Document I-21

[1] August 12, 1971

Memorandum

TO: A/Administrator

FROM: AD/Deputy Administrator

SUBJECT: Items of Interest

Kissinger Meeting

Attendees were Ed David, Alex Johnson, Tom Whitehead, Herman Pollack, Arnold Frutkin, Kissinger's new staff man whose name is Michael Guhin, and Low.

On the subject of launch services, Johnson proposed that the United States would guarantee launch services if (a) there is a positive two-thirds finding by the INTELSAT body that the launch should proceed; or (b) in the absence of such a finding, if the United States itself is not opposed to the launch. Johnson believed that in the context of a post-Apollo participation (which presumably the Europeans want), they would be willing to accept this formula of launch assurances. David and Whitehead, on the other hand, believed that these assurances do not go far enough, that they constitute a "blatant U.S. veto," and that we should in addition offer to sell launch vehicles to the Europeans to launch from their own soil for whatever peaceful purposes they desire. Johnson indicated that this would be unacceptable to COMSAT and Senator Pastore. Low did not enter into the discussion in any major way, but did support Ed David's point of view.

On the subject of technology transfer Kissinger understands that this transfer would not be large and would be essentially controllable. He also understands [2] that what would be transferred and what is desired by the Europeans is systems engineering and systems management know-how.

On the subject of continuing the technical discussions with the Europeans, David and Whitehead felt that the shuttle should be de-emphasized in these discussions and that, instead, the "content" of the space program should be emphasized. After some debate on this subject, it was agreed that technical discussions on the Space Shuttle/space tug could be continued, but that they would be broadened to include payloads as well.

In the context of the technical discussions with the Europeans, I had an opportunity to mention the significance of our recent budgetary guidelines. Although I did this in a relatively low key way, Kissinger immediately reached a conclusion that we had been given a guideline that would essentially stop manned space flight for the United States, which was confirmed by Whitehead. David, on the other hand, stated that this was only a preliminary guideline to "force NASA to consider alternatives to the very expensive shuttle concept." Kissinger stated that stopping manned space flight in the United States is entirely unsatisfactory, and that he would do everything in his power to prevent this from happening.

The conclusion of the meeting was that Kissinger would notify Alex Johnson by the end of the week (by August 13th) of his decisions in all these matters. In the meantime, the State Department (with Arnold Frutkin's help) is drafting a response to Lefevre's February letter. In this response, the current United States position on launch assurances

will be stated, and a continuation of the technical discussions on post-Apollo, plus payloads, will be urged. Frutkin understands that from NASA's point of view, we would like to delay the start of discussions until at least September 30th, so that we can have made up our own mind concerning the shuttle in the context of the Fiscal Year 1973 budget posture. . . .

Document I-22

Document title: Department of State Telegram, "Johnson Letter to Lefevre," September 7, 1971.

Source: James C. Fletcher Papers, Special Collections, Marriott Library, University of Utah, Salt Lake City, Utah.

This telegram communicated to concerned U.S. officials, including the U.S. embassy in Brussels, Belgium, the text of a letter from Under Secretary of State U. Alexis Johnson to Belgian Minister Theo Lefevre. As the chairman of the European Space Conference, Lefevre led the European delegation in negotiations with the United States concerning launch assurances and post-Apollo cooperation. This letter spelled out the conditions under which the United States would provide launch services for European satellites. It also discussed issues with respect to European participation in the U.S. post-Apollo program. The letter was the product of more than six months of debate within the executive branch in Washington. While the launch assurances were not totally acceptable to Europe, the letter did clear the path for additional discussions of post-Apollo cooperation.

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[1] R 012307Z Sep 71
FM SecState WashDC
To AmEmbassy Bern . . .

[2] Subject: Johnson Letter to Lefevre

Refs: A) State CA-5237 October 9, 1970
B) State 30947 Feb 24, 1971
C) Brussels 774 Mar 6, 1971

1. Under Secretary Johnson has written a letter to the Honorable Theo Lefevre, Chairman, European Space Conference, Brussels in response to Lefevre's letter of March 3, 1971, Ref (C). Instructions for action posts given in paras 7 and 8 below:

2. Letter is dated September 1, 1971 and is marked "confidential" in view of US desire to avoid public discussion at this time. Text follows:

Quote Dear Minister Lefevre: Para This letter is in response to yours of March 3, 1971, concerning possible European participation in post-Apollo space programs. It sets out our current views on the matters of consequence which were involved in our discussions this past February and in September, 1970. It overtakes my letter to you of October 2, 1970.

Para I regret that it has not been possible to respond to you earlier. We felt that our mutual interests would be served best if we took sufficient time to review our position carefully in the light of your letter and of events since our discussions in February. As I stated during those discussions, our ultimate views on most of these matters remain contingent on choices yet to be made in Europe as to the measure and character of European participation and on further development of our own plans for post-Apollo programs.

Para Since we have understood that the [3] matter of greatest concern to the European Space Conference is the availability of launchers for European satellite projects, we have reviewed our position so as to meet the concerns expressed in your letter and during our earlier discussions. Our new position in this regard, described in the numbered paragraphs below, is not conditioned on European participation in post-Apollo programs. I believe it should provide a basis for confidence in Europe in the availability of US launch assistance.

Specifically:

Para (1.) We recognize the concern of the European Space Conference with regard to the availability of launch assistance for European payloads. In this respect US launch assistance will be available for those satellite projects which are for peaceful purposes and are consistent with obligations under relevant international agreements and arrangements, subject only to the following:

Subpara (A) With respect to satellites intended to provide international public telecommunications services, when the definitive arrangements for INTELSAT come into force the US will provide appropriate launch assistance for those satellite systems on which INTELSAT makes a favorable recommendation in accordance with Article XIV of its definitive arrangements. If launch assistance is requested in the absence of a favorable recommendation by INTELSAT, we expect that we would provide launch assistance for those systems which we had supported within INTELSAT so long as the country or international entity requesting the assistance considers in good faith that it has met its relevant obligations under Article XIV of the definitive arrangements. In those cases where requests for launch assistance are maintained in the absence of a favorable INTELSAT recommendation and the US had not supported the proposed system, the United States would reach a decision on such a request after [4] taking into account the degree to which the proposed system would be modified in the light of the factors which were the basis for the lack of support within INTELSAT.

Subpara (B) With respect to future operational satellite applications which do not have broad international acceptance, we would hope to be able to work with you in seeking such acceptance, and would favorably consider requests for launch assistance when broad international acceptance has been obtained.

Para (2.) Such launch assistance would be available, consistent with US laws, either from US launch sites (through the acquisition of US launch services on a cooperative or reimbursable basis) or from foreign launch sites (by purchase of an appropriate US launch vehicle). It would not be conditioned on participation in post-Apollo programs. In the case of launchings from foreign sites the US would require assurance that the launch vehicles would not be made available to third without prior agreement [with] the US.

Para (3.) With respect to European proposals for satellites intended to provide international public telecommunications services, we are prepared to consult with the European Space Conference in advance so as to advise the Conference whether we would support such proposals within INTELSAT. In this connection we have undertaken a preliminary analysis of the acceptability of European space segment facilities for international public telecommunications services separate from those of INTELSAT, in terms of the conditions established by Article XIV, and find that the "example of a possible operational system of European communication satellites," which was presented during our discussions in February, would appear to cause measurable, but not significant, economic harm to INTELSAT. Thus, if this specific proposal were submitted for our consideration, we would expect to support it in INTELSAT.

[5] Para (4.) With respect to the financial conditions for reimbursable launch services from US launch sites, European users would be charged on the same basis as comparable non-US Government domestic users.

Para (5.) With respect to the priority and scheduling for launching European payloads at US launch sites, we would deal with these launchings on the same basis as our own. Each launching would be treated in terms of its own requirements and as an individual case. When we know when a payload will become available and what its launch window requirements will be, we would schedule it for that time. We expect that conflicts would rarely arise, if at all. If there should be a conflict, we would consult with all interested parties in order to arrive at an equitable solution. On the basis of our experience in scheduling launchings, we would not expect any loss of time because of such a conflict to be significant.

(Note to posts: Remaining paragraphs of this letter are unnumbered.)

Para The United States is considering the timing and manner of public release of this position. Accordingly, it is requested that there be no public disclosure of this position without prior agreement with US.

Para With regard to post-Apollo cooperation, as you know, the United States had not yet taken final decisions with respect to its post-Apollo space programs, nor can we predict with assurance when such decisions will be taken.

Para With respect to the more detailed questions on post-Apollo collaboration posed in your letter of March 3, 1971 and in our earlier discussions in September 1970 and February 1971, our views [6] remain broadly as we put them to you in my letter of October 2, 1970 and in our meetings of last September and February. We would much prefer to continue the consideration of such questions in the context of specific possibilities for collaboration rather than in the abstract.

Para The relationship we are seeking with Europe with respect to post-Apollo space programs would, we believe, be well served if we can jointly consider the possibilities for collaboration in the context of a broader examination of the content and purposes of the space programs of the late 1970s and 1980s.

