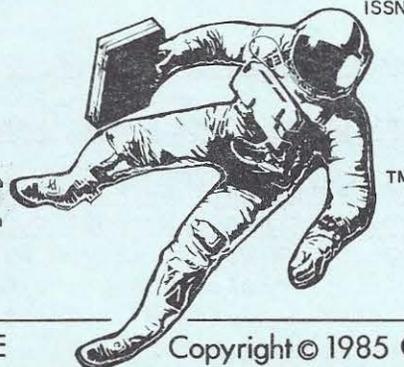


# THE COMMERCIAL SPACE REPORT

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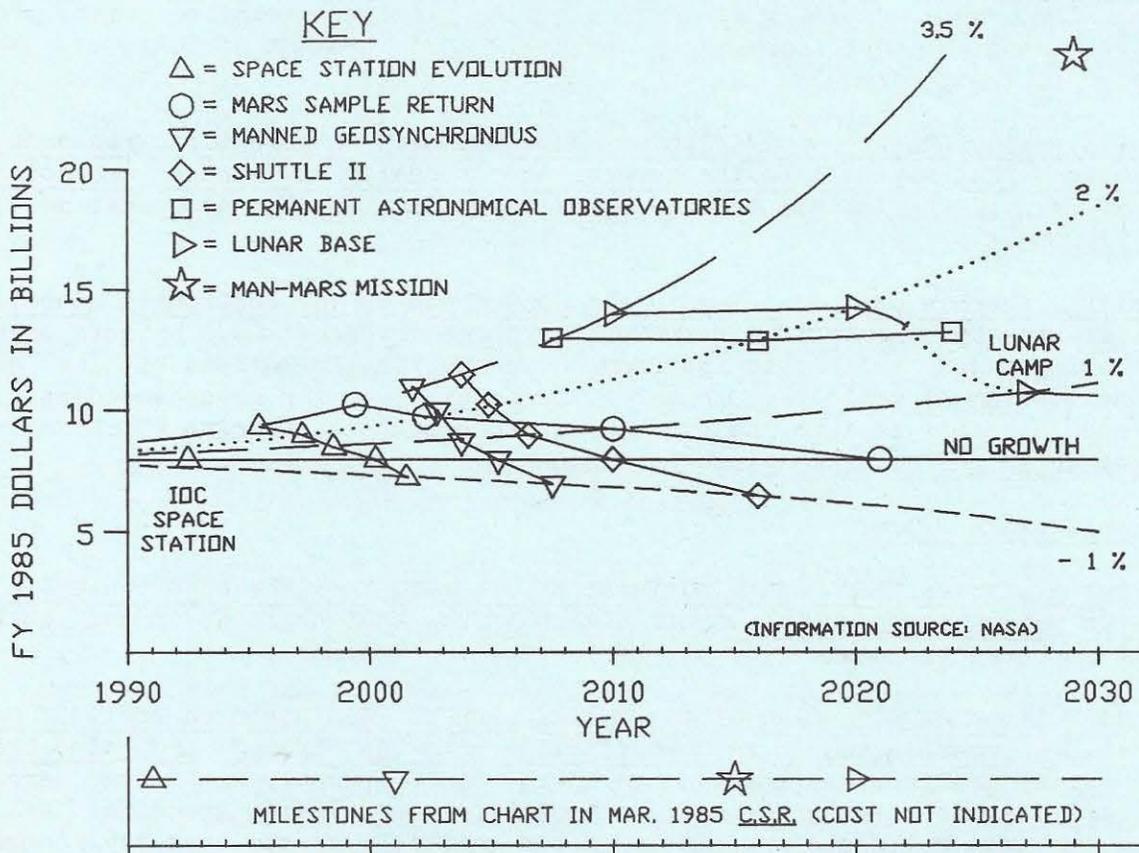
May, 1985

## NASA Fighting Budget Cuts

James Beggs, Administrator of the National Aeronautics and Space Administration (NASA), is threatening extensive delays or cancellations of major space projects if a proposed NASA budget freeze is carried out by Congress. The newest programs would be most at risk--the Orbital Maneuvering Vehicle was mentioned as one, while NASA's office of commercial programs was another. The Space Shuttle and Space Station would not suffer any cuts.

Beggs used a chart to make his point. A version of the chart is reproduced below, and shows the schedule that would result under various NASA budget growth rates (-1%, no growth, 1%, 2% and 3.5%). Underneath the NASA chart I have added for comparison some of the milestones from the table listed on page 4 of the March, 1985 C.S.R.. I hope nobody's standing on one leg waiting to get to Mars...

