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Confronting Political Realities
The Federal Funding Process: A SETI Case History

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SETI* (*SETI: Search for Extra-Terrestrial Intelligence) enthusiasts often wonder why the U.S. government isn't pursuing a vigorous SETI program. Like ardent supporters of other programs, they cannot understand how Washington decision makers cannot see the intrinsic value of their program, and why it does not win in the annual competition for Federal monies. Decisions made in Washington may seem mysterious and unfair to those in the outside world, when in fact the process is relatively simple whether in Congress or the Executive Branch: whatever sells at election time is likely to win support during budget deliberations.


Smith

Science Is Hard to Sell

Although the argument can be (and often is) made that science, research and development are the root of most improvements and creature comforts in this land and a cause for our high standard of living, the American taxpayer seems more willing to support and ready to understand expenditures for social and defense programs. The National Science Foundation, National Aeronautics and Space Administration (NASA), and other science research and development related Federal agencies are seen as consumers of huge amounts of money for which the taxpayer receives little visible return. Very few people are aware of the relative budgets of agencies like NASA and the former Department of Health, Education and Welfare (HEW, now split into the Department of Health and Human Services and the Department of Education). An informal sampling of people entering the National Air and Space Museum in Washington several years ago reportedly revealed that 40% of the people questioned thought NASA's budget was larger than HEW's. In fact, HEW's averaged 40 times larger than NASA's (approximately $200 billion versus $5 billion).

Science as a field has had a tough time in Washington politics for decades. As long ago as 1892, funding for paleontology (the science of past animal and plant life) was vehemently opposed during Congressional consideration of a request. In the Congressional Record of May 18, 1892, Congressman Hilary A. Herbert asked, "What practical use has the Federal government for paleontology? What function of the Government is carried on by means of paleontology? Not only has the Government no use for it as a government, but paleontological work is not even necessary to the proper construction of a geological map." Although times have changed since those remarks were made,* (*Note that all our energy sources in the form of coal or petroleum come from past plant and animal life of the earth. —Eds.) especially in the number and kinds of areas which the Federal Government supports, attitudes towards science have not changed as much as one might expect.

Public Opinion Can Influence Votes

Since public support is so important to Washington officials at election time, it is also a critical factor when funding decisions are made in both the Executive and Legislative Branches. The inclusion of the Executive Branch is important here, because all too often Congress alone is blamed for funding decisions, with little realization that Congress is only the last step in many steps of a long time-consuming process that also involves Federal agencies like NASA, and the President and his advisers within the Executive Office of the President, including the Office of Mangement and Budget (OMB) and the Office of Science and Technology Policy. Influencing these decision makers are lobbying groups, one of which is the public itself. Contrary to popular belief, public opinion is quite important in Washington, both at the White House and in the halls of Congress, and letters from constituents can influence votes. For example, in 1971, Senator Clinton Anderson, then chairman of the Senate Committee on Aeronautical and Space Sciences, surprised supporters of the Super-Sonic Transport (SST) by voting against that program when he had been known as an SST advocate. His explanation was simply that he read his mail. Before the vote, mail from his constituents had opposed the SST by a 78 to 8 margin. The public, when properly galvanized, can be as effective as any of the better known lobbying groups like the oil companies and labor unions.

SETI enthusiasts often cite the tremendous public appeal of SETI, noting the positive response by audiences listening to presentations on the subject or by "the man on the street." But the same person who sincerely applauds a speech advocating a government funded SETI program may change his mind at tax time. There was little evidence of public support at the time NASA was trying to get funding for SETI in fiscal year 1979 (FY'79).

In jockeying for priority, public support can be important. In the public sphere, priority making is often expressed by the well-worn question "would you spend $1 of your tax money to support... " in this case a SETI program. While a person might readily answer yes to that particular question, the answer might change if it is phrased "Would you rather spend $1 on SETI or on a government funded program to insure that people on fixed incomes don't have their heat turned off in the middle of winter for non-payment of utility bills." Agency heads have a similar problem, and an administrator who publicly supports a specific program like SETI may still decide against recommending funding for that program when asked to choose between it and, for example, a mission to continue the exploration of Jupiter. That administrator needs to balance the needs of the community he represents, the requirements of his agency as a whole, and the desires of the President he serves.

