work done in the atmosphere of a bureaucratic fire drill. AID's worst case scenario did not materialize, but the exercise, reportedly, gave AID a revised set of program priorities and a more receptive attitude to changes in the way the functional accounts are handled.

The Administration announced at the end of the year that it will seek $1.3 billion in supplemental foreign aid funding for the current year and major increases in next year's budget. The 1988 request includes a $500-million special fund for Africa designed to compensate for the cuts imposed this year. Whereas the Administration was criticized for giving feeble support to its own aid program last year, now, at least, it is talking a better fight.

Deficit pressures are unlikely to decrease or the claims for military assistance to ease much, but the disarray over foreign aid appropriations seems to have spurred those involved to try to restore a sense of proportion to the process. ■ JOHN WALSH

Boland, NASA at Odds Over Launch of Mars Observer

In the high-stakes tussle over space shuttle launch schedules, international commitments, and the National Aeronautics and Space Administration's procurement of expendable launch vehicles to augment the shuttle, a mission known as the Mars Observer has become the political football. The lineup is NASA and the planetary science community, versus Representative Edward P. Boland (D–MA), chairman of the House appropriations subcommittee that oversees NASA.

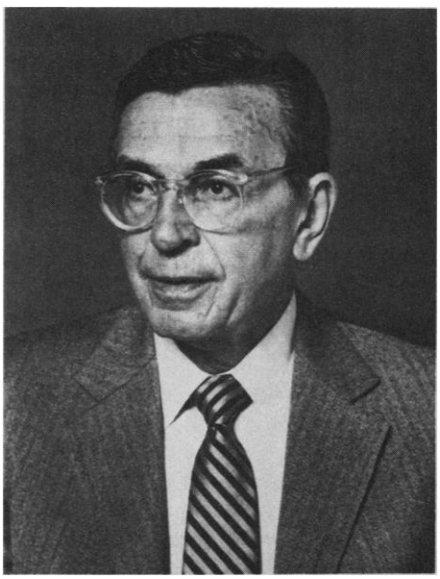
In brief, the argument is over NASA's plan for flying off its backlog of planetary missions in the wake of last year's Challenger accident. Assuming that the shuttles start flying again in 1988, as now planned, NASA will have four planetary spacecraft ready for launch in the 1989–1990 time frame: the Galileo mission to Jupiter, the Ulysses mission to explore the polar regions of the sun, the Magellan radar mapper mission to Venus, and the Mars Observer mission to measure the geochemical cycles of Mars. However, given the constraints imposed by celestial mechanics, launch safety, and competing priorities, the shuttle will only have three planetary launch slots available in those years. So something has to give, especially considering that NASA has not yet settled on a plan for procuring any expendable launchers to take up the slack.

Agency administrator James C. Fletcher accordingly announced in December that the launch of the Mars Observer would be delayed for 2 years, until 1992. It was the logical choice, he argued; the other three missions have been waiting even longer. (Galileo was first funded in 1977.) The delay would be unfortunate, especially considering that the Soviet Union plans to launch two ambitions Mars missions of its own about then. But choices have to be made.

Enter Representative Boland. In a letter to Fletcher dated 30 December 1986, he and his Senate counterpart, Jake Garn (R–UT), proposed an alternative: use the three shuttle slots to fly Galileo, Magellan, and Mars Observer by 1990. Then, in 1991, fly Ulysses on a new Titan IV vehicle of the type being developed for the Air Force. Not only would this approach allow NASA to gain experience with the Titan IV, which could then be used for future planetary missions, but it would still allow Ulysses to begin returning data 2 years before Galileo, even with the launch delay. Indeed, Boland and Garn liked their alternative so much that they even offered to help NASA out with some extra money in the budget.

Back at NASA, however, the Ulysses/Titan IV option looked like a very bad idea. Ulysses is a joint project with the European Space Agency, and has suffered quite a few delays already; adding yet another delay would be highly embarrassing to NASA at the very time it is trying to secure European cooperation on the space station. From a technical standpoint, meanwhile, the spacecraft's radioisotope generators are inexorably fading as their plutonium power sources decay away. Power reserves would be marginal for a 1991 launch, and would be unacceptable if any further glitches forced a delay to the 1992 launch opportunity. Furthermore, it is not at all clear that a Titan IV would be available for a 1991 launch; if the shuttle schedule slips again—as many observers think it will—the Air Force will want to use all the expendable vehicles it can find.

On the other hand, Fletcher was hearing loud protests from the planetary community for his decision to delay Mars Observer. Thus, on 16 January, he countered with his own proposal: keep the first three missions on the shuttle, and launch the Mars observer in 1990 on a Titan 34D. The latter vehicle is readily available. It is roughly half the cost of its $250-million big brother. And it would get everybody launched on schedule. Indeed, the Titan 34D/Mars Observer option has been endorsed by both congressional authorization subcommittees, by General Lew Allen, director of the Jet Propulsion Laboratory, and by NASA's own internal study groups.



Representative Boland. *A struggle over launch schedules.*

On 21 January, however, Boland wrote back to Fletcher: if NASA did not want to do things his way, then NASA was welcome to fly the Mars Observer on the shuttle—in 1992. Whereas the Titan IV represents a forward-looking technology, he said, the Titan 34D does not; augmenting the agency's budget by the $100 million required to support a Titan 34D launch in 1990 would therefore be a poor investment.

Observers within NASA and the planetary science community find Boland's argument unpersuasive, to say the least. In fact, there is widespread suspicion that Boland and his staff are actually following a kind of "America First" strategy, with the Titan IV option simply an excuse for delaying the European Ulysses mission. However, Boland's committee staffers deny the allegation categorically. Boland himself was unavailable for comment.

In any case, the Mars Observer has by now become a minor cause célèbre on Capitol Hill. A letter-writing campaign organized by the Planetary Society, a Pasadena-based space interest group, has resulted in some 14,000 letters on the issue to Congress and to NASA. The betting now is that the Titan 34D option has already garnered enough support that it probably will prevail. ■ M. MITCHELL WALDROP