## LONG-TERM BUDGET IMPLICATIONS



The Gloves Come Off: Government Views On The Commercialization of Space

Government Group Rules Out Private Shuttle:

NASA should not turn over the Space Shuttle either to private industry or to a government corporation anytime in the "foreseeable future" (the next 5-10 years) according to a report issued by the Shuttle Operations Strategic Planning Group, made up of officials from private industry, the White House, NASA, and the Department of Defense (DOD). The report (also called "the Smylie Report" after the group's chairman, Robert Smylie, a former NASA official) gave a number of reasons why privatizing the Shuttle would be a bad idea (items in quotes are from the report):

- 1) The Federal government will probably be the primary customer for some time. If the Shuttle were turned over to a private operator, not only would the government have to work through this private company, but according to most privatization proposals it would still be required to continue subsidizing Shuttle operational costs through "government guarantees and appropriated funds." Unless a "new commercial application comes along that can support facilities and vehicles of its own" it would simply not make financial sense for the government to put an irrelevant private middleman into the picture.
- 2) "Defense Department requirements mandate government control." The DOD wants the Shuttle firmly in government hands to insure its access to the system. This is particularly important in light of future Strategic Defense Initiative activities that will be using the Shuttle for testing in the near future. However, the panel also rejected the concept of transferring the Shuttle directly to the control of DOD in order to avoid alienating other customers.
- 3) "The Shuttle's use as an...instrument of national policy is inconsistent with private operation." This use is "desirable and appropriate" but would be a problem if the Shuttle "were a commercial venture run by private enterprise with profit solely determining who could benefit by its use." ("Instrument of Policy?" Whatever happened to "Space Truck?")
- 4) A profit-making Shuttle would "inhibit just the kind of scientific research and experimentation that may well be the cornerstone of really new space technology." (In other words, if the Shuttle had to actually pay for itself, no scientist could afford to fly on it.)
- 5) Finally, there's our old friend, the Convention on International Liability: "The liability for systems failure must rest with the government...A private operator may be able to get first-layer insurance coverage for his actions but the group believes the government would have to retain responsibility for major accidents...it does not seem sensible to turn the system over to private enterprise which may or may not operate in the government-approved manner."

Hans Mark On Private Space:

Hans Mark, former NASA Deputy Administrator, also took the opportunity to get his views on private space ventures off his chest now that he is no longer working at NASA (he is currently chancellor at the University of Texas).

In a talk given at a meeting of the M.I.T. Club in Washington on April 9, Mark referred to government attempts to commercialize space as "crazy" and "ludicrous" (items in quotes are from the talk). Mark stated, presumably with some sarcasm, that the only reason that government considers commercializing space at all is because of "certain religious principles in our political system that say commercialization is good..." Apparently, the real reason for all the talk on

commercialization is primarily to win political "brownie points" with the current Administration which tends to be pro-private enterprise.

As for privatizing the Space Shuttle, Mark's opinion was that the whole concept to date smacked of "nonsense or fraud." On Shuttle pricing, Mark said "you can talk about full cost recovery...the only reason we do that is to please the accountants. When I'm sitting in public office, you bet I'm going to please the accountants."

Finally, according to Mark, the only real and proper commercial space activity is the relationship between government and the private contractors which build hardware for government projects.

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#### The Gloves Come Off Part 2: Our Views on the Government's Handling of Space

In the March, 1985 issue of the C.S.R. I wrote about the future of man in space and showed what we could expect if government space programs become the only route for getting out there. The article discussed the erratic, "flash-in-the-pan" nature of America's progress in space; the long decades before any appreciable movement of humanity into the cosmos takes place if the Federal space program adheres to its present schedule; and the frustration felt by professional and layman space enthusiasts confronted by this situation. I would like to elaborate upon these subjects, show further evidence that the government's method of doing things is not likely to improve, and suggest some possible solutions for the situation.

The American national space program has been characterized, over the long term, as a series of huge, spasmodic leaps, with each achievement being followed by uncertainty, chaos, and the wholesale abandonment of many of those systems, organizations, and technologies which had been developed to accomplish whatever the particular goal had been at the time.

A major example was the Apollo program. A lunar landing program should ideally have reached fruition in a permanent manned presence on the Moon. Instead, a crash program, politically motivated, left us with a stupendous salvage yard consisting of laid-off personnel, mothballed production facilities, and great quantities of expensive space hardware parked uselessly in various places on the surfaces of two worlds (at least the spacecraft on the Moon aren't collecting spiders and bird nests like the ones on display on Earth). Of course, the Apollo program also left a more positive legacy: a well-earned sense of pride in the United States and American capabilities, and a considerable quantity of new technology and scientific information. But, damn it, there is not a single human being on the Moon over a decade later, much less the Luna City that ought to have been under construction as you read this.