Para Accordingly, we suggest broadening your earlier suggestion for a joint expert group to conduct technical discussions. The purpose of these discussions will include the definition of possible cooperative relationships between Europe and the U.S. in a program of development of the space transportation system, but would be broadened to include an exchange of views regarding the content of space activities in which Europe might wish to participate in the post-Apollo era. The technical questions relevant to such participation, including the remaining questions raised in your letter of March 3, would be examined as well. the joint group would carry on its activities with no commitment on either side. the US representation would be Charles W. Mathews, Deputy Associate Administrator, Office of Manned Space Flight, NASA.

Para This group could most usefully commence its work after the end of September when the results of NASA's current technical studies of space transportation systems become available.

Para I trust, Mr. Minister, that this summary of our present views is a helpful response to the matters raised in your letter of March 3. I am pleased to confirm our continuing interest in [7] cooperating with interested European nations in the further exploration and use of space. Sincerely, U. Alexis Johnson, Unquote.

3. Comment for posts: It has become evident that the matter of greatest concern to the ESC is assured availability of launchers for European satellite projects, and it is our view that the new position set forth above achieves this goal. it important to note that launch assistance we are prepared to furnish (as given in the numbered paragraphs of the above letter to Lefevre) is not [repeat] not conditioned on European participation in post-Apollo programs.

4. Johnson letter also reiterates our offer made at February meeting with ESC representatives to consult with ESC in advance so as to advise them whether we would support within INTELSAT European proposals for satellites intended to provide international public communications at February meeting, Europeans presented a document entitled "example of a possible operational system of European communications satellites." Analysis of this example led to conclusion that we would expect to support such a proposal if it were submitted to INTELSAT.

5. The new position reserves to the US decisions with respect to "future operational satellite applications which do not yet have broad international acceptance." In maintaining this reservation we have in mind applications such as direct broadcasting satellites which do not yet have the broad international acceptance necessary to assure that this application will not be source of international tensions.

6. Letter to Lefevre also endorses Lefevre's suggestion that joint expert group be established to consider technical and scientific tasks which Europe might wish to perform as part of joint program.

Action requested:

7. For Brussels: Pass above text of Under Secretary Johnson's letter to Lefevre as soon as feasible. Word "confidential" should appear just above salutation. Call Lefevre's attention to paragraph of this letter requesting that there be no public disclosure of launch assistance position without prior agreement with US. Ask that his response be sent through diplomatic channel. Advise Department and other action addressees when delivery has been made. (Signed copy of letter pouched to Embassy today.)

8. For other action addressees: On the day after receiving Brussels's confirmation that Lefevre has received the letter, pass copies of text to foreign ministries and other space-related ministries at highest appropriate level and explain the importance of our new launch assurance position. Repeat caveat to Brussels (para 7) re: our [8] desire to avoid publicity at this time. We hope this new position will be widely accepted by the European nations as a satisfactory basis for confidence in the availability of US launch assistance. Rogers

Document I-23

Document title: "Memorandum for Peter Flanigan from the President," November 24, 1969.

Source: Nixon Project, National Archives and Records Administration, Washington, D.C.

Richard Nixon was intrigued by the possibility of flying non-U.S. astronauts aboard U.S. spacecraft. Astronaut Frank Borman first suggested this idea after his post-Apollo 8 overseas tour. NASA Administrator Thomas Paine had interpreted the president's mandate to him, while they traveled to the Apollo 11 splashdown, in terms of seeking increased international cooperation in space through cooperation in hardware development. Others believed, however, that the president was most interested in flying foreign astronauts and experiments. This memorandum was directed at getting more attention paid to the latter possibility.

November 24, 1969

Memorandum for Peter Flanigan from the President

Is there still no feasible way to get multi-national participation in some of our future space flights? I have raised this with Paine and Borman and I know there are some technical problems but it is a pet idea of mine and I would like to press it. Raise it with Borman and see whether we can jog the bureaucracy in that direction.

Document I-24

Document title: George M. Low, Excerpts from Personal Notes: No. 63, February 1, 1972; No. 67, March 26, 1972; No. 68, April 17, 1962; No. 69, undated; No. 71, June 3, 1972; No. 72, June 17, 1972.

Source: George M. Low Papers, Institute Archives and Special Collections, Rensselaer Polytechnic Institute, Troy, New York.

Each week, NASA Deputy Administrator George Low dictated his views on the preceding week's events. These notes comprise a fascinating first-hand account of personalities and decisions. The excerpts portray the confused character of the debate over post-Apollo cooperation during the first months of 1972. Among those mentioned are: Russell Drew, the staffer who handled space in the White House Office of Science and Technology; Herman Pollack, the top science and technology official in the Department of State; Phil Culbertson, a top NASA technical manager; and National Aeronautics and Space Council Executive Secretary Bill Anders.

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[1] **Personal Notes No. 63 . . .**

[2] *International Aspects of Post-Apollo Program*

Ever since our visit to San Clemente on January 5, 1972, Arnold Frutkin and the International people have been pushing for major activities with the Europeans in the Space Shuttle development. This work has been supported by the State Department, but has generally been opposed by Tom Whitehead, Bill Anders, and John Walsh, who's working for Kissinger. Walsh put together a group consisting of Russ Drew, Bill Anders, Arnold Frutkin, Phil Culbertson, Herman Pollack, Tom Whitehead, and perhaps others to review the situation. According to Frutkin, this group has now been converted to be in favor of post Apollo Shuttle development activities with the Europeans. According to Whitehead and Anders the group is still opposed and NASA would do well to get out of this activity. In an internal meeting within NASA, Fletcher and I felt that we should only undertake this work if it were really in the interest of the White House and the State Department to do so, and that we should not be pushing for it unless we were pushed into it. As a result of these views, we decided that Fletcher would visit with Henry Kissinger or Al Haig to tell him about NASA's concerns about full participation by the Europeans for the Shuttle development, and ask them whether they really want us to do this. We are still under the impression that we may be getting wrong signals from Frutkin (I have gotten wrong

signals from Paine before that) and that we're really moving into an area that we don't want to get into and that the White House also does not want us to get into. At any rate, we need clarification, which Fletcher will seek before we proceed. . . .

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[1] **Personal Notes No. 67 . . .**

[2] *Post-Apollo International Situation*

This matter is still terribly confused. The Flanigan/David Rice side of the White House feels that NASA pressured the White House into undertaking these international initiatives "in order to make it less likely to have the shuttle cancelled." NASA's position is that, at least since Tom Paine left, we have consistently stated we will do what the State Department and the White House want us to do, but that if we were on our own we would like to build the shuttle and its equipments all within this country. The State Department feels that we strung them along and we are now letting them down. Out of all this, Bill Anders was given the job by Flanigan to pull together a position that would be acceptable to the White House. The State Department, however, feels it should be its job to pull that position together, while at least John Rose in the White House is concerned that if the State Department were allowed to do this a position would be established that is not in the best interest of the United States. The underlying argument in the White House against having active participation in the post-Apollo programs is based upon a concern of too much technology transfer to Europe which is probably not a valid concern as well as a concern about being beholden to the Europeans for their piece of action in case they want to hold us up for it. The State Department concern on the other hand is that we have now gone so far that any backing down might cause serious international repercussions. I seem to be in the middle with Herman Pollack coming to visit me privately for a "nonmeeting" giving me his concerns and presumably the State Department concerns (Alex Johnson is still recuperating from a heart attack), while Bill Anders calls me and asks for help to consolidate the White House position.

In my meeting with Herman Pollack, I once again made it very clear that it was NASA's view that from the programmatic standpoint we would like to do the whole program [3] domestically; however, there are many options of doing things in Europe if it is in the United States' international interest to do so. I also took the same position in my recent discussions with Bill Anders. A memo for the record of my latest conversation with him is attached, as is a copy of a paper that he prepared for Peter Flanigan. . . .

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[1] **Personal Notes No. 68**

These are the personal notes for the week ending April 1, 1972, as well as the week ending April 15, 1972. (I have already prepared special notes for the week ending April 8.) . . .

[2] *International Cooperation*

The situation in the post-Apollo international cooperation, primarily with the Europeans, is still very much up in the air. Bill Anders, in reaction to what he thought was

Peter Flanigan's request, had prepared a very one-sided document, indicating that at most we should let the Europeans develop the sortie module. In this document he did not air the two sides of the story so that it would have been impossible for the President to really pursue any alternatives. When Flanigan saw the document, he wisely stated that this was not at all what he wanted and, in effect, sent Bill back to the showers. The over-all situation is still that we have implied commitments to the Europeans that they could participate in the development of bits and pieces of the Shuttle itself, provided they also worked on either a sortie module or a tug. Our position now is that we don't want them to get involved in bits and pieces of the Shuttle because it makes for a very difficult technical and management problem, and at the same time we don't want them involved in the tug because we think this is too difficult a technical bite for them to take. We think the Europeans really are no longer deeply interested in working with us either and that, if we let matters stand as they are, they are going to die of their own weight. However, Bill Anders feels that this is not the proper way to proceed and that we should indeed take positive action to turn the Europeans off. Basically my own conclusion is that this is no longer a matter of substance because we have pretty well decided what to do and don't want the Europeans to do, and the entire situation merely becomes a matter of tactics.

My latest suggestion to Frutkin was that we should allow the Europeans to participate in an annual program review with us with the understanding that they would file a report within [3] 60 days, suggesting solutions to any problems that we might be facing. This they would do in addition to the development of a sortie module or, if they can demonstrate competence, the development of a tug. . . .

