

Letters

Space Shuttle Development

I have read John M. Logsdon's article "The space shuttle program: A policy failure" (30 May, p. 1099), and, on reflection, feel I must take issue with some of its conclusions.

Logsdon seems to assess the shuttle as a "policy failure" because the decision to develop was not supported across time with other decisions to employ it fully. It is not difficult, through a review of budget records, to recognize that the intended national commitment—the NASA "level budget"—was never met by the combined political powers of Congress and the Administration. It is a case of dubious rationalization, however, to suggest that the shuttle decision was therefore wrong to begin with and destined to fail. These seem to be conclusions not supported by facts or analysis, but rather derived to take advantage of current public interest in the suite of the Challenger accident.

Some of the assertions of fact are in error, others are unsupported, and still others appear highly selective. Logsdon states that NASA made its public and congressional justification primarily on economic grounds, suggesting that the shuttle's wholly new capabilities were not at the forefront of our reasoning. The fact is that, except for those wholly new capabilities, there would have been no justification for the shuttle whatsoever. Logsdon sometimes confuses the roles of the positions taken by the various institutions involved—the White House, the Office of Management and Budget (OMB), the Department of Defense, and NASA. It should be clear to anyone with experience in the federal service that OMB must always play devil's advocate in new decisions with large cost implications—especially those with potentially large future operational considerations. It was OMB that repeatedly forced shuttle planning to encompass "all" space activity rather than the more realistic "most." And Logsdon persists in casting the technical planning and decision process as a staunchly adversarial one among monolithically held corporate positions; this may make for dramatic reading, but it is poor history.

Logsdon's primary contention seems to be that the shuttle decision was made through the normal process of government and that it was not accompanied by a strong enough national commitment. Rather than using this point as a basis for characterizing the decision as "poor" and the process as a

"powerful example of how not to make a national commitment," it would have been more correct to recognize that there simply is no way, in our system of government, to get a long-term national commitment. Neither the President, Congress, nor the Budget Director can commit their successors. There is no way to circumvent the recurrent budget process. NASA, and everyone else, must work within the system.

The shuttle decision was made within the realities of 1970–1972 and was specifically based on what was known in 1971. The shuttle was developed within the realities of the decade that followed. With hindsight it is now possible to point to criticisms that have proved to be right, to advocacy statements that have proved to be wrong, and to decisions that might have been different. But it has, nevertheless, brought this nation most of those things for which it was developed: an impressive technological achievement which has given the United States capabilities for operations in space possessed by no other nation. To assess the decision as a policy failure goes too far.

Perhaps my chief criticism of Logsdon's article is that it took a rare opportunity for an unemotional discussion of the policy options now before the nation following the loss of the Challenger, with cautionary lessons to be drawn from past history, and then defaulted on that opportunity. I hope that *Science* will, in future issues, address those very real and difficult questions that should now define the perimeters of our civil and military, public and private, national and international space aspirations.

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Response: I share with Fletcher the conviction that it is now essential to define more clearly U.S. aspirations in space and to develop the political and budgetary commitments and the technical means to achieve them. Thus I regret his assessment that my analysis does not contribute to that purpose. Clearly I think it does.

To be precise, the policy failure of the shuttle program had two aspects; neither is directly addressed in Fletcher's letter. One was structuring the 1971 policy process so that the only outcome that could meet the conflicting requirements laid down by the President, the Office of Management and Budget, the Department of Defense, Congress, and NASA itself had little chance of programmatic success. The other was creating, through the way the shuttle was presented to Congress and the American pub-

lic, the expectation that a policy that identified the shuttle as a routine and relatively inexpensive launch system for all government missions was workable. Both of these failures had their roots in the events described in my article. My point was to caution against repeating past mistakes as the country develops a plan for recovering from the Challenger accident and for taking the next major steps in space.

I do take umbrage at the suggestion that the article was an opportunistic attempt to "take advantage of current public interest" and does not meet the standards of "an unemotional discussion . . . with cautionary lessons to be drawn from past history." To me, drawing on 15 years of careful research to place a major national trauma in its policy context is an obligation incumbent on a policy analyst, not an attempt to capitalize on a tragedy.

On one point I am more optimistic than Fletcher. I believe that it is possible to make and honor long-term national commitments through the U.S. political system—if those commitments do indeed accurately reflect a broad public consensus. Continuity as well as change is a hallmark of U.S. politics; what is difficult is keeping the government to keep commitments for which public support is lacking.

My belief is that the American people are now ready, as they were not in the 1967–1971 period, to support a space program aimed at bold scientific and exploration objectives, if only their leaders could overcome current short-term controversies and constraints and propose it. Fletcher, along with President Reagan and Congress, bears a major share of the responsibility for such leadership; the task is truly challenging. I hope that he is able to restore to NASA the public confidence that has been such a national asset and to engage the agency in an imaginative and sound space program that will have lasting value.

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Erratum: In Jean L. Marx's Research News article "Nerve growth factor acts in brain" (13 June, p. 1341), the affiliation of Rita Levi-Montalcini 40 years ago should have been given as the Department of Zoology, Washington University. Viktor Hamburger was chairman of that department. Levi-Montalcini and Hamburger were collaborators on papers on nerve growth factor at that time.

Erratum: Results of a California state survey on ground water contamination were incorrectly reported in the article "Ground water ills: Many diagnoses, few remedies" by Marjorie Sun (News & Comment, 20 June, p. 1490). Six percent, not one-fifth, of California's large drinking water wells fed by ground water exceeded state pollution limits. One-fifth of the wells showed trace amounts of organic chemicals.