

Space News Roundup

Gerald Griffin to be third center director

Gerald D. Griffin, a Flight Director here during all eleven manned Apollo missions, will return to JSC as Center Director at the end of this year, NASA Administrator James M. Beggs announced last week.

Griffin will succeed Dr. Christopher C. Kraft Jr., who recently announced his plans to retire at the end of this year, following the first operational flight of the Space Shuttle now scheduled for November.

Griffin, who is currently Vice President of Scott Science and Technology, Inc. of Scottsdale, Ariz., has held a number of positions within NASA. He was previously Deputy Director at both the Kennedy Space Center and the Dryden Flight Research Center, and served in several posts at NASA Headquarters.

He was born in Athens, Texas in 1934 and graduated from Texas A & M University with a B.S. in aeronautical engineering in 1956. Upon graduation, he was commissioned a 2nd Lieutenant in the U.S. Air Force and from 1956 to 1961 served as a navigator/radar intercept officer with F-89 Scorpions and F-101 Voodoos.

In 1961 he moved to Sunnyvale, Cal. to become a missile systems engineer with Lockheed Missile and Space Co. His primary areas of specialty were guidance, control and propulsion systems in his work with real time systems analysis of satellite data in the Satellite Test Center there.

He became a senior aerodynamics engineer with General

Dynamics in Fort Worth in 1962 and worked with the Guidance and Control Group in the Engineering Department, where work included F-111 A/B design and spacecraft proposal preparation.

In 1964, Griffin came to JSC as a Flight Controller in the Flight Control Division, Flight Operations Directorate. His areas of specialty were guidance, navigation, control and propulsion systems. He was a Flight Controller for four years, and from 1968 to 1973 he was a Flight Director in Mission Control.

He was lead Flight Director for Apollos 12, 15, and 17, with a great deal of time at the console during lunar surface activity. He was on the Flight Director team during all eleven manned Apollo missions.

In 1973 he moved to Headquarters as Assistant Administrator for Legislative Affairs, where he was responsible for NASA liaison with Congress. In 1975 he became Deputy Associate Administrator for Space Flight Operations, where he was involved in early Space Shuttle planning, user policies and pricing policies.

Griffin moved to the high desert of California in 1976 when he became Deputy Director of the Dryden Flight Research Center. There his duties included management of NASA aircraft flight research programs and Shuttle Approach and Landing Test preparation.

From 1977 to 1980, he was Deputy Director at the Kennedy Space Center, where he was responsible in the checkout,



During the early minutes of the Apollo 12 lunar landing in November 1969, then-Flight Director Gerald D. Griffin, seated, confers with Dr. Christopher C. Kraft Jr., who was Director of Flight Operations at the time. Griffin will succeed Kraft to become the third JSC Director later this year.

launch and landing preparations being made for Shuttle, as well as activities related to expendable launch vehicles.

In July, 1980, he took on a dual role as Deputy Director at KSC and Acting Associate Administrator for External Relations at Headquarters. In the latter role he managed NASA's Offices of Public Affairs, International Affairs, Government/Industry Affairs, DOD

Affairs, University Affairs and reported directly to the Administrator. He was also the NASA Transition Officer when the Reagan Administration took office.

In June, 1981 he returned to full time duty as Deputy Director at KSC, and shortly thereafter accepted a position with Scott Science and Technology, Inc. of Lancaster, Cal. in August, 1981.

Since that time, he has been

working as Vice President for Systems Engineering and Management with the company, which specializes in research and development of high technology products and systems. Scott Science was founded by former astronaut David R. Scott, who flew on Gemini 8 and Apollos 9 and 15.

Griffin and his wife, the former Sandra Jo Huber of Brownwood, Texas, have two children.

Crews announced for STS-7, 8 and 9

STS-7



Robert L. Crippen



Fredrick H. Hauck



Sally K. Ride



John M. Fabian

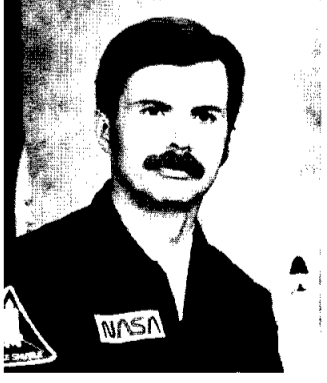
STS-8



Richard H. Truly



Daniel C. Brandenstein



Dale A. Gardner



Guion S. Bluford Jr.