The Steps to Become a Line Item

A look at what SETI went through in order to become a line item request in NASA's FY'79

budget and its subsequent denial by Congress may elucidate the matter of priorities and budget making. The first step in securing funding for a NASA program is to convince the appropriate headquarters staff of the program's value. Whatever person or group of persons within or external to NASA is pushing the program must lobby for it, including preparation of detailed program justifications for headquarters consideration.

According to Dr. Noel W. Hinners, NASA's Associate Administrator for space science from 1974-1979, this was the first serious problem SETI faced. The Ames Research Center and the Jet Propulsion Laboratory (JPL) people, who wanted the program, submitted separate programs rather than a combined one. For more than a year, proposals were submitted to headquarters and sent back to the centers for refinement before Hinners felt that acceptable program plans were in hand for him to argue on SETI's behalf. An additional problem was the fact that SETI did not have a "home" at headquarters for its first several years. Funding for the program came from the Office of Aeronautics and Space Technology (OAST), the Office of Space Tracking and Data Systems (OSTDS) (then the Office of Tracking and Data Acquisition), as well as from Hinners' Office of Space Science (OSS). Thus the program had no consolidated support at either the center or headquarters level for several years.

By the time funding decisions were being made for FY'79, SETI had at least found support in the Office of Space Science. Still, there were competing programs from Ames and JPL to deal with, and Hinners made his first priority decision by choosing to support the JPL sponsored all-sky survey approach over the Ames targeted search (with the intent of phasing in the Ames program in future years). Then, he faced priority making between SETI and other programs in physics and astronomy, planetary exploration, life sciences, and solar and terrestrial investigations, all which are funded by OSS. In the last analysis, the JPL SETI program succeeded in making it onto the OSS list of FY'79 priorities, and then into the total NASA budget submission, even though it was below the dollar line that separated those programs that would be strongly defended in budget negotiations and those that would be presented as "nice to have but not crucial."

By this time, SETI had passed its major milestones at the agency level and now faced the most critical test in the Executive Branch. The Office of Management and Budget (OMB) can make or break a program, and directly reflects the views of the President. Input to OMB decisions on the NASA budget come from NASA itself, the Office of Science and Technology Policy (OSTP), the President and his inner circle of advisers. Much to the surprise of Dr. Hinners, SETI returned from OMB deliberations having been raised into the first group of priorities. Hinners says that he still isn't absolutely certain how this happened, but suspects that a recommendation by OSTP and a sympathetic OMB budget analyst were primarily responsible. Concurrently, in response to the NASA reclama* (*A *reclama* is a rebuttal to changes that have been made in a budget request.) on the initial budget mark, OMB gave OSS $30 million to allocate among a list of activities which had been budgeted at $36

million. From this amount, Hinners earmarked $600,000 for beginning a seven year SETI program, with a total cost of $16 million, and SETI became a specific line-item request in the FY'79 budget. The actual FY'79 SETI request was $2 million because at the same time, the Office of Space Tracking and Data Systems (OSTDS) approved a plan to request $1.4 million in FY'79 for an all-sky survey. This money was not a line-item request for SETI, however ($500,000 was from the Deep Space Network (DSN) operations budget with the remainder coming from the DSN system implementation budget).

The decision to identify SETI as a line-item request in the OSS section, rather than continuing to fund it through general categories such as supporting research and technology or advanced programs (as was done in the OSTDS request) may have been the critical mistake that led to SETI's downfall. The reason: the ever-present issue of public support, or in this case, lack thereof. Had the agency kept SETI "hidden" in the depths of a general budget category, it would not have been subjected to the scrutiny that a line-item request receives. Hinners explained that his decision was based on the belief that SETI had merit as a bona fide program and he did not want to have to conduct it secretively, and that it should receive public scrutiny.

