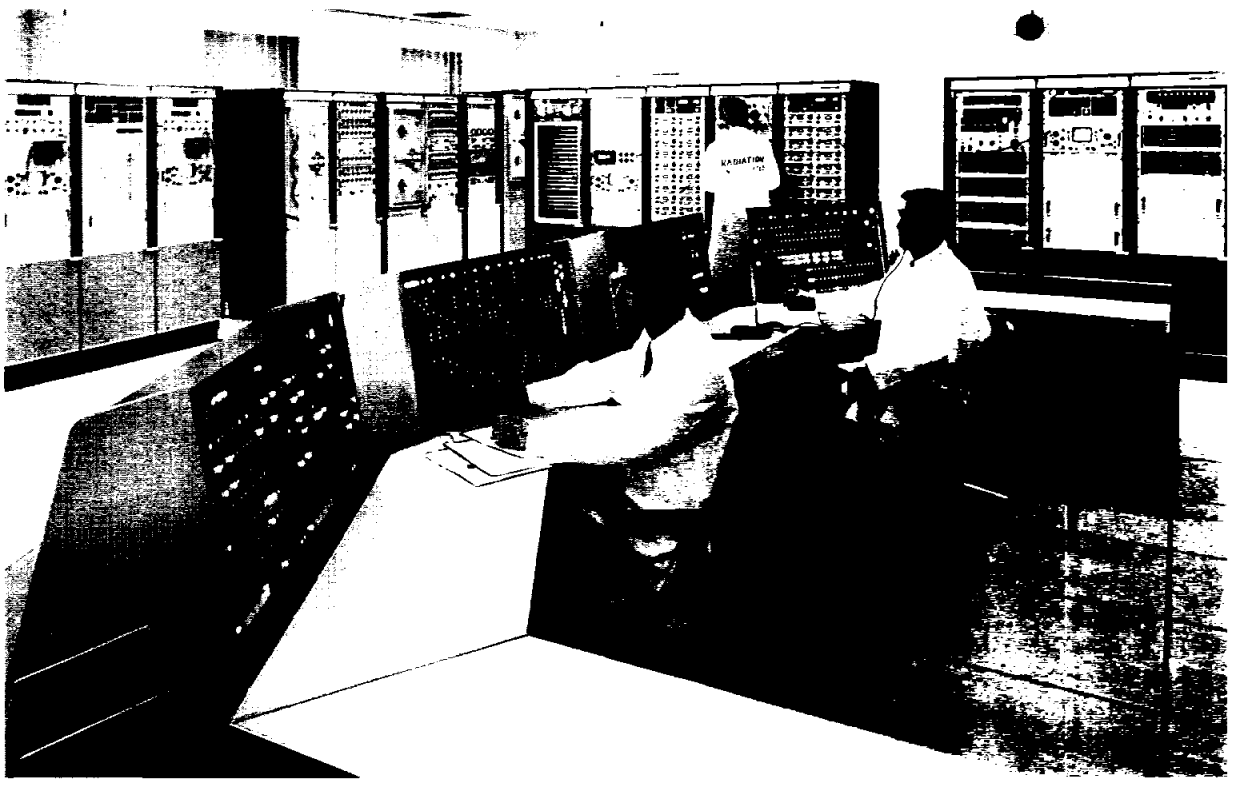
Few companies are on a par with Radiation's wide range of equipments designed and fabricated for NASA's manned space flight programs.

In addition to the MDCS and DCS systems, they include Telemetry Output Buffers

(Continued on Next Page)



AFETR ANTENNA—This giant 85-foot antenna system is located at Grand Bahama Island on the Air Force Eastern Test Range. An identical system at Pt. Mugu, Calif. also built by Radiation, received "live" TV pictures of the Tokyo Olympics via Symcom III.



APOLLO TESTING SYSTEM—Data handling systems designed by Radiation Incorporated are used to perform pre-flight telemetry checkout on APOLLO spacecraft and SATURN-II boosters at North American Aviation, Downey, Calif. The APOLLO testing system is shown in the photo above. Information processed by these systems is fed into the extensive computing facilities at MSC for reduction and analysis.

DIGITAL COMMAND SYSTEM—Command and Control data can be actuated by nine Digital Command Systems, strategically located throughout the NASA network. Similar to the master consoles at MSC, these advanced systems receive, store, check and transmit digital data to spacecraft in flight.

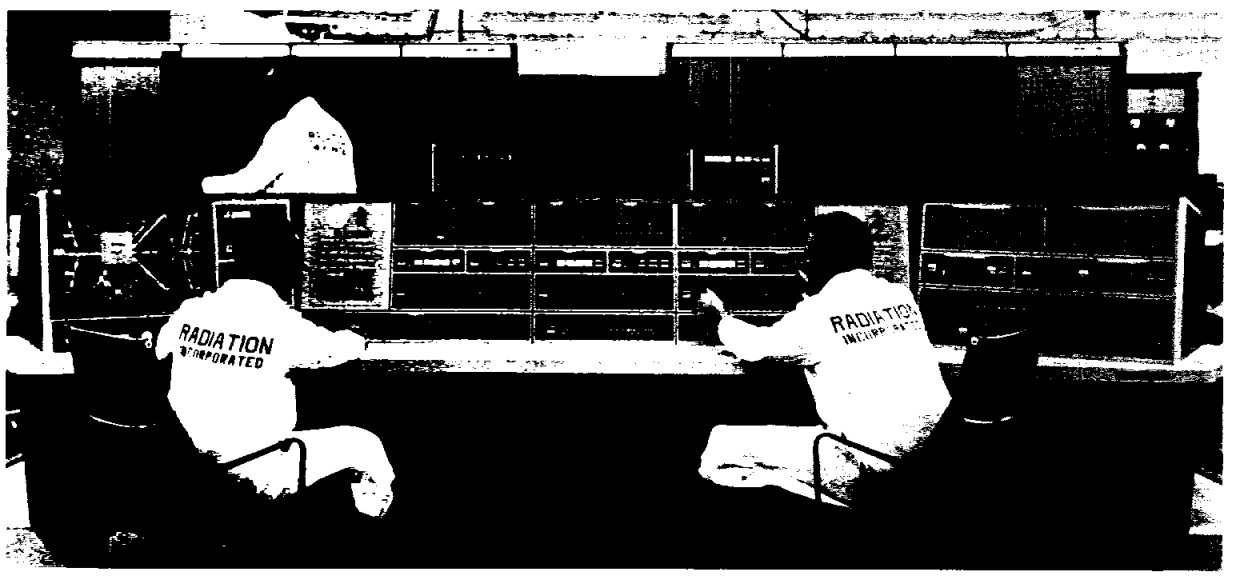
AIRCRAFT DISPLAY UNIT—Advanced display system used by the Federal Aviation Agency (F.A.A.) to study air traffic jams of the future is characteristic of the wide technological scope of programs at Radiation Incorporated, Melbourne, Fla.