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[1] **Personal Notes No. 69 . . .**

Post-Apollo European Cooperation

This subject is still nearly as confused as it has been for a long time.

State Department has now formally taken a position in a letter from Rogers to the President . . . that we should encourage the Europeans to participate through the development of a sortie can; that we should defer participation on the tug until they have conducted further studies; and that we should allow them to build bits and pieces of the shuttle, provided this is tied in with participation in the major elements such as the sortie module.

Peter Flanigan's position protecting the domestic economy is that he has no objection to Europe's participation in the development of the sortie can, but that we should absolutely not allow any participation in the tug or bits and pieces of the shuttle. Peter also believes that Kissinger will defer to him in this area and that his position is the one that will prevail with the President. Incidentally, Bill Anders has been asked by Flanigan to prepare a Presidential action paper reflecting Flanigan's views.

NASA's position is a fairly straightforward one. First, we state that given our own preference, in the absence of any international considerations, we would, of course, prefer to do everything in connection with the shuttle in the United States. Secondly, we state that given a strong Presidential directive that for international considerations Europe must participate in the shuttle, we would first [3] of all prefer their participation in the sortie can; secondly as a very poor second choice we would allow their participation in the tug, provided they can demonstrate through studies that they can indeed work on the tug and their technology is sufficiently advanced to do so; third, we would dislike their participation in bits

and pieces of the shuttle because this would make our job much more difficult, but this too could be accomplished if we were directed to do so. Our views were expressed in a memorandum to Kissinger commenting on Secretary Rogers' memorandum.

At the time of this dictation, John Walsh on Kissinger's staff is preparing two action papers for the President, presumably they will be signed by both Flanigan and Kissinger. The first of these, which is the one that Flanigan prefers and the one that will go unless Kissinger feels strongly enough to get personally into the act, says in effect that the Europeans should be allowed to participate in the sortie can only, and we should turn off the tug and the bits and pieces of the shuttle immediately. The second paper also states that participation in the sortie can should be encouraged; that participation in the tug should be denied; but that participation in the bits and pieces of the shuttle should be "discouraged but not excluded." Presumably all of this will be steeled within the next several weeks.

In the meantime, the Europeans are champing at the bit because they are trying to meet a deadline that we have imposed on them to make up their mind by approximately the first of July. To do this, they need answers to some detailed questions that they posed to us two weeks ago; however, we, of course, are not in any position to answer these questions until we have settled our policy issues.

For the record, it might be worthwhile to review a bit of history here also. When I first came to NASA Headquarters, I learned from Tom Paine that the President was extremely interested in European participation in Space Shuttle development. I had no reason to disbelieve this and, as a matter of fact, I had seen letters from Paine to Kissinger reporting on his various visits to Europe, Japan, etc. and reports coming back from Kissinger saying in effect "keep [4] up the good work." When I became Acting Administrator, I continued what Paine had started and continued to send reports both to Kissinger and to Peter Flanigan. In all cases, I received replies from Kissinger and Flanigan (generally quite late) encouraging me to go ahead. However, it wasn't too long before I got views expressed by both Don Rice and Ed David that what I was doing might not really be what the President wanted us to do. I then tried for a long time to see Kissinger to get his personal views on this before continuing any further discussions; however, Kissinger was never able to see me on this subject. It wasn't until about the time that Fletcher came on board that we had the first meeting in Kissinger's office involving Kissinger, Whitehead for Flanigan, and several others where again the views expressed were inconclusive except that it became quite apparent that the domestic side of the White House was very much opposed to the kinds of things that Tom Paine had been doing. Ever since then, this had been tried to be brought to a resolution in the White House, and it may be that we are now close to this resolution. . . .

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[1] **Personal Notes No. 71 . . .**

Post-Apollo European Cooperation

I forget when I last discussed this situation, but, briefly, the facts are these. We have been trying to get the White House to resolve the difference of opinion that exists among NASA, State Department, and some of the White House staff. Basically, the State Department would like to cooperate to the greatest extent possible. The White House would like to have an isolationist policy and no cooperation whatsoever. NASA has taken a "hands off" approach indicating that we would like to undertake a minimum amount of

cooperation in order to simplify our own problems, but that we could do almost anything that was necessary if the President so directed it because he felt they were overriding in a national consideration to do it. Out of all of this came a set of instructions signed by Kissinger which indicated that we should encourage the Europeans to develop one of several forms of Sortie modules; that we should discourage but permit European participation in the development of selected bits and pieces of the Shuttle; that we should under no conditions let Europe develop the tug; and that for future cooperative ventures we should concentrate on payloads and not launch systems hardware.
[3] This set of instructions is perfectly acceptable to us and it is now planned to meet with the Europeans within the next two weeks to respond to their long-standing questions concerning what we would be willing to do in cooperation with them on the post-Apollo projects.

Incidentally, Europe is quite confused concerning where the United States now stands with respect to all technological interchanges. I recently met Mr. Boelkow, President of Messerschmitt, who feels that our recent policies are so isolationist that we are going to hurt Europe and ourselves. He believes that we could reach agreements, particularly in aeronautics, that would help both countries both technically and economically. He wanted to discuss these with Magruder. However, I told him that Magruder was not the right person nor do we have a right person to do it. Nobody has really examined both the short-range and long-range economic effects of technology transfer. I subsequently discussed this with Fletcher and we decided to try to see Pete Peterson (Secretary of Commerce) to see whether we can't get him interested in the problem. . . .

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[1] **Personal Notes No. 72 . . .**

European Post-Apollo Cooperation

After more than a year of indecision, we finally received a memo from Kissinger concerning the extent of European post-Apollo cooperation. Specifically, the memorandum indicated that we should seek participation in the Sortie Module, should deny the tug to the Europeans, and should discourage [3] but allow essential participation in bits and pieces of the Shuttle. This is the package that Jim Fletcher and I had hoped for, and with the exception of the bits and pieces of the Shuttle, it is exactly how we would like to handle it. Meetings with the Europeans were held during the past week (at the sub-Ministerial level) and they very quickly got the message. It appears now that they might join us in a Sortie Module, and we have strongly encouraged them to do so. The real question is whether they can move quickly enough in pulling themselves together. At their informal request, we have set a deadline of this summer for them to make up their mind because the people who were here felt that if we did not do this, Europe would continue to argue about this for several years to come. . . .

Document I-25

Document title: William A. Anders, Executive Secretary, National Aeronautics and Space Council, to The Honorable Peter M. Flanigan, March 17, 1972, with attached: "Position Paper on European Participation in our Post-Apollo Space Program."

Source: George M. Low Papers, Institute Archives and Special Collections, Rensselaer Polytechnic Institute, Troy, New York.

Document I-26

Document title: William P. Rogers, Secretary of State, Memorandum for the President, "Post-Apollo Relationships With the Europeans," April 29, 1972.

Source: George M. Low Papers, Institute Archives and Special Collections, Rensselaer Polytechnic Institute, Troy, New York.

Document I-27

Document title: James C. Fletcher, NASA Administrator, to Honorable Henry A. Kissinger, Assistant to the President for National Security Affairs, May 5, 1972, with attached: "NASA's Comments on Secretary Rogers' Memorandum of April 29, 1972."

Source: NASA Historical Reference Collection, NASA History Office, NASA Headquarters, Washington, D.C.

These documents capture the character of the closing stages of the debate inside the U.S. government regarding international participation in the post-Apollo program. They demonstrate the concern with difficulties in completing large-scale technological projects. They also reflect the ever-present worry over technology transfer and the possibility of the United States losing its edge in a highly competitive international arena.

Document I-25

[1] March 17, 1972

Memorandum for The Honorable Peter M. Flanigan

Pursuant to our conversation at lunch on March 3, I have summarized what I believe are the issues, objectives, and options for international participation in the post-Apollo space program. The outstanding problem is that in the past, NASA, interpreting a Presidential sanction, emphasized joint shuttle development with the Europeans, whereas our involvement would appear to have been greatly more in tune with the President's desire if it had been focused on joint manned operations and mutual utilization of space.

Joint European participation in our hardware programs has always seemed to me to have little national advantage and several drawbacks. However, as a country we have gone some distance down the pike with the Europeans, and an abrupt, visible change in policy will probably create a foreign relations problem of measurable but uncertain magnitude.

Possibly the problem can be reduced by a careful selection of options and tactics. Taking the factors I see bearing on the problem into account and weighing them as best I can, I have proposed a strawman cooperative program in this paper which, *if* it could be accepted by the Europeans, would be to the net advantage to the U.S. This program, consisting of payload cooperation and joint manned flight, plus European development of the Sortie can, is acceptable to NASA from their viewpoint as program managers. State will likely view this course of action as not responsive to Europe's expectations and as representing a significant change in previous policy. They can be expected to resist such a change or urge some intermediate concession by the U.S. A possible concession is discussed in the attached paper, whereby the U.S. prime contractor for the shuttle does a nominal amount of subcontracting in Europe; however, NASA would agree to this arrangement only if directed to as a concession to our foreign relations.