STS-9



John W. Young



Brewster H. Shaw Jr.



Owen K. Garriott



Robert A. Parker

Astronaut crews for the seventh and eighth flights of the Space Shuttle and the first Spacelab mission have been announced by NASA.

Crewmembers for STS-7 are Robert L. Crippen (Captain, U.S. Navy), commander, and Fredrick H. Hauck (Captain, U.S. Navy), pilot. Mission specialist astronauts will be John M. Fabian (Lieutenant Colonel, U.S. Air Force) and Dr. Sally K. Ride.

STS-7 is to be a six-day flight of the Orbiter *Challenger*, with a planned launch in April 1983. Its payloads are to be a German shuttle pallet satellite (SPAS), the second Office of Space and Terrestrial Applications instrument package (OSTA-2), a Canadian communications satellite (TELESAT-F) and an Indonesian communications satellite (PALAPA-B1).

STS-8 is scheduled for launch in July 1983. Announced as mission commander is Richard H. Truly (Captain, U.S. Navy), and as pilot, Daniel C. Brandenstein (Commander, U.S. Navy). Mission specialists will be Dale A. Gardner (Lieutenant Commander, U.S. Navy), and Guion S. Bluford Jr., (Lieutenant Colonel, U.S. Air Force).

This three-day mission is to be the third flight of *Challenger*. Payloads will be an Indian communications satellite (INSAT 1-B) and NASA's tracking and data relay satellite (TDRS-B), the second and final element in a system to give nearly full-time voice and data communication between orbiting Space Shuttles and mission control.

(Continued on page 2)

Space News Briefs

Sun's energy drop may be weather factor

An 18-month decrease in the Sun's energy output, recently detected by an instrument aboard the Solar Maximum Mission satellite, may have been a factor in this year's unusually harsh winter, say scientists at the Jet Propulsion Laboratory. These findings may be the first direct observation of a cause and effect relationship between the Sun's energy output and changes in Earth's weather and climate. A persistent decrease of a tenth of a percent in the total amount of solar energy reaching Earth was detected over an 18-month period by the Active Cavity Radiometer Irradiance Monitor aboard Solar Max. "These kinds of small but persistent trends in solar irradiance are believed to have been causes of climatic changes in the past," said Dr. Richard C. Willson, principal investigator and designer of the experiment. "This is a small change in the total energy output of the Sun, but has great potential significance for the Earth's fragile ecosystem." The irradiance monitor is one of three out of seven instruments aboard the troubled Solar Max which continues to gather useful data. The satellite attitude control system lost precision pointing capability in December 1980. Scientists are studying the results of the experiment and correlating them with such global climate indicators as average temperatures, ice coverage and sea level to evaluate the full effects of the drop in solar irradiance.

Ion engine completes 11 years in space

The premise has long been that while thrust levels may be low, the output can last for years with solar-powered ion-electric rocket engines, and SERT II has proved that after 11 years in space and a 1.6 billion mile journey. SERT II, an experimental ion-electric engine, was launched into Earth orbit in February 1970, and since then has circled the planet more than 56,000 times. It has been a major testbed for this type of propulsion, which is seen as a likely candidate for use on future comet and asteroid rendezvous missions, as well as for varied near-Earth applications. Ion rocket engines convert gases to ions and electrons and then obtain thrust by accelerating them using electromagnetic fields. The basic fuel on SERT II is liquid mercury. Two experimental ion thrusters are mounted aboard SERT II, which is managed by the Lewis Research Center. The next in-space test of ion-rocket engines will take place in 1983, with the launch of the Ion Auxiliary Propulsion System spacecraft, designed by Lewis and built by the Hughes Research Laboratories.

Airborne observatory captures STS-3 reentry

An airborne infrared telescope caught an image of the STS-3 reentry heating patterns March 30 after two previous unsuccessful tries. The Gerard P. Kuiper Airborne Observatory, operated by the Ames Research Center, recorded the Orbiter with a 91.5 centimeter (36-inch) telescope as *Columbia* raced overhead at a height of about 185,000 feet and a speed of Mach 15.6. The project, intended to provide research data for advanced aerospace technology, is known as IRIS, or Infrared Imagery of Shuttle. "We got a beautiful image," said Dr. William Ballhaus, Ames Director of Astronautics. The image revealed hot spots on the underbody and temperature gradations.