Key to Abbreviations

DSN:	Deep Space Network
FY:	Fiscal Year
HEW:	Health, Education and Welfare, Department of
HUD:	Housing and Urban Development, Department of
JOP:	Jupiter Orbiter Probe
JPL:	Jet Propulsion Laboratory
NAS:	National Academy of Science
NASA:	National Aeronautics and Space Administration
OAST:	Office of Aeronautics and Space Technology
OMB:	Office of Management and Budget
OSS:	Office of Space Science
OSTDS:	Office of Space Tracking and Data Systems
OSTP:	Office of Science Technology Policy

SETI:	Search for Extra-Terrestrial Intelligence
SSB:	Space Science Board
SST:	Super-Sonic Transport

Scientists Are Novices at Influencing Legislation

With the decision to publicize SETI, NASA needed support for the program from the public. This support did not materialize. Nor was there much support from the scientific community. Although scientists are still novices at attempting to influence legislation, they had achieved some success during deliberations over the Space Telescope. For that program, a National Academy of Sciences (NAS) report existed which supported the Space Telescope, and the forces of other scientific groups were marshalled to lobby on the project's behalf.

For SETI, alas, there was no NAS support to fall back on. Such a report might have helped congressional SETI supporters influence fellow members to vote in favor of the program, and its absence hurt SETI's chances. When asked why the NAS Space Science Board (SSB) had not performed such a study, SSB chairman A.G.W. Cameron stated simply that NASA had never asked them to. When asked why he had never requested an NAS SETI study, Dr. Hinners replied that the SETI funding request was so small that he didn't think such a study was necessary. (Following SETI's defeat, Hinners and Cameron agreed that an NAS study might be valuable and the study is now being conducted by the SSB and as part of the NAS Astronomy Survey Committee activity.) Also to SETI's detriment, there was no overwhelming support of SETI in the scientific community. Many radio astronomers, for example, are concerned that a SETI program could take money away from other radio astronomy projects they consider more important.

Without public support, scientific support, or even an NAS study calling for a SETI program, the decision to publicize SETI was premature. This was unquestionably the cause of SETI's downfall. Unfortunately, Senator William Proxmire's presentation of the "Golden Fleece of the Month" award to NASA for the SETI request is often mistakenly thought to have cost NASA, and the Nation, the SETI program. In fact, the actions of one Senator, by himself, do not chart the course of a funding request. Although Senator Proxmire has supporters in Congress, he also has opponents. Those who have watched the actions of the Senate Appropriations Subcommittee on HUD-Independent Agencies (including NASA) which he chairs know that despite his outspoken views against most aspects of the space program, the subcommittee regularly supports NASA funding requests. The space shuttle is a good example of this, since Senator Proxmire has opposed the shuttle since its earliest days, yet his sub-committee and Congress as a whole have supported it. SETI was not NASA's first Golden Fleece award either — in 1976 the agency won that prize for requesting funds to build an addition to the Lunar Curatorial Facility at Johnson Space Center. Despite receiving

the award, Congress approved construction of the addition (after denying funding for the project the year before).

The Golden Fleece award may have brought SETI into the public eye, but did not decide its fate in Congress. Four committees and 535 Members of Congress considered the SETI request. The two committees that authorize NASA programs (House Science and Technology and Senate Commerce, Science and Transportation) voted to approve the program, but an authorization only gives an agency congressional permission to proceed, and sets an upper limit on how much funding can be provided. The actual money decisions are the province of the House and Senate Appropriations Committees, and both of them voted against SETI. The fact that the House Appropriations Committee cut only the $1.4 million from the OSTDS budget and not the $600,000 from OSS was seen by some SETI advocates as opposition to the JPL sponsored SETI program (which the OSTDS money would have directly funded) while supporting the Ames approach, which would have benefited to some extent from the OSS request. In truth, according to House committee staffers, it was a simple matter of not being able to find the full $2 million SETI request in the three-volume NASA budget request. The Senate committee found it all, however, and the two committees agreed to deny all the money.