(Continued from Page 6)

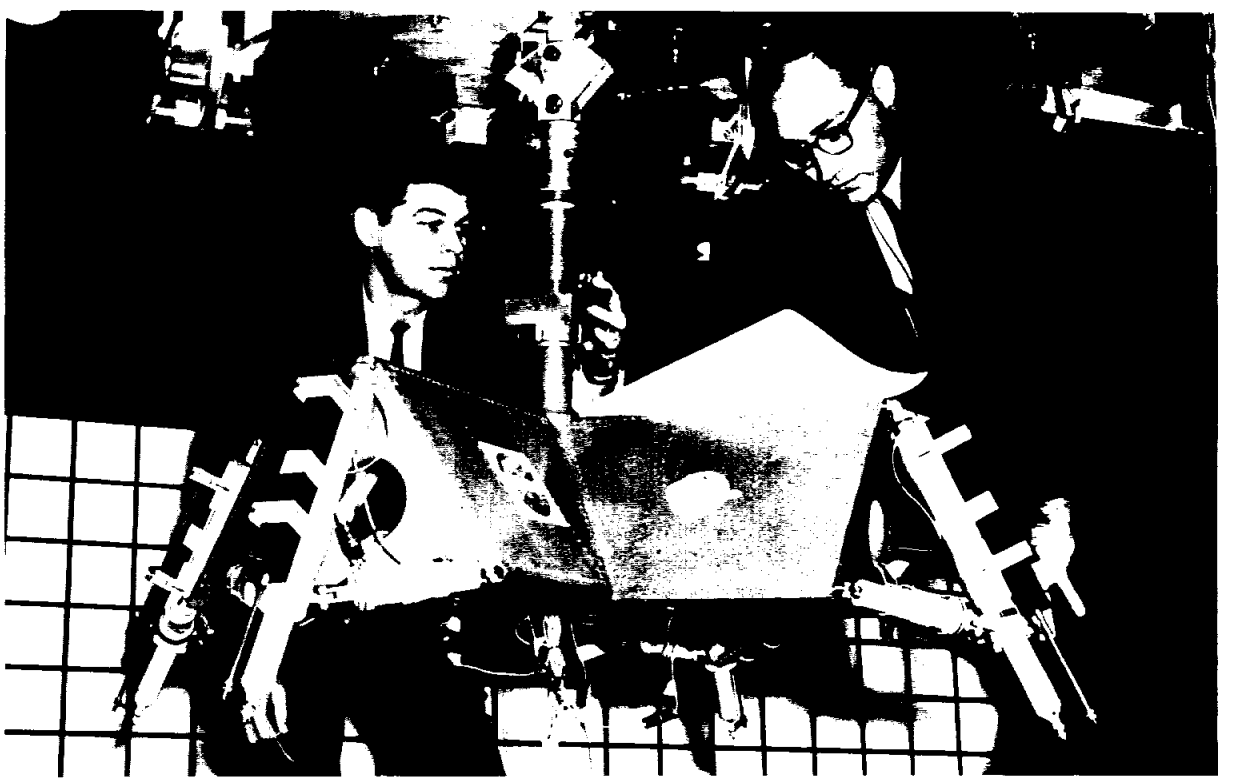
(TOB), interfacing units in the Digital Command System tracking sites: Command Simulators: test devices which simulate data normally stored in a DCS for pre-flight checkout of capsule instruments: Titan II-III and APOLLO-LEM airborne and ground PCM telemetry systems: Series 650 PCM Data Processing System for McDonnell Aircraft: PCM acquisition and stored program Decommutation Systems for the APOLLO ACE network: complex computer-controlled Data Acquisition and Processing Systems for APOLLO and SATURN S-II pre-flight telemetry checkout: shipboard and fixed site antenna tracking systems: and various other important data handling systems and subsystems.

Radiation Incorporated, Florida's largest all-electronics company, is located on the east coast of the Peninsula state midway between Jacksonville and Miami, a few miles south of Cape Kennedy and the AFETR.

There, in a nine-building 350,000 sq. ft. complex, 2200 scientists, engineers and skilled craftsmen design, develop and manufacture advanced electronic systems and products for the fields of telemetry, communications, data processing, instrumentation, antennas and radio frequency, supervisory control and special test apparatus. Facilities also include the largest integrated microcircuit operation in the Southeastern United States, a fully augmented environmental testing facility and a Radar Reflectivity Range. A wholly-owned subsidiary, Radiation Service Company, installs, maintains and operates electrical systems throughout the world.



DIGITAL DATA HANDLING SYSTEM—Real-time and programmed commands can be directed to any site in NASA's global tracking and command network employing the Radiation-designed Master Digital Command System. Incorporating the latest industrial design techniques, the MDSC console features color coding and functional groupings designed to hike operator efficiency. Two of the large functionally designed digital data handling systems are installed in the Mission Control Center at MSC.



LEM LANDING TEST—Frank Stafford (left) prepares a one-sixth scale model of the lunar excursion module (LEM) landing gear for an impact test, while David Brown examines data on drop simulated computer. Both engineers are members of the Landing Technology Branch, Structures and Mechanics Division.

Simulated LEM Lunar Landing Tests Study Possible Stability, Impact Problems

Its rocket motor silent, a lunar excursion module falls toward a crater dotted slope on the lunar surface. The long landing gear strikes the surface and one gear slides into a small crater. An engine skirt crumples slightly as it comes in contact with the crater edge, and the craft begins to rear up like a wild stallion.

Finally the feeble lunar gravity pulls the craft back to the surface and a safe landing is accomplished. Is this the first manned landing on the moon? It could be, but the landing described above was performed by a model at the Manned Spacecraft Center.

Although two astronauts are not scheduled to make that landing until later in the decade, the lunar surfaces at MSC are simulated by computer and scale models to study stability and impact problems which could occur on a lunar landing.

Two parallel studies are being run by Structures and Mechanics Division engineers to cover a variety of landing conditions. Another study by Advanced Spacecraft Technology Division has been completed.

Dave Brown, an engineer in Landing Technology Branch is conducting one study which uses a computer to draw three dimensional animated pictures of a LEM landing on the lunar surface.

The description of the surface on which the LEM landing will take place is reduced to mathematical terms. The same process is followed for the LEM, its descent velocity and the physical properties of its landing gear and engine skirt. This information is given to personnel of the Computation and Analysis Division to program into a computer.

Impact data, gross stability, acceleration, and stroke of the landing gear are recorded as the 60 lb. model lands on the masonite table top.

The table landings do not provide the rugged terrain and crater holes which can be duplicated by the computer. However, the actual drop verifies the data developed in the computer program.

Before the LEM has made its first test flight, animated drawings and scale models are being flown by MSC engineers to lay down the ground rules for a safe landing on the surface of the moon.

Tonight Through Sunday Noon

Research Seminar To Be Held For Reserve Military At Center

The Naval Reserve Research Third Annual NASA-MSC Seminar designed to give the scientific and technical members of the Armed Services an insight into the Nation's space program, will be held here at the Manned Spacecraft Center this weekend.

All active duty and reserve military at MSC or with MSC contractors are invited to attend the Saturday and Sunday sessions. For those attending, winter dress uniform and ID card will be required for admittance.

The first session begins at 8 o'clock tonight at the Burke Baker Planetarium in Houston where a star pattern simulation for manned space flight will be presented the group by Dr. Tom E. Pulley, director of the planetarium.

Saturday's sessions will be held in the Building 1 Auditorium here at the Center and will run from 8 a.m. to 1 p.m., and will be followed by a tour of MSC's Buildings 30, 7, 32, and 29. Saturday's speakers include Dr. Joseph F. Shea, manager, Apollo Spacecraft Program Office, "Apollo Program Status;" Dr. R. C. Duncan, chief, Guidance and Control Division, "Apollo Guidance and Control;" and Aleck C. Bond, manager of Systems Test and Evaluations, "MSC Test Facilities." All are from MSC.

Sunday morning the group will hear addresses by a representative of the Astronaut Office on "Astronaut Training;" Christopher C. Kraft Jr., assistant director for Flight Operations, MSC, "Spacecraft Landing Systems and Recovery Techniques;" Brig. Gen. Russell F. Guski, Air Force Reserve, commander, 446th Troop Carrier Wing at Ellington AFB, "Spacecraft Drop Testing;" and Admiral J. K. Leydon, chief of Naval Research, Washington, D.C.

The SPACE NEWS ROUNDUP, an official publication of the Manned Spacecraft Center, National Aeronautics and Space Administration, Houston, Texas, is published for MSC personnel by the Public Affairs Office.

Director . . . . . Robert R. Gilruth
Public Affairs Officer . . . . . Paul Haney
Editor . . . . . Milton E. Reim
Staff Photographer . . . . . A. "Pat" Patnesky

Welcome Aboard

Sixteen new employees joined the Manned Spacecraft Center during the last reporting period.

