

EIR Science & Technology

James Beggs speaks on the future of NASA

The former NASA administrator talks about his recent victory over the Justice Department, the Space Shuttle disaster, and what it will take to restore America's leading role in space.

On June 19, the Justice Department dropped its criminal indictments of former NASA Administrator James M. Beggs, the General Dynamics Corporation, and three current executives of the company. The charges concerned defense contracts at General Dynamics in 1981, when Beggs was a vice president at the company. The indictments were handed down in late November 1985, and a month later, under pressure from the White House, Beggs resigned as the head of NASA. Dr. William Graham, who had been brought into NASA as the deputy administrator over the objection of Beggs and others at NASA, became the acting administrator overnight. He was not on the scene to make the decision to launch the Challenger, nor was he capable of making that decision.

Mr. Beggs stated at a press conference in Washington, following the announcement that the case had been dropped, that the indictments brought by the DoJ and a second grand jury were "politically motivated," and that had he continued in his job as NASA Administrator, the Space Shuttle Challenger would not have been launched in such extremely cold weather, the morning of Jan. 28, 1986. Beggs was interviewed on July 2, by Marsha Freeman.

EIR: First, I would like to offer our congratulations on the dropping of your case by the Justice Department. One of the most important things discussed in the last week and a half has been the effect that your removal from NASA had on the decision to launch the Challenger on Jan. 28. You are quoted in the book *Prescription for Disaster*, by Joseph Trento, describing what happened that morning in terms of the ice on the pad, the cold temperature. . . .

Beggs: Trento misquoted me a lot. He had a tape recorder but he still misquoted me and of course, quoted out of context a lot. What I said was that it was a cold morning and it had been below freezing through the night, and what you don't know with that vehicle is whether you've got internal ice. You had an on-shore breeze and a very humid wind comes off the ocean, and there could have been [internal ice], and the trouble is, we'll never know, because the investigation . . . was not terribly thorough.

The Rogers Commission zeroed in almost immediately on the booster seals, and if you talk to this fellow [Alan] McDonald, who was the one who was the most vocal from Thiokol [in opposing the launch], he says that he was concerned about several things in addition to the seals. He was concerned about the ability to recover the booster cases, which is a Thiokol responsibility. He was also concerned about the potential of cold on any of a number of components in the machine. . . . In short, he was worried about several things that morning, which is what I would have been worried about had I been down there.

There was ice all over the gantry and that was a concern, because while damaging tiles is no great issue of safety, we would have severely impacted the turnaround time for that vehicle had the ice on the gantry scarred or torn up a number of tiles on the vehicle. There were several good reasons why we shouldn't launch that morning.

The interesting thing to me is the Sunday before [the Tuesday launch]—"Superbowl Sunday." We had tried to launch on Friday and we didn't get off on Friday. The next launch opportunity would have been "Superbowl Sunday,"

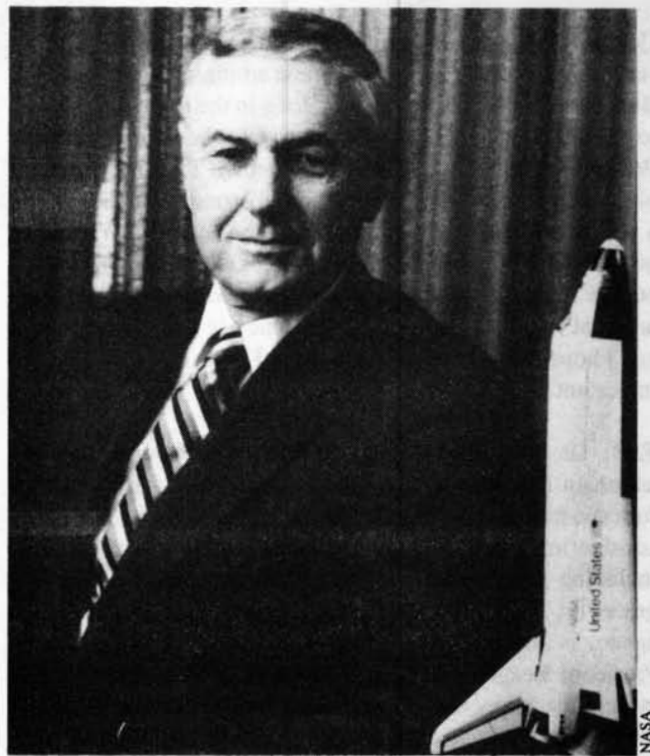
which from the point of view of almost everything, would have been a very good time to launch. . . . But for some reason—no one has really asked the question, so I guess we'll never know the answer—after we stood down on Friday, the decision was made [not to try to launch on Sunday]. NASA went and asked the Air Force weather guy what the weather would be on Sunday, and his prognosis was that the weather wasn't going to be very good on Sunday. So they said, "Okay, we'll stand down and we won't try to launch on Sunday."