Please excuse the length of the paper, but there is a several year history of the development of this issue and a significant difference in motivations that are relevant to an understanding of our commitment and posture. Your [2] reaction to this paper and the strawman proposal, which has been coordinated with Jim Fletcher and John Walsh, of Kissinger's staff, and discussed with others, would be most timely if available by Tuesday a.m. The State Department has opened the post-Apollo policy for reexamination and will be meeting that afternoon. Since I will be attending, I could see that your views and whatever guidance you may have are put forward. Attention to and resolution of this messy issue should be soon since decision dates (e.g., NASA selection of prime contractors) are approaching inexorably and NASA needs a clear directive on how to proceed.

William A. Anders

Enclosure

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[Enclosure page 1]

Position Paper on European Participation in our Post-Apollo Space Program

This paper examines our current position re European participation in our post-Apollo space program, how we got to this position, what are our commitments, and the options for decisions. A pragmatic program is proposed, and tactics for its implementation are discussed. Because of the technical content of the post-Apollo program and some semantic confusion, a definition of terms is desirable.

Definition of Terms

Post-Apollo literally encompasses all of the U.S. space program that comes after Apollo, starting in 1973. In the context of European cooperation, however, it has meant, at various times, the partnership development and utilization of the space station or Space Shuttle, then the shuttle alone, and now the shuttle, tug, or RAM. These elements of the post-Apollo system have the following characteristics:

The Space Station was a multi-manned, permanent orbital laboratory, which was dropped from NASA's plans on cost grounds, at least until the shuttle is completed and operational.

The Shuttle is a partially reusable launcher used to put a payload plus upper stage ("tug") into a 100 to 200 mile orbit, and to return them to earth. The shuttle can also be used to carry, support, and return a small manned space laboratory. The shuttle and later the tug will be used both in DOD and the civil space program. Development cost of the shuttle is projected to be $5.5B, unit cost will be $250M with an anticipated production of 5 units, and the operating cost is estimated between $10 to $12M per flight.

The Tug is a reusable upper stage, carried and returned in the shuttle payload bay, which moves payloads from the altitude of the shuttle orbit to higher altitudes, and returns payloads in the same fashion. Virtually all payloads above 200 n.m. will use the tug (or an expendable transfer stage), but owing to reuse, the production run for the tug will not be great—perhaps 25 altogether. Costs are estimated to be $1B for development, $20M per production unit, and $0.5M per flight for operations.

[2] *RAM* (Research and Applications Module) refers to a family of small manned (or unmanned) laboratories to be carried to orbit and supported there, internally or externally, by the shuttle, and then returned in the shuttle bay. (The first version has been referred to as a sortie module or sortie can.) In later versions, the laboratories may be left in orbit independently and recovered on a later shuttle flight. Because of distinctly different uses of the system, there will be several different versions of RAM, and each version can be developed and equipped independently. For each version the production run might be 10 units, development cost of $150 to $200M, and unit cost $15 to $20M, though a basic "stripped" version might be less.

Subcontracts. This term needs to be defined because of the confusion resulting from its dual usage in the post-Apollo negotiations.

European Contributed "Subcontracts" was until very recently the concept under discussion, wherein the European governments would pay for their industry to develop certain parts of the shuttle, which we would then use. This arrangement was necessitated by the NASA operating rule of no exchange of funds in foreign cooperative projects. A government-to-government agreement would cover the arrangement; this type of arrangement is felt to have a number of unattractive features which are discussed later in this paper under "Options." In February, the possibility of having more normal (company-to-company) commercial subcontracts was raised by the Europeans, and so now the intended definition of the term subcontract is further confused in dealing with the Europeans and among ourselves.

Normal Commercial Subcontracts. Subcontracts of this nature are undertaken between industries with no unusual government involvement. The prime contractor chooses certain parts of a system for outside development and production, selects the winner among bidders for the work (with NASA's concurrence

in the case of the shuttle contract), and then has sole control of managing and paying the subcontractor. In this context, European industry would not be precluded from bidding on the shuttle subcontracts, and under normal economic pressures to use low bid from a qualified supplier, they could conceivably win $10 to $100M of the subcontracts. However, because of the nature of [3] R&D contracts, such as for the shuttle, there is little inherent pressure on our industry to choose low bid subcontractors; rather the most important considerations are minimizing programmatic, schedule, and management risks, and thereby maximizing the possibility of receiving their incentive. Historically, Europe has won no subcontracts of significance on space systems. Relaxation of implied restrictions and guidance to our industry to be more receptive to qualified bidders in Europe could be employed by us as a bargaining tool in the post-Apollo negotiation; and if the dollar flow is considered a problem, it might be balanced through some reciprocal arrangements. These alternatives are discussed later under "Options."

U.S. Motivations and Objectives in Post-Apollo Cooperation

It has been U.S. policy and President Nixon's desire to promote international cooperation in space and to share the benefits (and burdens) of space with all mankind. It has also been U.S. policy to strengthen our allies and alliances, and to foster a sense of community among the Europeans and to encourage their joint undertakings. The desire to implement these policies and also to make a new program more attractive to Congress (and also less cancelable), led NASA to seek European partnership in the post-Apollo space program over two years ago. The prospect of a European financial contribution to our program was thought to be a further plus. There was, however, ambivalence in our understanding of how much of the Administration's desire for international participation in space focused on joint usage and how much on joint development of space hardware. In recent weeks there has been some clarification of Presidential preference; his interest is primarily in European involvement in the use of space, coming from the development of payloads and operations rather than from big joint engineering projects, and specifically to share in the use of our post-Apollo space systems for international manned operations.

Whatever cooperative program is devised, we seek maximum benefit for ourselves in terms of (1) creating togetherness and good will, or at least minimizing any ill will, (2) drawing their interest away from undertaking separate space systems (e.g., the Europa III booster, aerosat, or those competitive with Intelsat), and (3) gaining some technology from areas of European special qualification, and possibly obtaining some minor components at a lower cost. At the same time, we want to minimize (1) increased risk and management complexity of our development program, (2) technology/dollar/job outflow, and (3) foreign relations impairment resulting from disputes as the program progresses.

[4] European Motivations and Objectives in Post-Apollo Cooperation

A major European objective is to gain large systems management capability and some technology. Their government/industry technocrats were very impressed by our success with Apollo, and they believe that by participating with us in a major systems development, such as the shuttle, they can learn how to better manage and build their own big technical projects (Europa III being a possible example). Their willingness to pay for the development of part of our shuttle is, in their view, a ticket to participate in or at least get a front row seat to our management process. A second European objective is to have the use

of the world's most advanced space system, the shuttle, to carry out more complex science and applications programs in space, and, in spite of no explicit European plans at this time, there may be awakening interest in sharing in the prestige and greater capabilities of manned flight. Finally, the science-technology ministers and the international space organizations are looking for big projects that their respective governments will support (bureaucratic empire building). Also, of course, the European aerospace industry, which is in a decline analogous to ours, wants to get some business, particularly if that business might have fallout that would improve their competitive posture in other high technology areas. The direct business prospect appears to them as twofold: the R&D money from European governments and then the sale of production items to both European and U.S. users.

The History of the U.S. Commitment to Post-Apollo Cooperation

It has been a U.S. attitude that space like Antarctica is inherently international, only to be explored for humanitarian reasons. Whatever benefits that derive from being in space can be benefits to all mankind, except, of course, where military utility is involved. The one challenge, thus far, to this viewpoint has been in the use of satellites for communications, where commercial exploitation exists for point-to-point communications and is in dispute for mobile usage (aerosat). Such challenges will become more common as the shuttle opens up the commercial utilization of space. All Presidents since the inception of the space program have called for international cooperation in space, many in Congress favor it, and the Space Act, which formed NASA, urges it. President Nixon publicly promoted it in his statement of March 7, 1970.

[5] NASA has had an international outlook and has engaged other nations in many useful joint science projects. Partially because of this international orientation and partially because of the desire to make the program more attractive (and less cancelable), Tom Paine in private discussions with President Nixon at the time of Apollo 11 raised the issue of seeking greater international participation in our space program after Apollo. Paine reported that the President concurred in the desirability of this course of action, though it was not made clear as to the relative preference between participation in hardware development or participation in manned flight and science payloads. Paine then went to Europe to test and stimulate the Europeans' interest, and at the same time he narrowed the candidates for cooperation to the joint development and use of the space station or shuttle, and then only to the latter when the space station was dropped from our plans due to funding reductions. NASA did report to the White House on its progress in obtaining European involvement, and these reports elicited acknowledgments which were possibly of a somewhat perfunctory nature. NASA, however, accepted these acknowledgments as direction to continue. Operating from the same background and with stimulation from NASA and in response to European overtures, the State Department conducted two minister-level exploratory talks with the Europeans on the basis of U.S. "desire for maximum partnership in the post-Apollo program consistent with mutual desires and capabilities." This came to mean to NASA, Europe, and the State Department, a partnership in the development and construction of the shuttle, with possible involvement in the tug or the sortie can version of RAM. It was also understood that the U.S. would guarantee to use the particular European product, if that product was completely satisfactory to us. Talks have continued between U.S. and European technical groups to define areas of possible cooperation, meanwhile the Europeans have spent roughly $5M studying the shuttle and tug in order to decide where their work might be concentrated. They are now expanding their tug studies and are also studying RAM (sortie can).