Public Affairs Office: Janet M. Jacob.

Procurement and Contracts Division: Lynda D. Bravenec.

Facilities Division: Deanna J. Darling and Norma L. Scott.

Flight Crew Support Division: Keith L. Jordan.

Crew Systems Division: James A. Crawford.

Computation and Analysis Division: Byron White.

Guidance and Control Division: Harold E. Carda.

Structures and Mechanics Division: William R. Bromby.

Assistant Director for Flight Operations: Judy L. West.

Flight Control Division: Jay H. Greene.

Landing and Recovery Division: Marilyn L. Hartman.

Flight Support Division: Lloyd R. Erickson and Weldon A. Lee.

Gemini Program Office: James W. Campbell.

White Sands Operations (Las Cruses, N. M.): James H. Kesinger

Space News Of Five Years Ago

April 5, 1960—The Space Task Group notified the Ames Research Center that preliminary planning for the modification of the Mercury spacecraft to accomplish controlled reentry had begun, and Ames was invited to participate in the study. Preliminary specifications for the modified spacecraft were to be ready by the end of the month. **This program was later termed Mercury Mark II and eventually Project Gemini.**

April 6, 1960—Four Saturn first stage engines were successfully tested at Huntsville, Ala.

April 7, 1960—Ablation tests on nine Mercury heat shield models in the subsonic arc tunnel at the Langley Research Center were completed.

April 8, 1960—Construction of an altitude facility chamber to simulate space environment was completed in Hangar S at Cape Canaveral. The facility was for spacecraft checkout and astronaut training.

April 12, 1960—The first production model of a McDonnell-built Mercury spacecraft was delivered to NASA.

April 15, 1960—Qualification tests were begun on the Mercury spacecraft posigrade rockets and the retrorockets. One of the main purposes of the latter tests were to develop a better igniter.

GT-3 Press Conference

(Continued from Page 5)

travel is likely to turn you into a happy extrovert?

Grissom: Well, Chuck, it was a very happy experience, it could do it I believe.

Young: I think zero G could make an extrovert out of anyone.

Question: I wonder if Gus and John could evaluate the importance of a self propulsion system, the OAMS system as against extravehicular activity? If they had had their choice, which would they have done first?

Grissom: Well, I think to me the most important is the flying the spacecraft and changing the orbit and the guided reentry. I don't want to take anything away from extravehicular activity because we are going to do that too. Do you have any other answer to that? anybody?

Young: No. I think that it is kind of like comparing apples and oranges. It is two different types of things. You can't take away from the Russian feat. It was a phenomonal feat, but still technically manuevering in space is also phenomonal. It is really a step ahead.

Grissom: I still maintain the only thing I envy in the Russian program is their promotion system.

Question: Either Gus or John. If an Agena had been up there, do you think you could have docked with it?

Grissom: I think so. Our control system is very good, it is very tight, control is positive, we have excellent control over the four and one-half thrusters and I think rendezvousing is certainly possible.

Question: Did you carry any items such as souvenirs or letters, other than routine with you and were there any surprises waiting aboard the spacecraft when you got aboard that morning?

Grissom: Yes.

Question: Can you tell us about them?

Grissom: No.

Question: Did you see anything in space, by that I mean any other spacecraft, your booster, or pegasus?

Young: No.

Grissom: No, we didn't see any other spacecraft and the one chance when we were close to the booster, when we could have had a chance to see it we were busy doing a horizon scan mode check. And we were facing the wrong direction.

Question: Was there hesitancy between you when you just answered that?

Grissom: I was just waiting for John to answer.

Young: He's giving me a turn.

Question: Would you describe your maneuver on the second orbit please? I think you skipped that when you went through the flight plan?

Grissom: This is the out-of-plane translation. Well, it was done on the night side. But other than that it was a routine and some of the other we just plotted the spacecraft 90° to our flight path and thrusted for 10 ft. per second then I thrusted aft, that was forward 10 ft. per second, then I thrusted aft and so on and forth then I made a plane change . . . I ended up with a plane change of 10 ft. per second.

Young: I think a point of interest is that even though you can barely hear and Gus claims he can't hear these thrusters firing, in the dark you can see them. You can see the light from the thrusters. Any thruster even on the back, the aft thrusters you can see the light from the firing so that you know you are firing thrusters.

Grissom: As a matter of fact the first time we went into the night side, I told John, look there is lightning, but it was one of my thrusters firing back behind us . . . a flash of light.

Question: Could you give us any details on how your reentry experiment worked?

Grissom: That was John's experiment . . .

Young: Well, the purpose of the experiment was to see if they could detect any of our carrier coming from the spacecraft when this flow of liquid was released from the spacecraft when I threw the reentry communications switch. I understand that some signal was received and I do not know the intensity of the signal. I anticipate that this will be a successful method someday of reentry communications during the blackout phase. This is pretty important to us.

Question: I also wanted to ask Gus which flight you enjoyed most?

Grissom: I definitely enjoyed this one most. It was longer.

Question: John, would you tell us how you slipped the baloney sandwich aboard and what Gus said when you offered it to him? And what became of the sandwich?

Young: How did you find out about that? (laughter) . . . He ate the sandwich.

Question: Can we expect to read a little bit more about some of these details like the baloney sandwich and souvenirs and so forth in the forth coming issue of Life magazine?

Grissom: I don't think so.

Question: I would like to ask Gus a question I don't think anyone else can answer. You rode into space some time ago on a relatively small Redstone and on Tuesday you did it aboard this giant Titan. Can you give us a comparison? Can you really sense the difference? . . . in seat-of-the-pants flying?

Grissom: I would say that they were very simular, except the Titan flight was alot longer. But the Redstone flight was very smooth as I recall and we could hear booster noise and aerodynamic noise the same as we heard here. And I really don't see a great deal of difference.

Question: It didn't seem like riding a Cadillac after riding a Volks?

Grissom: It was like riding a Corvette.

Question: Gus, you lost about three pounds during your 15 minute flight in '61. Did you lose any weight in this flight do you think? Either you or John.

Grissom: We were a little bit dehydrated when we got out so we probably did lose some weight, I'm not sure how much if any.

Question: I want to emphasize . . .

Grissom: Two and three-fourths pounds I'm told I lost.

Young: The weight lose was after we got in the water.

Grissom: You think so huh . . .

Young: I'm convinced of it.

Grissom: It was a small bag.

Young: There is no doubt about it. We got up to 95° in the capsule and we were really sweating in the capsule before we took our pressure suits off. We waited too long to do that. We should have taken them off immediately. Without any spacecraft cooling aboard you are going to overheat in it. I think you have got to get your space suit off. That is just one of our operational problems.

Question: Gus, we have a report that one . . . Debbie Reynolds wanted to send you the lace long johns from the picture but that she settled for a lace scarf and sent it to you. Is this correct?

Grissom: I received a lace scarf. I don't know who from.

Question: Aside from pegasus and satellites, were you able to make any visual observations of celestial bodies? Could you describe them if you were?

Grissom: We saw a night sky just about as you see out here, as a matter of fact I think on a good dark night you can see more stars than we saw from the spacecraft.

Young: The first time I looked out the window I saw the Southern Cross, Alpha and Beta Centauri and the constellations of the south. The next time I looked out the window I saw

(Continued on Next Page)

Vice President At Cape For GT-3 Launch

DISTINGUISHED VISITOR—The Vice President of the United States, Hubert H. Humphrey (center) visited Cape Kennedy and witnessed the launching of the National Aeronautics and Space Administration's GT-3 mission on March 23. Shown (l. to r.) are Dr. Edward C. Welch, executive secretary, National Aeronautics and Space Council; Dr. Robert C. Seamans, associate administrator, NASA; Humphrey; and Rear Admiral Ben W. Sarver, recovery commander, Task Force 140.