Now that decision is very unusual. In fact it's the first time in all of the experience I have had that we did not count down as quickly as we could, even into a prognostication of bad weather. That's just not something we normally do. [Congressman] Don Fuqua who was down there for the launch, either flew back or talked to Graham, who was down there for the Friday launch, and asked him why [they didn't try to launch on Sunday], and Graham said, "because I decided we shouldn't try it given the forecast on the weather." I don't think he had anything to do with the decision at all, either the decision not to fly on Friday, and probably not to fly on Sunday, but he took credit for it, which was kind of interesting to me. Anyway, "Superbowl Sunday" dawned, bright, clear, and warm, and we would have gotten off "Superbowl Sunday." That's just the nature of the weather down there. That's why you don't listen to the weather forecast during the countdown. . . . we always had a policy of going on and continuing to count, except for that one, and I really wonder about it.

EIR: One thing of great concern now is the replay of your situation in the investigation being done of current NASA Administrator Dr. Fletcher. There have been charges against him that, when he was NASA Administrator in the early 1970s, he made a decision that the Utah-based Thiokol Company would build the Shuttle's solid rocket boosters, and that this contract was awarded, not on the basis of the best technical design, but as a political favor to industry in Utah, and the Mormon community.

Beggs: That decision he made was clearly the recommendation of the Source Evaluation Board that had been convened on that. As far as politics playing a role in it, in addition to the two competitors who were in Utah, there was a strong competitor in California and one in Florida, both of whom have very strong political influence. I don't believe that that's an issue. I don't see how, after all this time, they can make an issue out of Fletcher's decision in that case. . . . As far as I know, as far as the production of the boosters was concerned, I think Thiokol did a reasonably good job. I would have liked to have seen some competition come into that field, but it was hard after Thiokol got going on the thing, how you could bring in a second source without it costing a lot of money—money the agency didn't have. . . .

A lot of this criticism is coming without any names attached to it, it's just coming. There are some of the staffers



James Beggs during his tenure as NASA administrator, with a model of the Space Shuttle.

on the Hill who will allow themselves to be used in this way, and in that case, probably that information was fed from good old Charlie Kupperman up there to the staff, and I can't verify that.

EIR: He was William Graham's assistant when he was at NASA, wasn't he? Where is Kupperman now?

Beggs: Hidden somewhere over there in the OMB.

EIR: What do you think of the offer made by the Soviets, to launch U.S. payloads on Soviet boosters?

Beggs: I don't think I would get involved with the Soviets in launch services, but of course, at the present time, with almost everything down in the West, if they offer that at a very good price, I guess I'd look at it very carefully.

EIR: What do you think the future of the space program looks like?

Beggs: Political winds will blow. We'll have a new President in another year and a half.

EIR: Then maybe you'll come back to NASA? I understand that the Maryland congressional delegation is circulating that idea.

Beggs: They're a bunch of Democrats!

EIR: Maybe they liked the job you did at the space agency.

Certainly a lot of people feel that “justice” would mean resuming your post, maybe in the next administration.

Beggs: Well, I’m getting a little long in the tooth to go back to the space agency. I’ll be close to 64 when we get a new President. We ought to get a younger man. They need young blood in that agency, a younger administrator, and they need a lot of younger men coming into the agency. We were beginning to do that, I think it’s kind of slowed down again, but we’re beginning to get some new blood into the agency and that’s what they need if the agency is to have a future, and I hope it will have a future, since I think it’s a very, very important piece of what this country does.