The initial U.S. stipulations to cooperation were that there be no exchange of funds and that the management/technology level of the European undertaking be in keeping with their current capability and not rely on technology infusion from the U.S. A later stipulation was that the Europeans would have to contribute a significant portion of the effort (10% of the program's cost). This stipulation was dropped, however, after the U.S. decided on separating the issues of post-Apollo and launch assurances. (The launch assurance issue involved Europe's concern about obtaining U.S. launches of their payloads, The U.S. has now agreed to launch any European payload having a peaceful [6] purpose, except where we believed the payload violated international agreements (e.g. , military systems or those competing with Intelsat). These launches would use our present boosters and the costs would be reimbursed.) Our most recent stipulation is that they would have to commit themselves to a "package deal" for the development of the tug or RAM before we would settle on their government-supported "subcontractual" involvement in the shuttle. An implied stipulation was that neither Europe nor we would try to recover our respective development costs through amortization in the unit or use prices.

There has been growing concern in the Executive Office and with top NASA management that we are getting ourselves involved in a situation that is not advantageous. A recent informal sounding of Presidential desire indicated that his interest would be almost fully served through joint use of space, and partnership construction of complex space hardware is not a strong motivation. In some response to these feelings, NASA has been directed to attempt to shift European interest away from the shuttle and onto the tug or RAM.

Present status is as follows: the Europeans are now trying to decide whether or not to develop a tug or RAM. If their decision is affirmative, they have been led to believe that they can, if they wish, develop a few prescribed, "simple" parts of the shuttle, with certain restrictions on funding control. The Europeans must make up their minds by early summer if they wish to avail themselves of this "package deal." The decision is very hard for them because they have not thoroughly studied what is involved in the development of the tug or RAM, and they are going to have to decide with major technical and cost uncertainties facing them. Meanwhile, our change in signals on aerosat has caused them additional concern as to our motives in space, and has produced some European "threats" against post-Apollo; apparently they believe us to be eager for their involvement.

Options for U.S.-European Involvement

The four main options, some having suboptions, that are open to the U.S. are listed below in increasing order of complexity as far as program management is concerned (except possibly for 4b).

1. *Complete Disengagement.* The most obvious option is to disengage and have no international participation in our space program, other than at the scientific level as we already have. This option guarantees no technology or dollar outflow, does not restrict our future political or programmatic decisions, and adds no technical and management complications to an [7] already complex program. This, in fact, may be the outcome anyway, since European interests may well not be sufficiently strong to underwrite an expensive program having a nebulous *quid pro quo.* But if we force this option, the Europeans will correctly view this as a major shift away from the commitment they accepted from U.S. officials as our government's policy. Foreign relations harm may result and, in fact, may have wider effects than space matters usually do because this would closely follow other unsatisfactory space negotiations in the European view and also may seem to show a quixotic approach to policy formulation in the U.S.

2. *International Cooperative Payloads.* This option is to indicate that our interest in international participation is focused on the usage of the shuttle for mutual benefit, including manned flight, and not on development of the hardware. This option probably should be emphasized whatever else we jointly undertake because it appears to be at the heart of the President's actual desire. However, the Europeans will probably not view this as a significant concession since we are talking about events eight years from now, and furthermore the Europeans may believe this already to be U.S. policy.

3. *European Development of an Element of the Post-Apollo Program Other than the Shuttle (Tug or Sortie Can Version of RAM).* A third option is to allow the present situation to continue to the extent that Europe is free to choose between the development of a tug or sortie can, with a U.S. guarantee to use the item if it meets our required specifications. Either would meet Europe's perception of the U.S. commitment. The possible advantages to us of their undertaking the tug is the savings of a substantial R&D cost and the availability of the system several years earlier than otherwise. A possible other advantage is that the diversion of European funds to the tug would preclude their development of Europa III, and thus limit the expansion of their independent launch capability. (Any lesser commitment of European funds to post-Apollo, such as doing a RAM-sortie can and/or parts of the shuttle, would leave open the possibility of doing Europa III. However, It is possible that the cost and difficulty of Europa III will discourage the Europeans from undertaking it regardless of their post-Apollo involvement; and if undertaken it is even more possible that it would not be completed, as greater realization of its relative inadequacy became more apparent.) Any advantages to the U.S. of a European tug project seem to be more than offset by several disadvantages: the probability of Europe producing an unacceptably low performance system, the likelihood of technology outflow, the enhancement of their own booster capability, the dollar outflow to buy production units (perhaps up to $500M), and the difficulty in accommodating DOD's unwillingness to rely on a foreign supplier. [8] Concerning the other side of this option, the advantages of Europe developing the sortie can version of RAM is that the task clearly can be within their capabilities, has minimum risk of technology transfer, could contribute a useful element to the post-Apollo program, and has no military implication. The cost to the U.S. to buy units from Europe would depend on the degree of equipping but may be fairly nominal, in the range of $20 to $60M over a period of several years. This expenditure would be offset by European purchase of the other versions of RAM produced in the U.S.

Given that the tug is an unacceptable European project for several reasons, and that the sortie can would be acceptable, a difficult problem faces us in causing redirection of European interests. We could easily end up with the foreign relations disadvantages listed under 1 even though we are trying to take a conciliatory approach in offering a moderate program of participation. This problem is discussed further under "Tactical Considerations," but anticipating that discussion, no fully satisfactory tactic is evident.

4. *European Involvement in the Development of the Shuttle.* This option is in two parts: the first being a continuation of the current position and the second a possible fallback maneuver as a possible foreign relations concession.

a. European Government-Supported "Subcontracts." This option is also a continuation of the current situation, namely, to accept Europe as a limited partner in the development of the shuttle, with them building at their expense certain "simple" parts of the hardware. The advantage to us in this arrangement is that it further meets European understanding of our commitment. It had been a NASA position that sufficiently simple tasks had been identified to make this arrangement feasible, however, many now feel that the increased risks and technology/management outflow may well more than offset the dollar or good will value of a European government-supported contribution to the shuttle. There is also serious concern that the normal supplier problems in big and com-

plicated development programs would, on occasion, be elevated into international disputes, thereby producing the reverse of the President's desire for good will. Furthermore, this arrangement amounts to a U.S. government guarantee to supply certain components to our prime contractor, thus removing some of our government's leverage and some of the contractors overall responsibility for the integration and management function. During the course of the program, the prime contractor could well use this as an excuse for schedule, cost, or design changes. Withdrawing this option, however, will have a negative effect on European attitude toward the U.S., and a possible concession to lessen this impact is suggested by the following option.

[9] b. Normal Commercial Subcontracts (A possible foreign relations concession to offset the negative impact of withdrawing shuttle participation as an option). If some European involvement in shuttle development was felt to be necessary as a foreign relations concession due to our past stimulation and commitments, a possible fallback from the above government arrangement would be for the prime contractor to do some nominal amount of normal commercial subcontracting with qualified bidders in Europe, once Europe has committed to a RAM or tug. This would partially satisfy their industry's desire to do some work on the shuttle, and would not have the serious disadvantage of involving their governments directly in the arrangements, nor of having European participation in the management of the overall system. Also, the U.S. might benefit by some minor technology flow in our direction. To mitigate outward dollar flow, some balancing amount of work might be subcontracted by Europe in the U.S. on their RAM or tug, though this may happen anyway depending upon the degree of assistance they need on their task, or balancing might be achieved through other offset arrangements to achieve no net exchange of funds. This alternative is not favored by NASA, but if directed to choose between 4a and 4b for foreign relations reasons, this latter alternative is less odious and is doable.

A Proposed Program

A program agreeable to NASA, and which attempts to maximize the net advantage to the U.S. and at the same time appears to be reasonably attentive to our commitment to Europe, has been selected from parts of the above options.

System Use:	European operational involvement with us in some joint manned orbital missions, plus reimbursable use of our space transportation system to orbit their science and applications satellites, as a natural continuation of our present launch assurances.
System Development:	If European interest continues to include working on hardware development, we should agree only to their building the sortie can version of the family of RAM's. We would agree to buy from them the basic components of this item, while other versions of RAM would be built by the U.S. and would be for sale to the Europeans.

[10] The second part of the above program, system development, has the most immediate impact and also major difficulties associated with it in a foreign relations sense. In visibly removing the tug and shuttle from the list of acceptable projects for participation, we will antagonize the Europeans, even if they were not going to opt for these projects. Coming on top of the bad deals they believe they have been dealt in aerosat and Intelsat, a narrowing of our post-Apollo policy in this fashion may well have serious repercussions in a broader context: we may be increasingly seen as unreliable partners and allies. For

this reason, some concession may be in order, and the views of [the National Security Council] and State would help to guide the policy in this regard. A concession could be made either re the tug or shuttle. However, because of the difficulty of developing a satisfactory tug and the potential for sizable technology and dollar outflow, and also because of DOD's concern in this area, we should preclude European development of this project. We would simply be trading off a short-term foreign relations problem for a longer-term one. In regard to shuttle involvement, the management and foreign relations problems associated with government-to-government subcontracting are unacceptable, but we might accept European subcontracting on a normal company-to-company basis. Though not to their liking, NASA could informally direct our U.S. shuttle contractors to select and use qualified, low-bid European subcontractors on tasks the prime contractors choose, perhaps up to the level of $50 to $100M out of a $3 to $4B shuttle contract. Dollar outflow could be balanced by our requirement that the Europeans subcontract at least a compensatory amount in the U.S. for their RAM development, if the two to three year delay in balancing is acceptable to us. Otherwise, balancing can be achieved through other offset arrangements. NASA would prefer not to make a foreign relations concession of this nature because of their long-standing adherence to an internal rule against exchange of funds and its potential political impact. If, however, State and [the National Security Council] urge this concession, NASA sees this arrangement as less odious than government-to-government subcontracting, and could implement it.