Bulletin Board

JSC Aero Club accepting applications

The JSC Aero Club is now accepting new membership applications for flying at the club rates. Members may rent a Cessna 150 for \$20 an hour (wet) or a four-place Piper Archer II, with auto-pilot, air conditioning and full IFR panel for \$30 an hour (wet). Members dues are \$25 per month. The planes are based at Houston Gulf Airport in League City. Two club members are certified flight instructors available for beginning lessons or advanced flight instruction. Membership is open to JSC employees and contractors. Experienced pilots are desired, but non-pilots may join and learn to fly. For more information or membership application forms, call J.D. Haptonstall at x5285, Dennis Morrison at x5281 or B. Mercantel at x2314.

Clinic to conduct blood pressure screenings

High blood pressure affects about 60 million people in the U.S., and the JSC Clinic will be holding screening clinics in various locations around the center during the week of May 3 to give information and advice to those who may be affected here. Clinic officials say high blood pressure is a debilitating condition that increases the risk of strokes, heart attacks and kidney failure. Because there are no symptoms, however, some people who have high blood pressure make the mistake of stopping medication. Clinic officials urge those who have not had their blood pressure checked lately to drop by any of the various screening sessions to be held during the week. Look for the JSC pink sheet announcement with dates, times and places.

Bicycle club to celebrate Bike Day May 9

May is national Bicycle Month, and the JSC Bicycle Club invites everyone to celebrate Clear Lake Area Bike Day on Sunday, May 9. Riders will meet at Clear Lake Park on NASA Road 1 around noon, and events should last until at least 4 p.m. Free events include short neighborhood rides, a longer ride for mature riders, films on bicycle racing and bicycle safety, and short fun races. Snacks will also be available. For more information, call Judy Allton at x2666 or 333-2218, or Diane Daley at x2781 or 488-3557.

Mexican American Engineering Society to meet

The Mexican American Engineering Society (MAES) will hold the next monthly meeting at 11:45 a.m. May 5 at the Loma Linda Restaurant on NASA Road One. All engineers interested in the MAES are welcome to attend. For more information, call Ralph Gonzalez at x3758.

Information service seeking volunteers

The Cancer Information Service of the University of Texas M.D. Anderson Hospital is seeking volunteers for telephone counseling work. "Telephone counselors can make a tremendous impact upon the peace of mind and decisions of callers faced with the problems of cancer," said Janice Allen, an M.D. Anderson Hospital spokesperson. Counselors are trained and asked to work a maximum of three and a half hours a week. For more information, call Edith Booth at 792-3363.

Orbiter needs only minor rework before STS-4

The Orbiter *Columbia*, now in turn-around refurbishing at the Kennedy Space Center, will need only minimal modification and servicing for the fourth and final orbital flight test, now scheduled for late June.

The solid rocket boosters and the rust colored external tank were mated April 16 and 17, and *Columbia* is scheduled to be hoisted to the vertical and join that stack in mid-May.

Before then, however, technicians will remove and densify approximately 800 thermal protection tiles. During the STS-3 launch, 36 full heatshield tiles and portions of 14 others separated from *Columbia*'s upper nose and from the body flap beneath the main engines. These tiles were in low-temperature areas, and none had been densified. Most of the critical tiles on *Columbia*'s underbody and lower wing surface were densified prior to the first flight.

The remaining several thousand of the 31,000 total tiles will be densified between flights and during *Columbia*'s planned modifications following STS-5. Densification improves the bond between the tiles and the Nomex felt strain

isolation pad adhered to the spacecraft's aluminum skin.

The toilet which gave Jack Lousma and Gordon Fullerton problems on STS-3 has been removed and returned to the manufacturer. Also removed were some of the six payload bay television cameras, two of which failed during STS-3. Officials believe long periods in shadow, or "cold soak," apparently caused power circuits to trip out. Changes in the logic circuits are expected to make them less sensitive to low temperatures.

Another anomaly from STS-3 is still being diagnosed. Early in the flight, one of the spacecraft's three auxiliary power units (APU) was powered down when a water spray system for cooling the APU gearbox apparently froze. The APU, supplying hydraulic pressure for main engine swiveling and rudder and elevon control surface movements, functioned normally during entry and landing. Causes of the one-time freeze-up are still being diagnosed.

Work has already begun on installation of a new payload bay liner to reduce Orbiter contamination reaching payloads. The

quilted plastic film liner has been planned for installation in *Columbia* prior to STS-4 for several years.