EIR: Dr. Fletcher just set up an Office of Exploration, which astronaut Dr. Sally Ride is pulling together and staffing before she leaves NASA at the beginning of August. They are considering three or four long-range plans for the agency, including a scientific base on the Moon, and various programs for Mars exploration. This is clearly the response the agency is making to the Paine Commission report, although President Reagan has had that report for nearly a year and has not made any recommendation, and neither has William Graham, now his science adviser. What should the goals for the agency be?

Beggs: I think the goals for the agency now are the goals for the agency in the past. . . . The basic approach that the agency’s had for the past 20 years or so, is to get into place the means to do what you want to do, and that has included transportation, which always seems to elude us. We always start out in a certain direction—in this case, we started out with the Shuttle—and now we seem to be hung up on that one, because of the accident, but that [transportation] is a key. You’ve got to have efficient, relatively low-cost transportation, and we’ve always talked in terms of reducing the cost of transportation down to a few hundred dollars a pound, as opposed to the thousand dollars a pound it’s always seemed to be at. That target has always eluded us. The first approach is to get the infrastructure in space, the transportation and the pieces and parts that allow you to devise approaches to the longer-term exploration goals that you’d like to take. That’s why we went for the space station, because it provides a way station, if you will; it provides a place to start to think about the approach to broader scale exploration. You can start to think about the scientific tools that the scientists have been thinking of for a long time; an array of telescopes, maybe a very long baseline interferometer kind of system.

The space station is key to all of those scientific tools—the study of the Earth with very sophisticated instruments. The scientists always are ambivalent on this point. They’d like to have the more sophisticated tools, but at the same time, they do not like to commit themselves, or tie themselves to manned or womaned activities. I think there’s good justification for their fear in that area, because every time they’ve gotten tied to the human side of transportation and maintenance

of human activities in space, they find that their timetables have been upset, just as they were in the case of the Challenger.

I see that articles are starting to appear saying, “Let’s get back and do the less sophisticated and complex experiments and do them in an unmanned way.” You can do that, but when you do that, you give up the more ambitious plans for exploration, that, for example, Tom Paine’s [National Commission on Space] talked about. You can’t do those in an unmanned way. You can do a lot but you can’t achieve the goals he set in an unmanned way. . . .

Get to the space station where you can put an array of sophisticated equipment effectively in space and use the station as a way station, and do the broader-scale exploration that Tom Paine was recommending. Those things are very interesting—a possible return to the Moon, maybe a station on the Moon, a Mars lander, and in the long-term, large-scale exploration of Mars, either in an automated way or potentially to land humans, which is what the Soviets seem to be talking about these days. . . . That requires the development of a lot of additional technology which will force-feed the outward thrust of our technological advance in space, and probably will suggest a lot of other things we ought to do. Beyond that, there’s all kinds of interesting scientific things to do, colonies in L5 and those kinds of things.

But all of that is dependent on how the political winds blow. If you want to do that, you’ve got to have a fairly stable NASA budget at some number that represents an increase of what the agency has been able to get their hands on. By that I mean, Tom’s projection indicated a growth to maybe \$20 billion a year. I just don’t think that’s in the political cards. If you get 10 or 12 and some kind of commitment that money would continue to flow into the agency at a constant rate, keeping up with inflation—NASA’s never been able to maintain a budget even with inflation—but if you could do that, and work it up to \$10 or 12 billion, and be able to count on it, then you could do a lot of things you’d like to do. You could, over a 10- or 15-year period, start thinking about the highly complex broad exploration goals which are cited. You can’t do them all—you’d have to be selective.

EIR: You would have to do them in sequence anyway, in terms of building the infrastructure. . . .

Beggs: But that isn’t what the Paine Commission suggested. They suggested a broader and more expensive thrust forward. That’s not to be critical of his report, because I think it’s a very thoughtful report.

EIR: What is your view of the possibility of the current “political winds” changing?

Beggs: The Democratic candidates are talking about reinvigorating the economy, but they don’t seem to talk about technology. At least, I haven’t heard any of them talking about technology—Mr. Biden, Mr. Simon, even Mr. Gore,

who is a young man. As a young man, he ought to be the one that starts to think about a technological return to bring this country back to a position of preeminence in technology, which we are starting to lose.

EIR: Gore is campaigning on a very different issue, which is that he can be more like Gorbachov than the other candidates. . . .