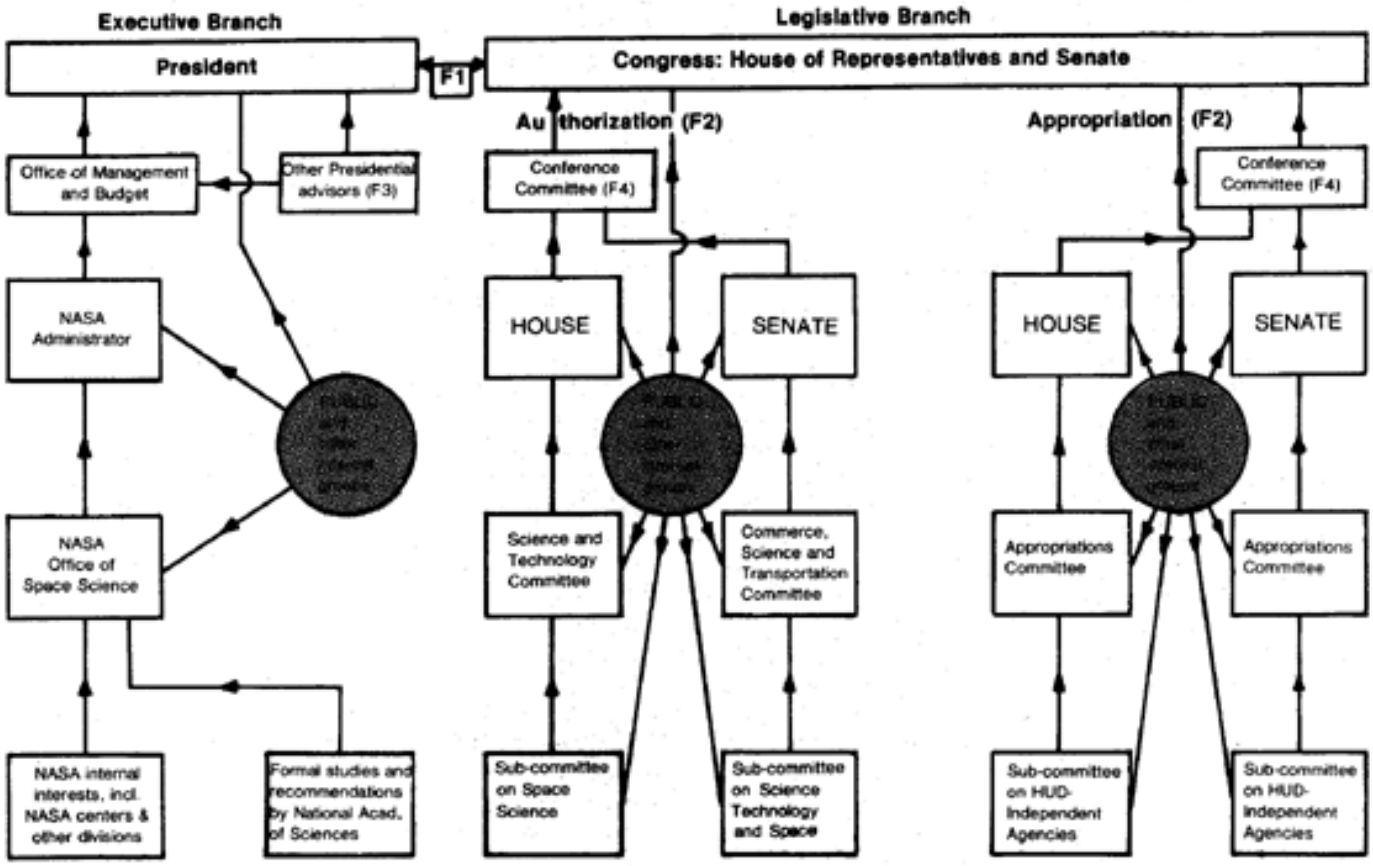
This was not necessarily the end of the debate, however. Even though a committee or committees may recommend rejection of a funding request, that recommendation must still be voted on by all members of the House and Senate. Congress-watchers who recall the FY'78 debate over funding for the Jupiter Orbiter-Probe (JOP) program will remember that although the House Appropriations Committee recommended no funding for the project, the full House reversed that decision and voted in favor of JOP. Even at the point that the Golden Fleece Award had been presented and both appropriations committees had recommended denial of SETI funding, the members of the House and Senate could have approved it.