Technicians are also replacing a heat interchanger, part of the spacecraft's cooling system, which was found to have problems during a routine inspection. The removal and replacement had not been planned.

While *Columbia*'s main engines are still in place, their high pressure fuel pumps have been pulled. A seal was bad on the pump for main engine number two and was sent back to the manufacturer for service. Technicians have also pulled the low pressure oxygen pump on engine number two.

Schedules call for the installation of two STS-4 payloads, the Continuous Flow Electrophoresis System and the Induced Environment Contamination Monitor, in about a week.

A spokesman for the Kennedy Space Center also said Launch Director George Page is recovering satisfactorily from a triple heart bypass operation, and is currently expected to be on hand for the STS-4 launch.



This logo for the STS-4 mission was designed by the prime crew, Commander Thomas K. Mattingly and Pilot Henry W. Hartsfield. The mission is currently scheduled for launch in late June.

Cookin' in the Cafeteria

Week of May 3 - 7, 1982

Monday: French Onion Soup; Beef Chop Suey, Polish Sausage w/German Potato Salad, Breaded Veal Cutlet (Special); Okra & Tomatoes, Green Peas. Standard Daily Items: Roast Beef, Baked Ham, Fried Chicken, Fried Fish, Chopped Sirloin. Selection of Salads, Sandwiches and Pies.

Tuesday: Split Pea Soup; Salisbury Steak, Shrimp Creole, Fried Chicken (Special); Mixed Vegetables, Beets, Whipped Potatoes.

Wednesday: Seafood Gumbo; Fried Catfish w/Hush Puppies, Braised Beef Rib, BBQ Plate, Weiners & Beans, Shrimp Salad, Stuffed Bell Pepper (Special); Corn O'Brian, Rice, Italian Green Beans.

Thursday: Chicken Noodle Soup; Beef Stroganoff, Turkey & Dressing, BBQ Smoked Link (Special); Lima Beans, Buttered Squash, Spanish Rice.

Friday: Seafood Gumbo; Broiled Turbot, Liver & Onions, Fried Shrimp, Meat Sauce & Spaghetti (Special); Green Beans, Buttered Broccoli, Whipped Potatoes.

Week of May 10 - 14, 1982

Monday: Beef & Barley Soup; Beef Chop Suey, Breaded Veal Cutlet w/Cream Gravy, Grilled Ham Steak, Weiners w/Baked Beans (Special); Buttered Rice, Brussels Sprouts, Whipped Potatoes. Standard Daily Items: Roast Beef, Baked Ham, Fried Chicken, Fried Fish, Chopped Sirloin. Selection of Salads, Sandwiches and Pies.

Tuesday: Celery Soup; Fried Shrimp, Pork Chop w/Applesauce, Turkey a la King, Chinese Pepper Steak (Special); Au Gratin Potatoes, Breaded Squash, Buttered Spinach.

Wednesday: Seafood Gumbo; Fried Catfish w/Hush Puppies, Braised Beef Ribs, Mexican Dinner (Special); Spanish Rice, Ranch Beans, Buttered Peas.

Thursday: Green Split Pea Soup; Corned Beef w/Cabbage & New Potatoes, Chicken & Dumplings, Tamales w/chili, Hamburger Steak w/Onion Gravy (Special); Navy Beans, Buttered Cabbage, Green Beans.

Friday: Seafood Gumbo; Deviled Crabs, Broiled Halibut, Liver & Onions, BBQ Link (Special); Buttered Corn, Green Beans, New Potatoes.

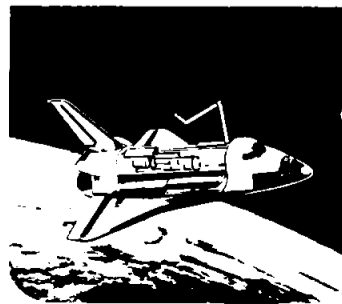
Crews —

(Continued from page 1)

The first flight of Spacelab — the joint project between NASA and the European Space Agency — is presently scheduled for launch in September 1983 aboard STS-9. Mission commander for the seven-day flight is to be John W. Young and pilot will be Brewster H. Shaw Jr. (Major, U.S. Air Force). Mission specialists will be Dr. Owen K. Garriott and Dr. Robert A. Parker. Additionally, two payload specialists — one each from NASA and the European Space Agency — will be named at a later date.