The frustration that the collapse of Apollo created in my generation has been eloquently expressed in an article appearing in the Oct. 1984 issue of the L-5 News titled "Thinking Back To The Future," by L. Jackson Gardner. Some excerpts (copyrighted by the author and reprinted by permission) follow:

"I'd wanted to be a jet pilot since I could walk," Gardner writes, "and wanted to be a spaceman ever since my parents had given me a copy of On the Trail of the Space Pirates, a Tom Corbett, Space Cadet book. I was six and Sputnik was a year away. Some of you will remember how it was during the fifties and sixties...I took the exploration of space for granted...just as I also took for granted that I'd spend my adult life on the Moon.

"Eventually I landed a job with NASA: the most joyous time I ever

remember. I was eighteen, fresh from my first year of college, and a junior draftsman at a place called McDonnell, later McDonnell Douglas. I was in the R & D lab, specializing in electronic packaging design for the Gemini Project.

"Eight hours was the paid working day, but I remember most of us coming to work early and having to be pulled away late at night...we were all Buck Rogers and we were going to the Moon! And someone was willing to pay us to do it! I truly have difficulty expressing in words the magical quality of that time. The High Frontier beckoned."

"I do not exaggerate the enthusiasm, the idealism, the hopes. Tom Wolfe's book [The Right Stuff] is accurate, but it deals mostly with the astronauts and test pilots. We grunt workers were so proudly happy to build and send into orbit our own little visions. 'Yeah, me too, one of these days,' we'd say when another rocket blasted off. 'There's nothing we can't do. We'll get there. See you on the Moon.'"

"But something happened. It's been analyzed by hundreds of others; I needn't go into it here. What I want to talk about is the dimming of a personal dream. I was part of the Great Layoffs. My engineering career in college petered out, along with the money, and my high hopes faltered, lost altitude, and came crashing back to Earth with the space program."

"...The cutbacks and the disappointments hit hard, harder than I think most people will ever realize. When you take a large group of very bright people who have worked for a dream with all their heart and intellect and tell them it's not only over, but will probably never happen again, something bad happens to them. Some fight, of course, but in that fight is despair and a terrible pain. We were so close! The talent, the energy, the will, and the sometimes desperate desire were there, and they were kicked in the face. Hard. Repeatedly. I found myself becoming so blindly furious when someone told me that the reason the Vietnam War was taking so long was the goddamned space program, and all the money we had thrown away for a bunch of worthless rocks, that I broke his nose...I watched the Moon slip from my fingers. The pain was real, physical, and inexpressible."

Those who were, or still are, in charge at NASA might say that this was not their fault--that if they had had their way Things Would Be Different. There would have been a Moon base, a space station, and all the other wonders we looked for in vain. Nostalgic types remember the old days, when the plan was to build the reusable rocket, then the space station, then on to the moon and the planets. Fingers are pointed at the holders of the Federal pursestrings, and the classic refrain of all government bureaucracies is heard: "we could have worked miracles if we had only had more money" (the chart on page 1 is a prime example of this tactic).

However, trying to place the blame on Congress is irrelevant to the issue. NASA is a government agency, and although it is dependent on Congress for funds, it is no babe in the woods. NASA bends to Congressional pressure when it has to, but also applies pressure to Congress when it can. The agency is not so much a victim as it is a willing partner.

In any case, how and where the decisions are made in Washington makes no difference. The end result is still a government space program, with all the characteristics of any government program: decisions made by influence peddling and political games, wildly vacillating policies, goals that change from election to election, and, above all, the prime directive: preserve the existence of the Agency and its bureaucrats by any means (in times of political necessity, this can even

include actually performing the service you were set up to perform).

Anyone who works for NASA (or even for private contractors dependent on NASA or other government programs) has to take this into account. More importantly, anyone who is counting on NASA to put mankind into space anytime soon has to take this into account. People who cast cynical, even disgusted eyes on Defense spending often turn towards NASA's policies with stars in those same eyes. Again from Gardner's article:

"Now, we have the Space Shuttle: a true space ship. Kids are turning their minds up and out once more while governments debate in lofty chambers...Don't let them take this dream away a second time. We won't get a third. Tell them. Convince them."

Well, I'm sorry, but "they" couldn't care less, and anyone waiting for miracles from the government is setting themselves up for getting kicked in the face again. Hard. Repeatedly.