Strategy and Tactics for Implementing the Proposed Program

Two levels of action should be pursued: a longer-term (months) strategic move to gain European political appreciation of and accommodation to the differences in European and U.S. motivations re space, and a short-term (weeks) tactical move to decide on and offer to the Europeans a moderate program of participation in the post-Apollo development Phase, having net advantage to the U.S.

1. *Strategic Considerations.*

Complicating our discussions on space cooperation with the Europeans are the differences in our respective backgrounds and orientations with respect to space. To those who ran the U.S. space program, particularly the Apollo program, and conducted our side of the talks with the Europeans, space has been a non-commercial venture encompassing exploration, science, and technology, and space's commercial value has played only an emerging role in their thinking. Commercial utilization has been handled by our [11] private sector; while in Europe both the exploration and utilization of space are government functions. European interest in post-Apollo is more in the vein of commerce than adventure. Obtaining a mutually satisfactory cooperative program has been difficult because the two sides have seen it as offering different payoffs. Therefore, our strategy must not simply be to bring a shift in emphasis on what piece of hardware Europe might supply, but should develop a basic accommodation through mutual understanding and acceptance of objectives.

We must attempt, for example, to stimulate recognition in European science-minister/political leaders, and their staffs, of the political-prestige value of manned space flight. No significant effort has been made by the U.S. to determine the latent political interest in manned flight, nor has any coordinated attempt been made to guide them persuasively into the program. NASA seems to have taken the European view at face value, and all of our negotiations on cooperation have generally reflected our axiomatic acceptance of European disinterest in manned space flight. We also should try to obtain an understanding with Europe that the development of launchers duplicates skills and equip-

ment that already are well developed in the U.S., does not really enhance the direct derivation of benefits from space given the availability of launches, and does heighten U.S. concern because of technology flow and security considerations. There is some doubt that Europe can learn our management skills simply by sitting in on the shuttle management, but it is a risk to us for reasons of future competitive posture. We should attempt to make it clear that we expect them to join us in a cooperative space program primarily for non-commercial reasons, and they should disabuse themselves of the idea of making money from us or learning our technology and know-how. They may feel that it is their financial contribution to the program that motivates U.S. interest in cooperation, and hence they are entitled to get something significant and tangible out of the program. They are wrong on both counts, and we must clarify this matter to them. Discussion should begin informally and individually, not group-wise, recognizing, however, that the prospects of evangelizing are not great, a priori.

2. *Tactical Considerations.*

The most immediate problem is to persuade the European space technocrats that a RAM-sortie can is a challenging and important task, and that it opens the part of the post-Apollo program having the greatest direct benefit, [12] namely, payload development and use. The tug should be ruled out because of its difficulty and its high potential for technology and dollar outflow. If the Europeans insist on also participating in shuttle development, we can, on grounds of avoiding government involvement in contractor-subcontractor disputes, offer the possibility of their industry functioning as normal commercial subcontractors to our U.S. prime contractor at a moderate level ($50 to $100M). The Europeans have purportedly inquired about this possibility last month, and so a change in our position of this nature can be offered as acquiescence to their proposal. There would be an understanding with Europe that the dollar flow inherent in this arrangement would have some balance through European subcontracting in the U.S. for parts of its RAM, or through other offset arrangements.

The fact must be faced that the European technicians have been strongly motivated toward [a] tug; it is the biggest and most challenging post-Apollo project available to them, and has the greatest technology stimulation and spin-off to other high technology capabilities. Moreover, nothing the U.S. has said to the Europeans in almost two years would indicate anything other than our desire for them to undertake the tug. And at our encouragement they have spent $1 to $2M studying their capability for its development. Changing signals is therefore going to be difficult without irritating them (justifiably). Because it postpones the problem, there have been suggestions that we wait for Europe to come to its own understanding or demonstration of its inability to build an acceptable tug. The Europeans' anger and frustration would increase, though, in proportion to the amount of time and money they waste on a project we reject. It may be that the best course is to take the flak now and admit our concern over their abilities and over the technology/dollar outflow we envision, and withdraw the tug from consideration. In order to ease the foreign relations impact and some of the pressure their industry is applying to their governments to undertake development tasks that are unacceptable to us (tug or European-contributed shuttle work), we might allow them some normal subcontractor participation in the shuttle as qualified bidders.

The timing of these tactics is a major difficulty. We would have to get these messages across and obtain European agreement by July if European subcontractors are to be used on the shuttle; our prime contractor cannot wait past that period. If Europe only undertakes a RAM-sortie can, timing is no longer critical to us, but the Europeans themselves say they must decide by mid-summer because of the coupling with their decision on whether or not to go ahead with Europa III.

[13] The State Department is now reviewing the post-Apollo policy, and the receipt of directions to propose a modified program to the Europeans would be most timely. Some resistance within our government to an alteration in direction can be anticipated, if for no other reason than the psychological momentum of the people that have been involved in obtaining European participation. Considering the many factors involved, no more time should lapse before a decision is made and guidance given.

Document I-26

[1]

Memorandum for the President

Subject: Post-Apollo Relationships with the Europeans

I wish to bring to your attention my increasing concern about developing U.S. attitudes toward European participation in the development of the post-Apollo Space Transportation System and the need for prompt U.S. decisions in this matter, if we are to control the play of events.

Your name has been closely identified with U.S. efforts over the past several years to encourage European participation in the development of that System—the Shuttle, the Tug and associated research applications modules (RAMs). Tom Paine, alluding repeatedly to what he described as your views, visited each major European capital to invite such participation. In October of 1970 and again in February 1971, Alex Johnson and a sub-cabinet team met with the European space and science Ministers. These and other activities of responsible U.S. officials, including our Ambassadors, have provided the Europeans every reason to believe that the U.S. was seriously interested in having them participate in the development of certain parts of the Shuttle, in one or more of the RAMs, especially in the Tug. As an indication of their interest the European governments have already spent or committed a total of $11.5 million on preliminary technical studies.

The European space and science Ministers are scheduled to meet in three weeks (May 19th) to formulate their views with respect to participation, and again in early July to take a final position. We can expect a visit of a high-level European delegation shortly after the May meeting.

Within the last several months U.S. views that we should minimize European participation have begun to harden. These views hold that we should not permit European participation in development of the Shuttle because of domestic economic consideration and the difficulties of sharing such a task with foreign governments and subcontractors. With respect to the Tug they hold that the development task will be too [2] difficult technically to rely on European performance. European participation would thus be limited to development of one or more of the RAMs.

Were the European share of Shuttle development to be truly substantial, these economic and management considerations might well be overriding. However, the extent of their possible participation is now limited to a few specific projects totaling about $100 million out of the total Shuttle program costing $5.15 billion. The advantages of denying their participation at this level do not justify the loss of U.S. integrity abroad.

There is no need to reverse our position now on European development of the Tug, since it is a vary advanced project which will require several more years of design study. The Europeans are, as yet, not convinced that they should undertake it.

My basic worry is that we will buy more trouble with the Europeans than can be justified by the ephemeral domestic advantages that we may gain by denying their partic-

ipation. To limit them now to development of only a RAM would be judged by them as a clear reversal of our previous policy. Your reputation as a consistent advocate of international cooperation in space and specifically with Europe on the post-Apollo program would inevitably suffer. Furthermore, we ought not to ignore altogether the very real political values that would result from European participation with us in the development as well as the use of the Space Transportation System.

Balancing all these considerations I suggest:

1. That we accept, but not encourage, European participation in the tasks in the development of the shuttle already identified by NASA conditioned on a prior commitment by the European Space Conference (ESC) that it will undertake the subsequent development of one or more RAMs.
2. That we bring the Europeans to agree that consideration of their undertaking the development of the Tug will be deferred pending further mutual study.

[3] 3. That we conduct negotiations on these matters so as to avoid indicating a major change in our policy toward European participation (i.e.: in the proposals which we have already made to the ESC).

I urge that you approve this course of action in principle and instruct me to reach agreement with the Europeans along these lines.

William P. Rogers

Document I-27

[1] May 5, 1972

Honorable Henry A. Kissinger
Assistant to the President for National Security Affairs
The White House
Washington, DC 20500

Dear Henry:

Dr. Walsh of your staff has requested formal comments from NASA on Secretary Rogers' memorandum to the President of April 29 on Post-Apollo relations with the Europeans.

Our comments are attached.

Sincerely,

James C. Fletcher
Administrator

Enclosure

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[Enclosure Page 1]

NASA's Comments on Secretary Rogers' Memorandum of April 29, 1972

NASA's comments on Secretary Rogers' memorandum of April 29 for the President, on the subject of post-Apollo relationships with the Europeans, follow:

Our preferred objective is to obtain European agreement to develop a specified type of sortie module for use with the shuttle, reserving other types for our own development. We regard this as a desirable contribution to the space transportation system and one which should present no undue problems technically or managerially.