NASA
Lyndon B. Johnson Space Center

Space News Roundup



The *Roundup* is an official publication of the National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, Texas, and is published every other Friday by the Public Affairs Office for all space center employees. *Roundup* deadline is the first Wednesday after publication.

Editor

Brian Welch

Interview

Christopher C. Kraft Jr.

Two years beyond the threshold, the Director announces retirement

NASA crossed the threshold, he says, in the spring of 1980, when the problems of engines, tiles and a thousand and one other details began to be resolved into fixable commodities.

It was another milestone for JSC Director Christopher C. Kraft Jr., a time he looks back on as a key period in the development of the Space Shuttle. Like the Mercury, Gemini and Apollo programs before, bringing Shuttle on line was an evolutionary step, a continuation of the process Chris Kraft has been an integral part of for the last quarter century.

The developments he has been at the center of are too numerous to mention here, but his chief legacy may well be Mission Control, a name and a room synonymous with the American space program, and the rules by which that world is governed.

Now Kraft is on the verge of departure, scheduled to leave JSC sometime after the fifth Space Shuttle flight in November. Time Magazine, in a cover story in August, 1965, said it seems "almost prophetic" that Kraft, named for Christopher Columbus, was born in the year of the 400th anniversary of that explorer's most famous voyage. Now his career with NASA will be ending almost exactly 25 years after the Space Age began, as another milestone is passed — the advent of Space Shuttle operations.

During a busy week of interviews following the announcement of his intention to retire, Kraft took time out to answer some questions for the Roundup:

Roundup: We hate to see you go.
Kraft: Well, it had to happen sometime. I've got a lot of great friends here at JSC and that will be the hardest part of it all. I can't emphasize too strongly that these people around here are the best there are, and I hope they realize it. They reacted to many very difficult situations over the last ten years while I was director, and before that when I was in Flight Operations. They deserve the accolades.

Roundup: Is it fair to say that the depth of talent here is something unique not only to NASA but to the government as well?

Kraft: I don't think it's only unique to NASA or unique to the government — I think it's unique to the United States or any other place in the world. I don't think you will find any organization in industry or anywhere else that has the class of people we have here. They are not only a class group, they have nothing but the best interests of the space program and the United States at heart when they do anything.

Roundup: What accounts for that? Is it because this has been such a goal-oriented facility over the years?

Kraft: There are a lot of things which make it up. In the first place, the people really believe that what they are doing is important to the country and to the world. They believe that it is supported by the President of the United States and others in power. They believe that the people in the country are behind us, that we actually stand for the people. That's where it starts. Secondly, we have had high goals from the very beginning, we had very tough jobs to do. The leadership had a great deal to do with it. You have to start with Bob Gilruth, because he was an exemplary man. He built an organization, he was a terrific manager. He's never given credit for that, but he did lay the groundwork on which this organization was built.



Cigar at the ready, the first Flight Director surveys the floor of Mission Control during the Gemini 6 and 7 rendezvous in 1965, top left; explains the Shuttle to reporters in 1976, top center; and monitors STS-1 progress during the tense early moments of the flight, top right. Left, Kraft appears on the cover of Time Magazine's, Aug. 27, 1965 issue, and tries on an early Shuttle spacesuit in 1976, right. Below, he shares an exultant moment with Robert Gilruth during the rendezvous of the two Gemini spacecraft in 1965.



He allowed the organization to develop responsibility in many different fields and depended upon the strength and wisdom of the people he had working for him. He was very wise in the way in which he managed. I have tried to use the same philosophy when I was in Flight Operations and since I've been director. I believe that if you give people the responsibility for the job and expect them to do it, then they will do it well and get it done better than if you start trying to keep your hands in there. I think that kind of attitude has permeated this organization at all levels. I think they all understand that it is an important way to do business, with but few exceptions.

Roundup: Is that "consensus management?" Is that the key to it?

Kraft: I'm not a student of management, and I don't even know a lot of the terms that go with various types of management. I think it comes from an intuitive type of thing that Bob Gilruth had and I believe I've had, primarily because it was probably contagious. I'm hopeful that those who lead in the future will have sense enough to follow those same kinds of principles.

Roundup: Did you know that your departure will coincide almost exactly with the beginning of the space age 25 years ago?

Kraft: Well, yes...

Roundup: Did you figure that up?