GT-3 Press Conference

(Continued from Page 8)

Orion's Belt, Capella and the Northern sky, the Pleiades and the stars are just as easy to see out there as they are here.

Grissom: I think I saw what I am sure is a planet and probably Venus on the first—before we went in darkness the first time—on the daylight sighting of the planet.

Question: Did that debris flying around you on separation from the booster constitute a danger and at what point in the flight did you have the greatest apprehension?

Grissom: I don't think the debris is a danger. It just floats and drifts around and disappears in a few seconds. I don't know how to answer your other question but I guess my pulse was the highest just before retrofire so maybe that is what I was most worried about.

Grissom: Did the observation of the exhaust plume from the RCS thrusters—how long did it last roughly? What was it like? Was it pretty dense and thick?

Grissom: I am sorry, I didn't hear your question?

Question: Repeated

Young: It's just a regular rocket firing—it billows out to the side and is full of orange sparks. My guess is it may go out on the night side it appeared to go out 10 or 14 feet of visual light. On the daylight side it's varely noticeable.

Question: How long did it last?

Grissom: As long as we were firing the thruster. As soon as we stopped firing the thruster it went away immediately.

Question: Gus, I believe that the flight plan says that the last thing the command pilot shall do is turn out the cabin light. Did you do it or is it still burning in Molly Brown?

Grissom: I couldn't tell you right now.

Young: The cabin lights are out. Contrary to normal shipboard procedures the first guy that leaves the Molly Brown when it gets in the water is the Captain.

Grissom: I just made you Captain as I got out.

Question: We always see and hear so much about the cleanliness of spacecraft—these fellows walking around in smocks. Everything is handled perfectly and yet each time we discuss weightlessness, reentry or retrofiring we are talking about debris. Could you explain that a little?

Grissom: The debris I am talking about is the debris outside the spacecraft. This is due to the pyro devices we have that actually cut pieces of metal, cuts the skin and so there is bound to be little pieces flying around. We just see this stuff and we know that the function has taken place.

Question: Nothing inside?

Grissom: There is some stuff inside after all the spacecraft has been under construction about two years, I guess, right from the time the shell started and it's just impossible to get all the dust out of the little cracks and crevices in there. So you see some float around early in the flight and then it seems to disappear.

Question: I was just wondering if you felt that you could have operated still more scientific experiments and approximately what do you think is the limit of the astronaut activity in this area?

Grissom: I think that our flight plan was plenty busy; we had all we could do, had all we needed to do and in fact, there were times when I think that we were probably too busy and that we should have had just a little more time to look around and evaluate what was going on.

Question: Two questions. You said that you put a hole in your face plate. Did you?

Grissom: Yes

Question: You didn't cut yourself at all, did you?

Grissom: No cuts.

Question: The other thing is, we are kind of confused from looking at the unofficial transcript. It looked like you were radioed instructions to bank left 45 and bank right 65—bank right 55 and then I think you told us that you were supposed to bank right 65. I wonder if you could clear this up, Mr. Kraft.

Kraft: He got the right bank angles from the ground. The thing I was talking about was we were concerned that he may have read us at 55 degrees instead of 45 degrees which would have accounted for the difference in the landing point.

Question: Gus, one of your predecessors, I believe it was Gordon Cooper, said he saw lots from space, automobiles, trucks and smoking chimneys. What did you see when you had good visibility and what was the smallest object that you were able to see from up there?

Grissom: We really only had one clear area where it was a populated area and this was in northern Mexico just above the Gulf of California and I could tell it was a populated area, but at the time I was busy doing a tracking task. I was trying to keep the little sight we have on board on the city to see if the control system was good enough to track. I think that I could see streets down there in the city but I wouldn't want to swear to it right now.

Young: We got some pictures of it and we'll blow them up and we'll see if we can see streets.

Question: Gus, you had an option of two different controls of your thrusters—the variable thrust and the full thrust. Which did you use and why?

Grissom: It depended on what I was doing at the time. The major portion of the orbit was spent in the horizon scan mode which keeps the spacecraft aligned between zero pitch and minus ten degrees pitch and I have to control the yaw. For retrofire I used the rate command system which is the tightest and probably the easiest system to fly at least for retrofire and then for reentry I used double authority direct which is again the one we felt was best to use for reentry.

Question: You mentioned an electronic failure, could you pinpoint that more exactly, please?

Grissom: Yes, we have—John, you know the electric system, talk about it.

Young: The instrument that failed was a DC to DC converter, which supplies power to our instruments primarily our consumable quantity measuring instruments and also the telemetry to the ground. We just switched to the other. We have the dual DC-DC converter and we switch to the other converter.

Grissom: The only thing this failure meant was that we couldn't tell how much fuel we had on board and how much oxygen we had on board. It didn't affect any of the systems other than our ability to read out what was there. After we changed—the systems are completely duplicated—and after the change we had everything.

Question: Gus, You said that your computer gave you the correct downrange reference on the needles and I presume that would indicate that the computer and the inertial platform were working perfectly? Would that indicate that the spacecraft didn't develop the proper amount of lift for the calculator, does that look like the likely reason?

Grissom: It is certainly a possibility but I feel that we were getting some lift out of the spacecraft because we had a 4-G reentry. If we had made a zero lift reentry I would have been pulling about 8-G's coming in, so I had to be getting some lift out of it.

Question: Colonel Glenn reported during his reentry procedure that he felt like he was being blown clear back to Hawaii, now four manned space flights later, you report a tremendous kick during reentry, is anything being done to reduce this physical distress?

Grissom: I don't think it's a physical distress. It is very pleasant to know that those retrorockets are firing, and let's don't reduce them.

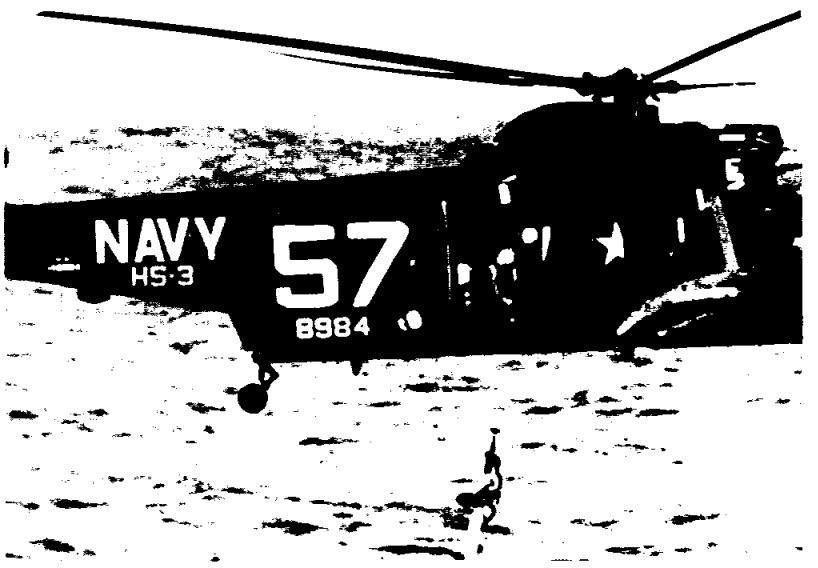
Young: That's one of the most wonderful accelerations you will ever experience.

Question: I wonder if you both could tell us a little bit more about your opinion about Soviet cosmonauts, especially the flight of Sunrise II last week. Maybe there are two or three things about which you will acknowledge besides Mr. Grissom's admiration for the Soviet promotion system?