I've discussed in past issues the fact that as far as space systems are concerned (such as the Space Shuttle and the Space Station) the actual needs of the users have been largely irrelevant to the government. NASA is a development agency--it's purpose is to Develop, whether or not development is needed. There is no such thing as a "mature technology" as long as NASA has hold of it. Is the Shuttle becoming a mature system? Better dump it and move on to the next development project--the Space Station. Already, the Rockwell lines are being shut down and the layoffs are starting. Use existing technology for the Space Station? Technology used by Skylab, or even by the Soviets? Of course not--that's not development, that's merely construction. Drop \$8 billion, and let's reinvent the whole thing. What's next, after the Space Station? Well, we're going to need a brand new Shuttle (after all, the one we've got doesn't work so well, and we aren't building any more anyway). As predicted in the March, 1985 issue, "Shuttle II" is beginning to crawl out of the woodwork. According to Jesse Moore, NASA Associate Administrator for Space Flight, the goals are (also as predicted) \$100/lb. launch costs and total reusability. In addition, it will require only a 15-person ground crew, have a one-week turnaround time, and be capable of all-weather operation. It says so right here on the label. Just hold your breath until turn of the century...

This way to the Egress, people, and don't forget to bend over on the way out the door.

The solution to this is (as has also been discussed in past issues) the transfer of space exploitation to the private sector, particularly in the field of space transportation. Doing this with the Space Shuttle is out of the question, as even the government admits. New systems will be required, developed in the private sector. Unfortunately, it seems that these systems will not get the attention of the investment community until the government is made to fully support the concept of privately developed and operated space systems.

Again, this should be done by modifying or eliminating obstructive regulations and treaties, and by pushing NASA out of the space transportation business. I have a suggestion for a more specific program to accomplish the latter:

At one time, the Air Force was going to use a radically new approach towards acquiring launch vehicles. Normally, the Air Force would do this by awarding a winning bidder a contract to develop and build a certain number of launch vehicles, and would thereafter immediately begin shoveling money at the company until the vehicles were done (somewhat simplified, this is the way most government contracting is done). Under the new approach, the Air Force planned on awarding the winning bidder only a firm commitment to purchase a given number of launch vehicles. Until

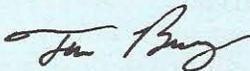
the purchases were made, all development money would come from the company rather than the government--an incentive to keep costs low and speed development time (C.S.R., Mar. 1984, pp. 1-2). This particular idea lasted about as long in Washington as a balloon in a porcupine cage, and the actual deal was struck using the more conventional contracting procedures instead (the same procedures which seem to work so well for the Department of Defense). However, that is no reason to scrap the idea.

This new approach could just as easily be applied to NASA, by placing the agency in the position of a launch vehicle customer rather than a manufacturer. NASA would give a private launch vehicle company a commitment to purchase a given number of vehicles (or flights, depending on the system and agency requirements). The company would retain rights to its vehicle, and develop the system at its own expense. NASA might cooperate by making its research facilities, personnel, and technology available (either at the company's expense, or in return for a price discount) to help the company solve any development problems that may arise. The only funding that would have to be approved in Congress would be the final purchase price, eliminating the excessive costs generated by the item-by-item supervision required under more traditional "cost-plus" type contracts. In addition, the price of the vehicles could be evenly amortized over the time required to develop the system. As far as benefits for the company are concerned, a government purchase commitment would be a powerful lure for investors. Obviously, this same approach could again be used for any military purchases of the new private launch vehicle, or for systems other than launch vehicles.

This is not as desirable a solution as a purely private development program, and may not solve all the problems involved, but it does help to answer the question "what do we do about NASA?" Unfortunately, whereas a small percentage of NASA consists of scientists and researchers that would love to see NASA acquire a more available low-cost launch system, a larger percentage of the agency (not to mention the agency's contractors) consists of development-oriented personnel who, frankly, would be tossed out of a job (although they may be able to land in the new private sector space industry). This means there would be powerful pressures against such a solution. The Air Force proposal was a piece of cake by comparison.

At the very least, this idea is a starting point from which to promote private space solutions in Washington. Adopting such a concept in place of the oncoming Shuttle II program would allow NASA's budget to be trimmed significantly without affecting its scientific and research purposes (a powerful argument in this time of Federal budget cuts). Something can still be done before NASA officially proposes Shuttle II and nails the launch industry permanently into its present niche of high costs and low reliability.

Until next time,



*The Commercial Space Report (C.S.R.)* is published monthly, and endeavors to report and analyze developments in the field of private initiatives in space transportation and exploitation.

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