That they did not, supports the conclusion stated earlier that SETI's problems were the result of premature exposure of SETI to intense public and political scrutiny without adequate public and scientific support. It also raises the question of how hard NASA itself fought for the program once it knew SETI was in trouble on Capitol Hill. NASA has its own unsung cadre of legislative lobbyists who barter with Congress to make the best possible deal for the agency. In recent years this has been a grueling experience where once again the key word is "priorities." The NASA legislative affairs staff takes its cue from the NASA Administrator, and when forced to make the decision between SETI and programs like the Solar Polar mission and the shuttle, SETI could not compete. With committee recommendations against the project and no strong counter-effort by NASA, the public, or scientific groups, SETI was rejected.

SETI's Future

This does not mean that SETI will never be funded as a line-item program in the NASA budget. If the NAS studies conclude in favor of SETI, and SETI advocates can garner support from a broad constituency, SETI might succeed. The two NASA centers that were previously competing for SETI jurisdiction (Ames and JPL) have reportedly reached agreement on cooperation, a good first step. SETI, like all other science programs, and particularly NASA's space science efforts, will still have an uphill battle to wage for funding both within NASA, the rest of the Executive Branch, and Congress, but when funding demands for the space shuttle diminish, its chances may improve. If SETI truly does have great public support, as SETI enthusiasts claim, and SETI advocates are willing to learn from past mistakes and use the tactics of other successful groups in fighting for their programs, there would be good reason to believe that SETI might make it in the 1980s.

SIMPLIFIED FLOW CHART OF THE FEDERAL FUNDING PROCESS
FOR A TYPICAL NASA SPACE SCIENCE PROGRAM



F1: (Footnote 1), President sumbits budget to Congress for approval. Budget items go to appropriate sub-committees. Congress makes refinements and passes bill. President must sign or veto. Congress may override veto.

F2: The ***authorization process*** sets an upper limit to the funding for a particular project and gives permission to proceed. The ***appropriation process*** actually determines how

appropriate sub-committees. Congress makes refinements and passes bill. President must sign or veto. Congress may override veto.

F2: The ***authorization process*** sets an upper limit to the funding for a particular project and gives permission to proceed. The ***appropriation process*** actually determines how much money the project will get, which may be equal to or less than (but not greater than) the amount authorized. Each funding process must go through ***both*** procedures.

F3: Includes Office of Science and Technology Policy.

F4: The ***Conference Committees*** work out the differences between House and Senate passed versions of the same bill, before final Congressional approval.

The public can affect the Federal Funding Process at many points. In fact, the process is designed to facilitate input from the public so as to make it "a government of the people, by the people, and for the people."

The author wishes to thank Dr. Noel W. Hinners, now Director of the Smithsonian's National Air and Space Museum, for his reminiscences about SETI funding decisions made during his tenure as NASA's Associate Administrator for Space Science.

The views and opinions reflected in this article are those of the author and not necessarily those of the Congressional Research Service or any Member of Congress, committee of Congress, or staff thereof.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Ms. Smith was a consultant to the 1975-76 NASA SETI workshops chaired by Dr. Philip Morrison. She is the author of over 25 reports and articles on the space program, including *Possibility of Intelligent Life Elseware in the Universe*, written for and published by the Committee on Science and Technology of the House of Representatives. She received her Bachelor's degree from Syracuse University in 1972, and is a member of numerous scientific societies including the American Institute of Aeronautics and Astronautics, and the British Interplanetary Society.

HOME

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