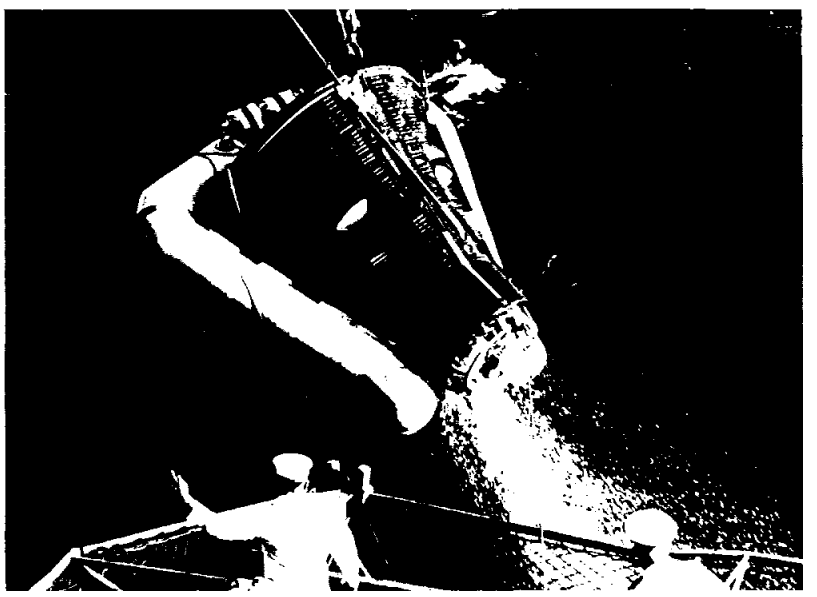
Grissom: I am sorry I didn't understand the question.

Question: Once more, Could you tell us please, your opinion about the achievements of Soviet Cosmonauts, especially about the achievement of Sunrise II last week? I wanted to say that maybe there are two or three things you will acknowledge besides Mr. Grissom's admiration for the Soviet promotion system?

Grissom: You can't take it away from the Soviet performance. I certainly envy the large spacecraft they have, their ability to get out. They sure have a tremendous TV system



COMING ABOARD—One of the GT-3 crew members is hoisted aboard a helicopter. Air Force and Navy swimmers were in the water with the Gemini spacecraft.



SPACECRAFT RECOVERY—The Gemini-3 spacecraft is hoisted aboard the aircraft carrier USS Intrepid after having completed three orbits of the earth March 23. The spacecraft landed about 60 miles short of the aircraft carrier in the Atlantic Ocean near Grand Turk Island in the West Indies.

from the fabulous pictures they put out, and I am sure lots of others. Do you have any good answers for that?

Young: No

Dr. Seamans: I think we are pretty proud of the hardware we have. We are mighty proud of quite a few things we are doing in space. We are proud of the manned flight and we are proud of all that we have accomplished in the last 48 hours. We are not taking a backward position in television as you know yesterday from the Ranger pictures. We used the Tiros for weather and the Syncom II for communications, Syncom III during this flight. We certainly think, as we indicated 48 hours ago that the Russian people should be proud of their program. We are mighty proud of our program and we are not going to take a back seat to anybody. (Applause)

Question: John, from the things you found out from this craft do you think you will be able to cut down the training time for future Gemini flights to where the other flights won't have to go through the year of training as you and John have done or did you find enough on this to make some recommendations on shorter times?

Grissom: Well—I don't really know how to answer that. We have been pretty hard pressed for trainers all along and so the guys will get as much as they can anytime. If you can be assigned to a flight a year or two years in advance, you are that much better off—you get that much better prepared for it. As far as the spacecraft working perfectly is concerned, I think this means that we are ready to go ahead and use it operationally as we had planned to do that this flight showed that the systems worked. They worked as we had expected them to work. The booster will do the job that we had expected it to do and so now we can go ahead and use it as an operational vehicle.

Question: You reported a much softer landing or splash down than you thought that you would have. Could you have landed it on the ground safely, do you think? And one other question, did you bring back any small sea urchins?

Grissom: Well, from the information I have seen I don't think we would have wanted to land on the land. That would be a pretty brutal shock in this position. As far as the sea urchins are concerned, I think the handle broke on the experiment, I am not sure that it worked.

Dr. Seamans: I might point out that if you do come back over land, if you have to, you bail out.

Question: Did you find that this flight suit was more comfortable than the flight suits you wore in the first flight that you made, with the modifications here was this more comfortable?

Grissom: Yes, this suit was somewhat different from the Mercury suit. It's more mobile and quite a bit more comfortable.

(Continued on Next Page)

Ranger 9 Sends Back Perfect Photos Of Lunar Surface

GT-3 Press Conference

(Continued from Page 9)

We have a neck ring that's movable so you can move your head easier and better. We have wrist rings which we had on later Mercury flights also. It is definitely a better suit.

Young: It is also a very reliable suit. It's the one which in a very similar model we plan to use for our extravehicular operations.

Question: Realizing that egress from the spacecraft is not scheduled till, well actually not egress, but pressurization and opening the hatch so far is not scheduled till GT-4, by any chance was this sytem armed in GT-3 or could it have been armed and egress attempted.

Grissom: I don't think that egress is planned until probably GT-5 for opening the hatch and getting out. But, well we want a modification to the suit and I think maybe there's more training involved and it is certainly possible all we had to do was unlatch the hatch. We would sure like to make sure that we could get it closed again. There's some more work we need to do in this area.

Dr. Seamans: Like all parts of the program, we are not going ahead till we fully test it for that particular operation and we are now testing in vacuum chambers this particular operation.

Question: Do you feel that the flight will enable you to accelerate any of the experiments planned for the later Gemini flights to sort of pick up the program in speed and move some of the experiments forward with the earlier flights rather than the later ones.

Grissom: Well, I can't answer that question.

Dr. Gilruth: I think this question was answered pretty well by Chuck Mathews at the press conference right after the flight. We are going to do all we can to cover these milestones as fast as we can. I don't think any of us can give a complete answer to this right now till we get the tapes analyzed and look through the whole picture. We just can't give you a complete answer now. We certainly don't see any roadblocks to going right ahead with the program as planned.

Question: I wonder if Gus and John based on their pilot experience can tell us, since they have the only operational experience in Gemini can tell us, what is the longest Gemini flight that they can accomplish from a pilot's point of view and what are the chief operational hazards or problems they see in such a long flight?

Grissom: I think we can go ahead and do our 14-day mission. John's anxious to do it, I'm not. But I think the biggest problem is going to be a housekeeping problem of keeping track of everything you have on board, the spare parts, empty bags and pieces floating around—this is going to be a housekeeping problem, as much as anything.

Young: It's zero G that is going to make the 14-day mission in Gemini possible.

Question: Will confined quarters rule out the long mission?

Young: I don't think so, not in zero G. It would be impossible in one G, I think.

Question: Is there still any chance for using the paraglider system on one of the latest flights and make a pinpoint landing?

Dr. Gilruth: The present plan does not call for a paraglider in this current Gemini program. I would like to say one thing about paragliders though and that is that the paraglider has been demonstrated to be a practical device, as you might know, it's been deployed many times successfully into the full wing configuration and brought into a manned landing. The last, I think North American Aviation should get a lot of credit for having taken this quite difficult hardware development program and bringing it to a point where it can be used, if not in Gemini, in future programs, where we want to make horizontal landings in a controlled way.

Question: I'd like to ask — was there any attempt to move about in the spacecraft. I know you can't move about very much, but to move in any way out of your ordinary control movements or isometric exercises for this—

Grissom: Well, John is all over the spacecraft. He has to get the —he does all the work on board —and he stows the drogue pins, which is quite a difficult job. He gets completely loose from his seat—unfastens his seat belt, unfastens the shoulder harness, and turns around, gets into the aft food boxes, stows our safety pins in the seat and moves around a great deal.

Young: It's very difficult in one G but it's a piece of cake in zero G.

Question: Major, I understand you didn't have any food other than a baloney sandwich in space, is that right?

Grissom: I tried some of John's applesauce.

Question: Without going into the clinical details, do you think the baloney sandwich contributed to your sickness when you got on the ground?