Beggs: Yeah, whatever the hell that means. I can't figure that one out. If you could find a candidate who would embrace those kinds of ideas, maybe we could do something, but I don't know who that candidate is. Maybe there is one on the Republican side, but I don't hear either Mr. Bush or Mr. Dole talking that way either.

EIR: About a year before Tom Paine's Commission finished its work, the Schiller Institute had a conference in Washington honoring the work of Krafft Ehrlicke, whom I'm sure you knew, since you were both at General Dynamics. At that conference, presidential candidate Lyndon LaRouche outlined what he called a "Moon-Mars" mission as a 40-50 year perspective for the space program. Here's a candidate with a long-range economic technology program for the United States. In terms of the Soviet program, there are people who have been pushing a manned mission to Mars in cooperation with the Soviets. . . .

Beggs: I'm one of those who think it would make an excellent collaboration. The "cold warriors" would probably have trouble with that, but I really don't think they should, because such an expedition could be conducted just like Apollo-Soyuz—we do our thing, and they do theirs, and we will work together at the interface. There need not be any great interchange of technology. The "cold warriors" would argue that as a result of Apollo-Soyuz they received our technology for rendezvous and docking, and that may or may not be so. I really don't know. They probably could have gotten the rendezvous and docking technique out of public documents because it was not all that secret at the time. I guess there is some argument that that piece of technology did flow from that, but I think a manned Mars program makes a lot of sense. If we're going to do it, if we want to go to Mars, sharing the cost of that mission with the Soviet makes a lot of sense. As a matter of fact, I don't see why you shouldn't invite the other space-faring nations, at least those that want to get into it like Japan, Western Europe, and anybody else that wants to join in. It would make an excellent program of collaboration if you want to go visit Mars, and I see no reason why we shouldn't collaborate. But again, the political winds will have to blow right for us to even consider a program of that magnitude. That's an expensive program.

The other problem would be to decide on what kind of timetable the Soviets would be thinking about for such a mission. If they were in a hurry to do it, I doubt that we'd be interested. If it stretched out to a 10- or 15-year period, we

could include that in our program. But again, you'd have to get by the powers-that-be that worry about technology transfer and all those terrible things.

EIR: I think the critical point is that the United States would have to make a commitment to do it—period—and then you decide who you want to collaborate with.

Beggs: That's right. That's the first decision you have to make: Do you want to do the mission? Then, I think collaborating with the Soviets makes a lot of sense from an economic point of view, and probably makes a lot of sense from a political point of view, because I think we all have to acknowledge that the Soviet program is a very active one. It's a very sophisticated program. . . . If they do move ahead on their announced plans to expand their space station, they will have something that will be the equivalent of, if not larger than, our space station, coming along in the same time period, maybe a tad earlier. They're starting to do some first-class scientific work. Their Venus probes have been quite successful, while their Venus mapper was a very successful program.

While I would not acknowledge that their program is the equivalent of ours, that it's caught up with it, it has become much more sophisticated in the last 10 years. Their announcement of that big heavy-lift booster of theirs is something that, quite frankly, I envy, because we would like to have a heavy-lift booster in operation. That's that low-cost transportation I spoke of, and they do appear to be serious about going to Mars. If they are, and we were to decide that that is an objective we want to obtain, I certainly think that collaboration is a very, very attractive option.

EIR: On the Soviet *Energia* booster, we have made the case in *EIR* that the major objective will be to put up sections of their own SDI program when they have it ready to deploy.

Beggs: I have no knowledge of that, but certainly it's capable of being used that way, sure. And it may be part of their plan. But heavy lift is very useful in the kind of activity that leads to Mars exploration, because at some point in time, you want to put a lot of fuel up there and you probably want to put a lot of supplies of various types up there. Having heavy-lift, relatively inexpensive transportation makes that a very feasible thing to do, whereas carrying it up one load at a time on smaller transportation is not only very expensive, but very difficult. A heavy-lift vehicle was always part of the NASA plan. We'd always hoped we could talk the Department of Defense into putting up most of the money for that, but we always felt the need.

EIR: There has been a joint NASA-Air Force study on advanced transportation, and one quick way to get to an unmanned heavy-lift booster is to use Shuttle components like the solid rocket boosters and external fuel tank, in what is called a Shuttle-derived vehicle.