We agree with the Secretary's letter that the tug requires further study. It is, therefore, a distinctly, second choice, and much less desirable. We believe that European study of the tug should be on element of an agreement only if it is clear that the US commitment to a European undertaking to develop the tug could be considered only after extensive European study and only on the basis that we might well decide not to pursue the tug after such study. The Europeans would have to understand, even before undertaking such a study, that the definition of the tug and European capability [2] to develop it are uncertain; even in the event we were both persuaded by studies and proposed management schemes that the project appeared feasible in Europe, we would still want to reserve the right to escape from an agreement if interim review indicated that the tug would be substantially delayed or fall short of agreed specifications. Of course, the Europeans might not wish to participate in the study on such a tenuous basis. Unless directed by the President, we would not anticipate NASA technical support of the European study. For all of these reasons, we do not recommend European involvement in the tug.

With regard to specific shuttle tasks that Europe might perform, we continue to feel such European participation is highly undesirable and that it would complicate our shuttle management problems. However, if it is considered by the President, on the basis of international factors, that Europe's participation in the shuttle itself is of overriding importance, we believe that we could accept such participation if suitable management terms cam be established. In essence, acceptable management terms would call for US prime contractor selection and direction of European subcontractors, with the [3] European side responsible for both estimated costs and overruns and the US side responsible only for those out-of-scope changes imposed by us. As stated in the Secretary's letter, the European performance of shuttle items would be conditioned upon European development of a sortie module.

[4] **INTERNATIONAL PARTICIPATION IN THE SHUTTLE**

A. NASA wants:
   1. U.S. Shuttle (now)
   2. U.S. Sortie
   3. U.S. Tug (2-3 years later)

B. NASA can do (if required):
   1. A European Sortie Can (no significant management problem)
   2. European "bits and pieces" of shuttle (now)
   3. Maybe European Tug (later) (Technology and Management Problem)

C. Europe Wants (?)
   1. European Tug
   2. "Bits and pieces" of shuttle
      a. or involvement some way in shuttle
   3. Sortie (?)

D. U.S. should (1) offer and (2) accept
   1. (1) Sortie Can
   2. (2) Shuttle Items or C 2 a. Plus D 1
   3. (2) Europe study of Tug in full knowledge of questions re definition, European capability, performance, minimal number of procurements, interim review and escape procedure for NASA

[5] E. NASA Position
   1. Sortie OK
   2. Tug only after detailed study, poor second choice, et cetera
   3. We are directable to do shuttle items plus 1 (if we can control management method)

Document I-28

Document title: European Space Conference, Committee of Alternates, "Report of the ESC Delegation on discussions held with the U.S. Delegation on European participation in the Post-Apollo Program, Washington, 14-16 June 1972," CSE/CS (72) 15, June 22, 1972, excerpts.

Source: ESA Collection, European Community Archives, Florence, Italy.

On June 1, 1972, Assistant to the President for National Security Affairs Henry Kissinger communicated to the Department of State and NASA, among others, a presidential decision that removed a reusable space "tug" as a candidate for the European contribution to the Space Transportation System. President Nixon was also discouraging the idea of European firms building portions of the space shuttle itself. These preferences were the basis of the U.S. position announced in a meeting with a European Space Conference delegation on June 14 through June 16. After the meeting, Europe decided over the next year that its post-Apollo contribution would be a research and applications module (subsequently renamed Spacelab).

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[1] Neuilly, 22nd June 1972

Report of the ESC Delegation on discussions held with the U.S. Delegation on European participation in the Post-Apollo Program Washington, 14-16 June 1972

1. According to instructions given by ESC Ministers in an informal meeting of 19 May 1972, held in Paris, a European Space Conference Delegation met a U.S. Delegation in Washington, D.C., 14-15 June 1972.

A list of the European and U.S. delegates is attached to this report (Annexes I and II).

General considerations

2. At the beginning of the discussions, Mr. Herman Pollack, head of the U.S. Delegation, made an opening statement (see Annex III) in which he recalled the developments which had occurred since the last meeting between President Lefevre and Under Secretary of State Johnson in early 1971 and provided a brief overview of the current U.S. attitude towards cooperation with Europe in the post-Apollo Program:

(1) The concept of European participation in the Shuttle development has changed considerably and would be subject to such stringent conditions that it may become almost unattractive for Europeans;

(2) The U.S. has concluded that it is not prudent to continue discussions on the possibility of tug development by Europe;

(3) The U.S. encourages Europe to undertake the development of one or more of the Research and Application Modules which in its opinion would constitute a desirable form of cooperation;

[2] (4) The U.S. also urges Europe to anticipate and make extensive use of the Space Shuttle system when it becomes operational and to participate in payload development, both manned and unmanned. It was mentioned in that respect that participation of European astronauts in shuttle flights would be welcomed.

3. In the course of the discussion which followed the statement, it was made clear to the European Delegation that the U.S. attitude was defined at top governmental level and that no change in it could be expected; it was also stressed within the limits so described Europe could submit any proposal of participation.

4. In his concluding remarks (see Annex IV) Mr. Herman Pollack drew the attention of the European Delegation to the fact that the U.S. feels that the "potential of outer space" which would become possible through the post Apollo program is so far-reaching that it can no longer be the subject solely of national decision. This is the reason why the U.S. is seeking ways to make it possible for other qualified and interested nations to participate with it in the development and utilization of this new capability.

The enduring nature of the ties that bind the U.S. and Europe motivated the U.S. in it search for European participation in the post-Apollo program. The motivations were purely political and commercial or technical factors had practically no influence. . . .

[1] ANNEX III

Opening Remarks by Mr. Herman Pollack Meeting with ESC Delegation on Post-Apollo Cooperation June 14, 1972

Welcome.

Many of us sat in this room for the second of the two meetings between Minister Lefevre and Under Secretary Johnson and their delegations 16 months ago in early 1971.

A good deal has occurred during those 16 months to enable us all to have a clearer definition of the post-Apollo program and a somewhat better understanding of each others' readiness and interest in cooperating in that program. In retrospect perhaps the most significant of these developments have been:

1. The development by the U.S. of a launch assurance policy, which stands independent of European participation in the development of the reusable Space Transportation System or its use. I refer to the launch assurances conveyed in Under Secretary Johnson's letter to Minister Lefevre of September 1, 1971.
2. The discussions held between NASA and technical representatives of the European Space Conference.
3. The decision of our President to proceed with the development of the Space Shuttle System, and the development timetable which follows from that decision.
4. The preparations under way in Europe for Ministerial decisions, prospectively this summer, on a broad range of matters affecting European space activities.
5. Considerable changes in the economic perceptions and budgetary circumstances in the U.S. I imagine the same is true in Europe.

We meet now, at your request, specifically to discuss the questions which you have raised in the agenda before us.

It is our understanding that these discussions are not negotiations. Obviously we will not reach decisions here. Rather, we anticipate informal and frank exchange of views in which we seek to understand more precisely each others' preferences and interests on the matters which you have raised.

In the absence of a clear indication of the measure of European interest in possible participation, we shall do our best to make the U.S. views regarding the questions you have raised as helpful as we can. Were it possible during the early part of our discussions to obtain a clearer understanding of the measure of European interest, and possible participation, our views could possibly be more responsive and useful to you.

[2] Now, if I may, I should like to present a brief overview of U.S. attitudes toward cooperation with Europe in the post-Apollo program.

1. We urge Europe to anticipate and make extensive use of the Space Shuttle System when it becomes operational, and to participate in payload development, both manned and unmanned.
2. We have concluded that from our point of view, as well as yours as we understand it, that the development by Europe of one or more of the Research Applications Modules would constitute a desirable form of cooperation, and we encourage you to undertake such a task.
3. With the passage of time the concept of European participation in the development of the Shuttle itself has changed considerably. We are now strongly impressed by the potential difficulties that might ensue from an intergovernmental effort to produce a relatively small number of components of a massive piece of highly complex hardware whose timetable is pressing and in whose success the political and economic stakes are so high. Cooperation in some of the Shuttle items is not precluded. However, it will be necessary for Europe to undertake to meet rather stringent conditions designed to satisfy fully U.S. concerns. In candor I must report that the conditions the United States finds necessary may diminish the attractiveness to Europe of participating in the Shuttle items.
4. Since the definition of the Tug is still uncertain and the decision by the United States to proceed with its development has not yet been made, and there are no hard predictions as to when it will be made, the United States has concluded that it is not prudent to continue discussions of the possibility of cooperation on this task.

As I indicated earlier I have presented this overview in the interests of making our discussion here today more constructive and to help illuminate the responses we shall make to the questions you have raised.

I have, as you know, participated in these discussions from their outset. If words alone were all that were required to get cooperation under way we would be in full orbit by now. I want to assure you that European cooperation in this program, while evolving in form with passing time and changing circumstances, continues to be an objective of the United States. Let me say, however, that this is not essentially a commercial transaction we are discussing. Above all, it is a political act. In the absence of mutual political will to achieve a state of cooperation the real and apparent hazards and pitfalls will assume inordinate proportions and I fear that this venture will founder. It is my hope that our discussion today, and any that may subsequently follow, will be strongly motivated by a mutual desire to find a basis for agreement.