Grissom: No, I don't think so. I think that was just plain old seasickness.

Question: Gentlemen, there was a paucity of air-to-ground conversation throughout the flight and the written record attests to that. But this is the first time that we got two men in space and that's probably a good reason why there is a limited air-ground activity. But your own conversations up in the air—were these monitored at all times by the ground and, if not, did you have the conversations completely taped—and, for the information people, will that conversation be released?

Grissom: No, our conversations in the air weren't monitored by the ground—the only things that were monitored were what we transmitted to the ground. Most of our conversations on board were recorded but not all of them. We have the capability of turning the recorder on and off as we please.

Question: Will you answer the other half of that question, will these tapes be released?

Scheer: I'm sure in the final flight report, that the tapes will probably be released. They have been in the past, in all the Mercury flights.

Question: Do I understand correctly on the reentry maneuver, that you employed the 45 degree left bank and then when you saw that your attitude—I mean, your crossrange error was eliminated by that, then you flew the remaining part of the reentry to null out the downrange error?

Grissom: That's correct.

full heads down maximum lift attitude?

Grissom: That's correct.

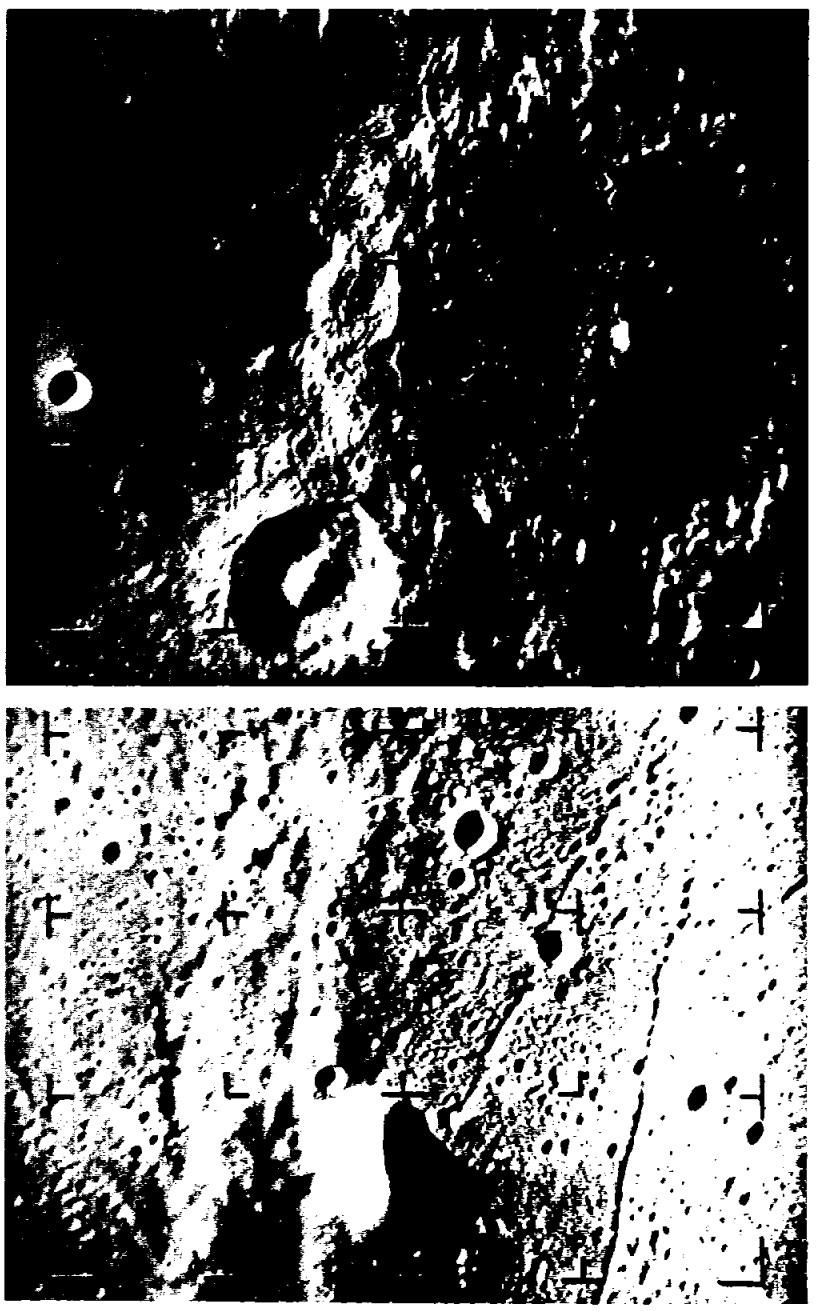
Question: I detect a certain difference of philosophy over the comfort and viability of a 14-day flight between you two gentlemen. I wonder if both of you might comment on your particular views. John seems to be very pleased with zero G and considers it even an advantage for the operational capability for the flight and Gus said he doesn't like the idea at all. I wonder if I could get a comment.

Grissom: The only thing I'd like to do for two weeks is maybe go skiing or something. Not just fly. But I certainly think it's possible to go for 14 days.

Young: I think it'd be an interesting challenge. I'd like to tackle it.

Scheer: I think we'll try to wind this up, if you'll let the principals and their families depart first. There is one announcement. The spacecraft will arrive at 7:15 at the skid strip in the morning, to go to the Cryogenics Facility at Merritt Island. There'll be a bus leaving the press center here at 11 a.m., for anyone who'd like to view the spacecraft. Thank you very much.

LAST PHOTOS TAKEN—Television pictures taken by Ranger 9 prior to impact on March 24, 1965 at 06 08 20 PST. View with shadows to left. North is at top. Last three P 1 frames. Camera P 1. Time: Frame No. 3—0.453 seconds before impact. Spacecraft altitude above Moon three-fourths of a mile. Dimensions 160 ft by 125 ft for last P 1. Ranger 9 impacted in the circle on edge of twenty five foot crater near upper margin. The smallest visible crater is 2½ ft across.



RANGER'S CAMERA A—The Ranger 9 spacecraft was launched March 21 from Cape Kennedy and reached its destination the day after the successfull GT-3 mission. The above three photos were taken by Camera A. (Top Photo) Two minutes 50 seconds before impact, altitude 258 miles, 121 by 109 miles area, Alphonsus fills right half of photo. (Center Photo) 38.8 seconds before impact, altitude 58 miles, 28 by 26 miles area, shows region of central peak of Alphonsus with rille running through its shadow toward upper right. (Bottom Photo) 8.09 seconds before impact, altitude 12.2 miles, 5.8 by 5.3 miles area, shows large crater toward left margin which is 1.6 miles across and is situated on shallow rille running upward. A second rille near right margin is resolved as a string of chain craters.

EAA Sponsors Skating Party

ICE SKATING PARTY—The Employees Activities Association ice skating party March 14, attracted an enthusiastic bunch of youngsters for an afternoon of fun. The EAA will be holding other events during the year for children of MSC employees.

MSC Spring Art Exhibit Scheduled For April 12-18

Final arrangements have been made for the Spring Art Exhibit at the Manned Spacecraft Center with exhibit days scheduled for April 12 through April 18.

The exhibit will be held in the Building 1 Auditorium from 10 a.m. to 6 p.m. daily and will be open to employees and their spouses. The public will be invited to view the exhibit from 1 to 5 p.m., Sunday, April 8.

Copies of entry blanks and regulations may be obtained from Eugene H. Brock, Building 12, or interested parties may call Ext. 4788 for information. Entry blanks will be sent to those who have already submitted their names.

All MSC employees and spouses are urged to enter art work in this non-jury show.

Softball Season Opens This Month, Teams Needed

The softball season here at the Manned Spacecraft Center is scheduled to open the middle of April and plans call for a "slow pitch" and a "regular" league.

Teams desiring to enter either league are requested to contact Dave Mullin, Ext. 4521, no later than April 9.