Kraft: No, I didn't figure that up, but I know I've been here since the beginning and I know it's almost 25 years. There are a lot of things that go into making up your mind about what you are going to do. You can't stay in any one position forever. You have to move on, people have to change their way of thinking about things. I've had to do that a number of times in my career. I remember very vividly when I was a flight director, and I was also then head of Flight Operations and it was obvious that I had to get out of being flight director. But that was a very difficult thing for me to do because I wanted so strongly to remain in that business but I couldn't do it. I just didn't have the time to devote to it, and frankly I didn't have the mentality after awhile to carry it out. It takes people who are younger, it takes people who have the capacity to deal with those kinds of things, and people who are more familiar with the technology of the times. It took some very good council by my friends to advise me that I should be thinking about giving up that particular kind of activity.

Roundup: All practical considerations aside, would you have liked to be flight director for a Shuttle mission?

Kraft: Yes, but I don't think I had the capacity to deal with that. These gentlemen who do that job today are much more sophisti-

cated and appreciate the technology more than I could have. They understand the intricacies of this whole thing. It would have been foolish for me to even think that, so no, I didn't think about being flight director. I cherished the position I had in this thing. It was different for me, because I had the responsibility for the whole thing, and I now know how Bob Gilruth felt when we used to fly back when I was a flight director. It is a different thing to be responsible for the whole machine as well as the way it is operated, both by the flight controllers and the astronauts. That was a very tremendous undertaking, it was a hell of a responsibility and it was a very frightening experience the first time that Orbiter flew. So no, I didn't really covet that position, because I knew I couldn't do it. Secondly, if I was going to covet anything, it would be to literally fly in the machine. There's no question I would like to fly in the Space Shuttle. I think it would be one heck of an experience. I was hopeful that before my time ended in the space program I might be given that opportunity. I knew I was probably kidding myself but I had some faint hope that it might happen.

Roundup: The whole process of setting up the space program, and then going through Mercury and Gemini and Apollo, you've characterized as "the greatest engineer-

ing achievement of the 20th Century."

Kraft: I believe it was. And you can't leave out the Space Shuttle. The Shuttle was born on the wings of those three programs. We learned a great deal from those programs about how to do this business that we're in. The whole system design concepts, the redundancy schemes, the flight control aspects of it, the computer relationship with the human being and how it controlled the machine — all of these things came out of those three programs. The Shuttle then turned out to embody all of those kinds of experiences and memories, if you will, and is the most sophisticated machine of the 20th Century, there's no question about it.

Roundup: What about world history in general? You probably want to avoid hyperbole, but don't you think the American space program ranks beyond even the achievements of the 20th Century?

Kraft: Well yes, I do, but that is a very egotistical thought. We have been intimately involved in it, and we have been sheltered by and from many other different problems that faced organizations. I don't mean by that that there wasn't a lot of politics involved in what we did, but our big challenge was to deal with nature, and not the socio-economic problems. It wasn't until we really got into the Shuttle time period that we began to become such a political element involved in budgetary implications and dealing with criticisms. We had a lot of that to deal with in the space program when we started, but it was of a different nature. I don't mean that Dr. Gilruth didn't have those things to deal with every day, he did. But it wasn't until we got to the Shuttle that we began to be on the other side of the power curve in my opinion and got involved in all this budgetary problem and trying to keep the Agency alive and surviving. It wasn't that before.

Roundup: Did it ever appear to you that NASA as we knew it in those 20 years was in some sort of jeopardy?

Kraft: Oh yes. I believe in that 1976 to '79 time period, we had a tough time in NASA to make sure that we didn't allow this thing to fall down around our necks. We had to make sure that we continued to get the political support necessary in Congress and had we not paid attention to that, we could have lost the program, yes. It could have become an R & D program instead of the operational program that is going to result.

Roundup: It also seems that with the maturing of NASA there was perhaps a tendency on the part of the media to be not quite as forgiving as in the early days.

Kraft: Very much so. I think there were people who began to look at us like a wounded animal, and felt like, "Well, we're going to attack that thing." That's the nature of the human being. And yes, I think there was a great deal of that in the media. I criticized them for it then and since. But we survived, and I think we did survive because we had, again, the strength of an organization, particularly at the Johnson Space Center, within NASA, to survive. I think it took the Johnson Space Center for NASA to survive. And I think that the powers that be better damn well recognize that that's the case for the future.

Roundup: Because why? Because of that pool of talent?

Kraft: Yes. Because I think we do have assembled here an organiza-

(Continued on page 4)