Beggs: That's one option, there are other options. You could go Shuttle-derived and that is probably the least expensive way to get there quickly, or you also could start with a clean sheet of paper and design it brand new—the Shuttle-derived propulsion systems are now 20 years old, maybe a tad more. Today, you have better technology, which would enable you to design a more efficient system if you started afresh, and that may be the way to go, too. . . . It depends on how the timing works out for you. But if you want one quickly, you'd go back and use the Shuttle components.

EIR: I don't see any reason why you wouldn't do both, and have a first and second generation. . . .

Beggs: Except for money. My job was to look at what was in the realm of the possible, I constantly had to look at how much money we were likely to get and all the things you want to do. The point is that you want to keep balance in the program. That means that you've got to continue to spend a fixed share or near fixed share of your budget on science, a share into the propulsion activities, and the manned and womaned activities, a share into creating the new infrastructure.

That new infrastructure, incidentally, is not only in space, but some of it has to be on the ground. Some of our equipment on the ground is getting pretty damned old. We facilitated our laboratories and facilities back in the Apollo days, going on 25 years ago, so you have to take care of that need, and it's not insignificant in terms of money. We have been spending far too little on facilities of various types in our laboratories and centers, and you have to maintain an active and continuing aeronautics program. You can't forget that, because that provides the technology to support the advanced vehicles we need—both aeronautics and space technology, the fundamental work you need to supply the new stuff and the new systems that will allow you to do those advanced missions that you dream about.

If you look at that within the context of a budget which is somewhat higher than the current one, say \$12-15 billion a year, then a lot of things you'd like to do you can't do, and you can't take multiple approaches.

Everybody says, "Why didn't we have an alternate to the Shuttle?" Well, the answer is that we didn't have the money to have an alternate. Everybody would have liked to have a back-up to the Shuttle, and no one could figure out a way to put it in. We would have liked to have brought the heavy-lift vehicle along with the Shuttle. There were a lot of things that were on our wish list, but we couldn't afford them. You say, "March up to the Hill, or down to the White House, and demand!" Well, demands are fine but what comes out of the budget process these days is sometimes significantly less than you would like.

That's the problem that we have, and I must say that the Air Force has the same problem. I picked up the paper this

morning, and poor old [Lt. Gen.] Jim Abrahamson [director of the Strategic Defense Initiative Organization] is over there arguing that we ought to move out and spend money immediately to get some part of his infrastructure in space, and the Air Force has been quietly digging in their heels, though they seem to be slowly coming around to his point of view. But the Air Force has a limited amount of money, and they want to maintain their balanced program. . . . That's always a problem, especially for the practical planners, who after they put down their dreams on paper, have to look at how much money they're likely to get. It's got to have economic reality, at least a modicum of economic reality.

EIR: What we're living through now is a very serious period of economic unreality. . . .

Beggs: That's why I would get back to the argument we were making a few minutes ago, about somebody embracing technology. The way to get out of our current economic difficulties is not to curtail the technological advances, but rather to encourage them. . . . Look at R&D expenditures in this country over the last 25 years, which is a good time because 25 years ago, we were initiating all kinds of new technology programs. Those were the Kennedy years; he started an SST, he started the Apollo program. We were spending and we had been spending about 3% of GNP on research and technology development, and we led the world. From that time to today, we steadily disinvested in research and technology. It reached a low point in the Carter years, it went down to about 2.2%—going from 3% to 2.2%. If you just talk about those kinds of percentages, it has no meaning to people, but if you say that eight-tenths of one percent disinvestment in research and technology over that 25-year span means about a 25-30% disinvestment, it means you are doing 25-30% less research and technology than you were doing 25 years ago.

I don't think it's any coincidence that in that same period of time, the competitive edge started to get pretty dull, and we started to lose our technological thrust; new products, new techniques, new systems started to slow down. Furthermore, you could make a fairly good argument that we probably, as time goes on, should be spending not less, but more, because the equipment becomes more complex, the newer systems require a much more expensive facility base, the research requires bigger tools and larger wind tunnels, and larger simulators and bigger computers, and all the rest of that stuff. So, probably we should be spending more rather than less, but yet, we disinvested that 25% over the last 25 years. . . . This disinvestment, by the way, has been both in the private sector and in the public sector. A bigger proportion of it has been in the public sector, but there still has been disinvestment in the private sector. And the emphasis has been placed in recent years on shorter-term results, particularly in the private sector.