There are presently openings for eight teams in the slow pitch league and for 12 teams in the regular league. The cost to each team will be approximately $25 to enter the league.

When the league is filled, a meeting for all team captains will be announced to discuss rules of play, play-offs, scheduling, etc.

SCUBA Divers Make Lake Dive, Plan Gulf Outing

Eight diving members of the Lunarfins club here at the Manned Spacecraft Center, made a weekend trip to Spring Lake at San Marcos, Tex. the middle of last month.

They reported that skin and SCUBA diving conditions were excellent with 50 feet visibility and a water temperature of 71 degrees. An abundance of plant growth and fish provided interesting and very beautiful underwater scenery for members taking photographs. Families of the members also had an enjoyable time watching the "Aquarena" underwater show and taking the glass bottom boat excursions.

The next club dive will be a trip to the oil rigs in the Gulf of Mexico on the 75-foot boat "Gulf Breeze," April 11. The boat will leave seabrook at midnight with sleeping provisions for 14 and will return Sunday evening.

Toastmasters To Install Officers At April 7 Meeting

An installation of officers of the Manned Spacecraft Center Toastmasters Club will be held at the regular April 7 meeting of the group.

The officers were elected at the March 17 meeting of the Toastmasters. Elected were: General Russell F. Guski, president; Marvin Matthews, educational vice president; Ernest A. Gillam, administrative vice president; Alan F. Doyle, secretary; Richard J. Crane, treasurer; and Charles Row, sergeant-at-arms.

Meetings of the club are held the first and third Wednesday of each month and any MSC people interested in Toastmasters should contact one of the above officers for more information.

Two MSC Ladies Join Ellington Toastmistresses

The Ellington Toastmistress Club has gained two more members from the ranks of the ladies at the Manned Spacecraft Center.

Bobbie Wright, also of MSC, and vice president of the group, inducted the new members into the club at the March 7 meeting. The new members were Mildred Rogers and Marilyn Morehouse.

The Toastmistress club is composed of MSC and Ellington AFB ladies, and meets at 5:30 p.m., the first and third Tuesdays of each month at the EAFB Officers Open Mess.

Ladies at MSC interested in attending a Toastmistress meeting may contact Virginia Thompson at Ext. 5461, or Silvie Kelarek at Ext. 3961.

Bridge Club Completes Series, To Begin Another

The first MSC Duplicate Bridge Club series, which ended with the March 9 game, was a close contest, with Charlie Brown finishing in first place and his wife, Eugenia, coming in a close second.

A trophy plus 1.75 master points was presented to the winner. The next series commences with the May 11 rating point game and will include the May 18, 25, June 8, 22 and 29 games.

The next championship event of the club will be the Men's and Women's Pairs on April 20, with appropriate trophies and Master Points to be awarded to the winners.

Results of the March 9 rating point game: North-South, Louise Tinner and Howard Ates, first; Gil Conforti and Art Manson, second. East-West, Ray Lynch and K. M. Brown, first; Richard Reid and Charlie Brown, second.

MSC Music Lovers Invited To Join Houston Civic Group

Music lovers at the Manned Spacecraft Center are being extended an invitation to become members of the Houston Civic Music Association.

The Association has brought a varied and consistently good program to its members at a nominal cost for the past 19 years. Memberships are $7.50 for adults and $4 for any full time student. Six performances are to be held between the period October through April.

A non-profit group, the association depends entirely on volunteer help in distributing its memberships. The only time memberships are available is during the current drive which ends soon, and then only to the extent that previous members have not renewed.

Performances are held in the Houston Music Hall. Interested persons may contact any of these people here at MSC: Grace Winn Ext. 3366, Marvin Matthews Ext. 3121, Mervin Hughes Ext. 3761, Matthew Radnovsky Ext. 4358, Don Flory Ext. 7331, Fred Toole Ext. 2641, or Dick Wieland 3021.

Stamp Collectors Club To Be Formed Here

Stamp collectors or those interested in learning about stamp collecting are invited to contact Harry Kline at Ext. 3477.

Kline is serving as initial contact for those who would be interested in forming a Stamp Club or Philatelic Society at the Manned Spacecraft Center.

St. Louis Employee Gets Award

SERVICE AWARD—George R. Middleton (left), NASA Inspection, Quality Assurance and Reliability Office, St. Louis, Mo., was recently presented a 15-year service award by W. H. Gray, NASA resident manager, McDonnell Aircraft Corporation in St. Louis.

MSC BOWLING ROUNDUP

MSC MIXED LEAGUE
Standings as of March 22

TEAM	WON	LOST
Celestials	72½	27½
Virginians	62	38
Alley Cats	59½	40½
Play Mates	51	49
Gutter Nuts	49½	50½
Chugg-a-Luggs	48½	51½
Dusters	48	52
Falcons	46½	53½
Hawks	46½	53½
Shakers	45	55
Eight Balls	44	56
Goofballs	31	69

High Game Women: Barnes 225, Smith 192, Gassett 179.

High Game Men: McDonald 245, Morris 230, Schmidt, Zwolinski, Sargent, Morgan 221.

High Series Women: Barnes 575, Gassett 474, Morris 466.

High Series Men: Kelly 588, Sargent 580, Spivey 574.

High Team Game: Celestials 854, Virginians 840, Eight Balls, Shakers, 823.

High Team Series: Celestials 2399, Eight Balls 2321, Chugg-a-Luggs, 2286.

NASA MIXED LEAGUE
White Sands Operations
Standings as of March 18

TEAM	WON	LOST
Goofballs	32½	11½
Roadrunners	32	12
Pinbusters	22½	21½
Misfits	22	22
Woodbusters	21	23
Bad Guys	20	24
Good Guys	15½	28½
Scatterpins	13½	30½

High Game: J. Winn 243, B. Tillett 224, T. Matuszewski 223.

High Series: B. Tillett 626, B. Colston 596, T. Matuszewski 561.

High Team Game: Roadrunners 863, Goofballs 796, Pinbusters 763.

High Team Series: Roadrunners 2386, Goofballs 2335, Misfits 2276.

NASA 5 O'CLOCK MONDAY
Standings as of March 22

TEAM	WON	LOST
Suppliers	61	35
Foul Five	57	39
Computers	54	42
Sombreros	43	53
Hot Shots	42	54
Alley Gators	33	63

High Game: W. Kutalek 244, T. Hutchens 232, J. McDowell 230.

High Series: H. Erickson 595, E. R. Walker 591, T. Hutchens 590.

High Team Game: Computers 880, Suppliers 865, Foul Five 862.

High Team Series: Suppliers 2473, Foul Five 2341, Computers 2321.

MSC COUPLES LEAGUE
Standings as of March 23

TEAM	WON	LOST
Schplitz	27	13
Wha' Hoppen?	26	14
EZ-GO	25	15
Bltzf	22	18
Goofballs	21	19
Alley Cats	20½	19½
Pin Splitters	20	20
Bowlernauts	19	21
The Crickets	16	24
Sandbaggers	15	25
Hi-Ho's	14½	25½
The Thinkers	14	26

High Game Women: J. Foster 228, K. Gentile 224.

High Game Men: J. Garino 246, D. Kennedy 244.

High Series Women: J. Foster 564, W. Townsend 510.

High Series Men: J. Garino 642, B. Jones 628.

MIMOSA MEN'S LEAGUE
Standings as of March 18

TEAM	WON	LOST
Roadrunners	22	10
Whirlwinds	20	12
Technics	20	12
Fabricators	18½	13½
Spastics	15	17
Alley Oops	14½	17½
Sizzlers	14	18
Green Giants	14	18
Fireballs	14	18
Pseudonauts	8	24

High Game: Grimwood 244, Petersen 244, Amason 233.

High Series: Lee 645, Morgan 629, McBride 587.

High Team Game: Fabricators 990, Alley Oops 975, Spastics 908.

High Team Series: Roadrunners 2681, Fabricators 2641, Spastics 2585.

Space News ROUNDUP!

SECOND FRONT PAGE

AFGE Meetings Scheduled

The American Federation of Government Employees will meet individually with interested employees during the week of April 4 to discuss membership in AFGE.

Representatives of AFGE will be available in the cafeterias, Clear Lake site and Ellington AFB, during lunch periods, and after working hours at the Webster State Bank, Webster, to discuss membership with interested employees.

All employees have the right to participate or refrain from participating in accordance with the following schedule:

April 5-7—11:00 thru 1:00, Cafeteria, Clear Lake Site, Bldg. 3
April 8-9—11:00 thru 1:00, Cafeteria, Ellington AFB, Bldg. 367
April 5-9—4:45 thru 6:00, Webster State Bank, Webster

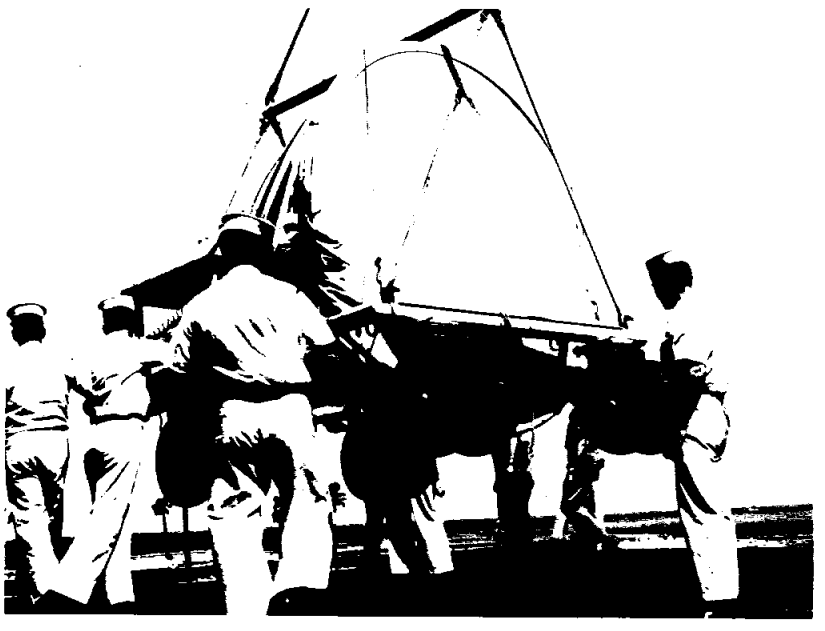
Dr. Gilruth Awarded Spirit Of St. Louis Medal

THIRTEENTH RECIPIENT—Dr. Robert R. Gilruth (left) receives the 1964 Spirit of St. Louis Medal from S. K. Hoffman, president of Rocketdyne. The presentation was made at a luncheon, Tuesday March 9, of the American Society of Mechanical Engineers in Los Angeles, Calif. Established in 1929 by citizens of St. Louis in honor of Charles A. Lindbergh, this award is given at approximately three-year periods "for meritorius service in the advancement of aeronautics." Dr. Gilruth was the 13th person to receive the award. Past recipients have included Daniel Guggenheim, Will Rogers, Maj. James H. Doolittle, John Knudsen Northrop, George W. Lewis, and Hoffman was presented the award in 1961.

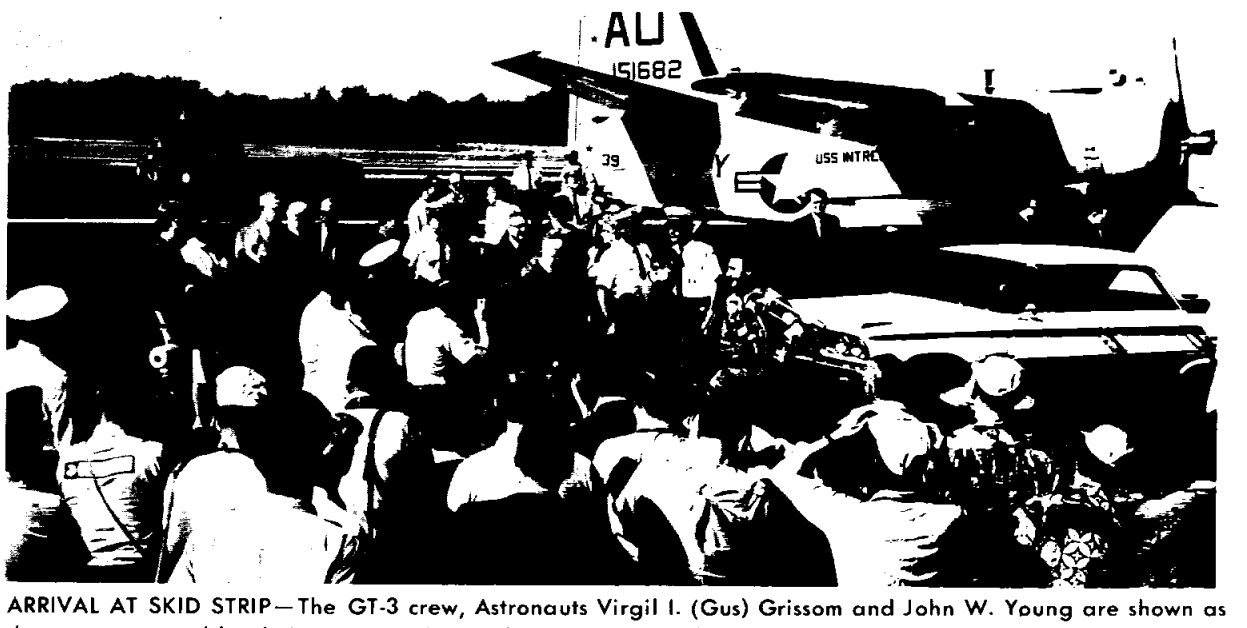
GRISSOM FAMILY—The Grissom family are shown together March 25 after GT-3 Astronaut Virgil I. (Gus) Grissom returned to Cape Kennedy from the recovery ship USS Intrepid. Grissom's sons (l. to r.) Scott and Mark, and his wife Betty flew to the Cape to be with the Gemini astronaut.

POST-FLIGHT MEDICAL CHECK—Following their arrival at Cape Kennedy, Astronauts Virgil I. (Gus) Grissom and John W. Young went directly to the Gemini medical facility at Cape Kennedy (Bio-Astronautics Support Unit—BASU) to undergo a four-hour physical examination similar to the one they took several days before launch. Here Grissom and Young use a world map to show the examining physicians some of the aspects of the flight before the physical got underway. The Manned Spacecraft Center Physicians are (left center, moving clockwise) Dr. Charles Berry, chief, Center Medical Programs; Dr. Gordon Benson, Dr. Eugene F. Tubbs, Dr. John F. Ziegleschmid, and Dr. Howard Minners.

YOUNG FAMILY—GT-3 Astronaut John W. Young is shown with his wife and children after his return to Cape Kennedy, March 25, from the recovery ship USS Intrepid. Young's wife and children flew to the Cape from Houston. Shown (l. to r.) are Young's daughter Sandra, son John, and wife Barbara.



OFFLOADING OF THE GEMINI-3 SPACECRAFT—Navy crewmen from the USS Intrepid are shown as they offloaded the Gemini spacecraft March 25 at the Newport Navy Base near Jacksonville, Fla. The spacecraft systems were deactivated at the base and the craft was airlifted to Cape Kennedy.



ARRIVAL AT SKID STRIP—The GT-3 crew, Astronauts Virgil I. (Gus) Grissom and John W. Young are shown as they were greeted by their parents, National Aeronautics and Space Administration officials and news media representatives, on arrival at the Cape Kennedy skid strip. The two astronauts were flown by the Navy from the recovery ship USS Intrepid on March 25.