That concludes my opening remarks.

[1] ANNEX IV

Concluding Remarks by Mr. Herman Pollack Meeting with ESC Delegation on Post-Apollo Cooperation June 16, 1972

In this meeting we have tried to be entirely forthcoming, realizing fully the difficulty and the importance of the decisions that are to be made in Europe and the value to you of the clearest possible understanding of what the United States has in mind. It is our hope that we have provided the facts you are seeking and that they will enable your Governments to arrive at affirmative decisions when your Ministers meet in July. Some of the facts, however, which I think are relevant to the decisions of your Governments cannot be expressed with mathematical precision but are nevertheless important, and perhaps fundamentally of greater importance than some of the hard information we have provided you with during this meeting.

For example, it is important that both sides keep in mind the basic, enduring nature of the ties that bind the United States and Europe. These are well understood on both sides of the Atlantic and need not be elaborated here. But, it is this compelling and fundamental fact of life that above all else has motivated the United States in its search for European participation in the Post-Apollo program.

Another major but somewhat ineffable motivation arises out of the awe which United States leaders viewed the potential of outer space which would become possible once capability such as that contemplated in the post-Apollo program became a part of mankind's competence. We felt then and continue to feel now that this potential is too great, its implications to mankind too far reaching to be properly the subject solely of national decision. We therefore began to seek ways to make it possible for other qualified and interested nations to participate with us in the development and utilization of this new capability.

I repeat my statement made on the first day that commercial or technical factors have practically no influence in motivating our desire for European participation in a post-Apollo program. Rather, the considerations I mentioned above have generated this objective and keep it alive and strong today.

When we began our discussions with Europe we ourselves did not fully understand the nature of the system whose construction we shall embark on this summer.

Furthermore, it is clear in retrospect, that we approached these opportunities in prospect of a considerable interest abroad in participating in the development and use of a new Space Transportation System.

[2] You have participated with us in the preliminary definition of that System and, indeed, have made significant contributions to our changing perspectives and deepening understanding of it. Positions which originated several years ago relied heavily on predictions—indeed speculation—both as to the System itself and your interest in it. These position have been altered and modified as our mutual comprehension grew.

Thus we have arrived at a point in time at which your participation in the development of the Shuttle on a significant scale, as originally conceived, has been overtaken by time and, for the reasons we have enumerated during our discussions, can no longer be encouraged by us even on the limited scale we are still discussing. Consideration of mutual development of the Tug has of necessity been set aside. The opportunity to develop Sortie modules and to plan together for the use of the over-all Space Shuttle System and actually to make use of it, nonetheless constitute a major challenge and would be a significant response to our earlier expectations. We hope we have made it clear that we would warmly welcome your participation in these two areas.

Finally, let me repeat that for over two years we have sought European participation in this program and let me emphasize that we continue to do so. It is my hope that for your own reasons as well as for those which move us, we shall be able to come this summer to an agreement to move forward together on this historic project.

Document I-29

Document title: Arnold W. Frutkin, Assistant Administrator for International Affairs, NASA, Memorandum to Administrator, "Government Level Negotiations on Sortie Lab," May 9, 1973.

Source: NASA Historical Reference Collection, NASA History Office, NASA Headquarters, Washington, D.C.

This memorandum describes the final issues that had to be resolved before the United States and Europe could sign a memorandum of understanding regarding European development of the Spacelab (SL). The French L3S vehicle mentioned in the memorandum was later renamed Ariane. AEROSAT was a proposed cooperative satellite system for air traffic control, which was controversial at the time this memorandum was written; the United States later withdrew from discussions regarding the development of this system.

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[1] May 9, 1973

Memorandum

TO: A/Administrator
FROM: I/Asst. Administrator for International Affairs
SUBJECT: Government Level Negotiations on Sortie Lab

Formal but secondary level efforts to arrive at a consolidated US/European text between the European side and the US side were carried out on May 2-3 in Washington. Pollack chaired the US side (myself, Elliott, Rattinger) and Trella chaired the European side (with representation from seven countries).

A large number of essentially cosmetic changes were made in the existing US draft to accommodate European interests. In the end the European side cited three "reservations." It was agreed the European side would attempt to respond in about two weeks to indicate whether the reservations stood so as to require further discussion or were removed.

Among the many cosmetic changes were the following:

1. The words "United States" were dropped where they preceded space shuttle system in order to parallel our removal of the word "European" before Spacelab. We do not want to emphasize ownership of the Spacelab by Europe and feel there is no need, in view of all the facts of life, to emphasize US ownership of the Shuttle.
2. Under obligations of the US, "assistance" was removed to come under a requirement for mutual agreement and relevant US law and regulation.
3. We agreed that the US right to provide assistance as hardware rather than know-how could be exercised "in exceptional cases." In fact, we do not now know of any requirements for such reservations.
4. We agreed to state the legal situation in response to the European request for technology beyond that necessary to execute the SL program, namely, that the US will consider [2] such requests on a case-by-case basis.
5. We made the same arrangement for the use of required technology for additional purposes outside the SL.
6. We agreed that cooperative (non-reimbursable) European proposals would be given preference over third countries if at least equal in merit, but that cost reimbursable proposals by Europe will get such preference in the event of payload limitations or scheduling conflicts. This was agreed by our side to be only what would be the case under the President's launch assurance policy in practice.
7. It is specified, again pursuant to the President's launch policy, that commercial use of Shuttles and SLs will be non-discriminatory.
8. On the first SL we get "full control . . . including the right to make final determination as to its use . . ." and, except for joint *planning* of the *first* flight on a cooperative basis and encouragement of cooperative use of the first SL *unit* throughout its life, we get "unrestricted use of the first SL free of cost." It is made clear that we may charge Europe for use of the first SL.
9. The term of agreement—five years after the first operational flight of the Shuttle—is restated as lasting until January 1, 1985 but at least for five years following the first flight.

The European chairman ended with three reservations:

1. The group was not convinced that the European risk or contribution was adequately balanced by European benefits. He was specifically referring to their hope that we would agree to *try* to balance the European procurements in the US with US procurements in Europe. We said this is out of the question.
2. The Europeans feel that the agreement ought to extend to 1988 in order to draw out our obligation to buy SLs. We feel that a term beyond 1985 is totally unrealistic in the light of our present knowledge and future uncertainties.
3. The European side would still hope to improve the US launch assurance policy. We've made clear that it is totally impractical to think of working out changes in the US Government on this policy at this time.

[3] My own assessment is that the three reservations are tactical, to keep things open, while the final arrangements in Europe fall into place on such matters as funding of the French L3S launch vehicle. I believe that the European leaders are essentially committed to participation with us and that only unexpected rebuffs by us, congressional reversal, or

a serious falling out in Europe can change this. The AEROSAT problem is one such threat on the horizon.

Arnold W. Frutkin

Document I-30

Document title: Arnold W. Frutkin, Assistant Administrator for International Affairs, NASA, Memorandum to Deputy Administrator, "International Space Station Approach," June 7, 1974.

Source: George M. Low Papers, Institute Archives and Special Collections, Rensselaer Polytechnic Institute, Troy, New York.

This memorandum, prepared by longtime NASA Assistant Administrator for International Affairs Arnold Frutkin, contains some of the earliest thinking within top NASA circles with respect to what was expected to be the major "post-shuttle" program—a space station.

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[1] June 7, 1974

TO: AD/Deputy Administrator

FROM: I/Asst. Administrator for International Affairs

SUBJECT: International Space Station Approach

REF: Your Oral Request of May 15

Note: I have assumed that it would be easier to get domestic clearance to explore a space station internationally than to get domestic approval for a space station per se before inviting international participation. Therefore, we propose an approach here in which all elements of the project would be attacked on an international basis: justification, definition, design, construction, operation and use.

1. *Prospective Partners*

The three plausible partners for an international space station effort would be the US, the Soviet Union, and the European Space Agency. All have space experience, will have had manned flight experience, and have the necessary resources. (Canada is extremely limited in resources and Japan has shown no disposition to contribute to a non-national space purpose. The possible participation on a secondary level of these and other countries will be discussed later.)

There are a number of options as to how to approach participation by the senior three. We could approach either the USSR or Europe bilaterally, but I believe that each would be reluctant to enter into a strictly bilateral arrangement in the foreseeable future—Europe because of conservative space funding views and current space commitments, the Soviet Union because of political and security considerations. I do not think we should put the USSR forward as the senior partner since Europe would be quite offended (in view of the Spacelab agreement). Moreover, Europe might really be a better partner operationally, technically, financially and politically.

[2] Our best bet would be to approach both Europe and the USSR simultaneously, holding over each the possibility that we might be going ahead with the other. On this basis, we may be able to motivate *both* to work with us on a tripartite basis. This would give us the strongest basis for a large undertaking—economically and politically. Our approach (below) is calculated to make the USSR and Europe feel they have very little to lose and perhaps something to gain by entering into the particular procedure we are proposing.

2. *Domestic Clearance*

The multi-step approach outlined below would, of course, have to be cleared domestically with the usual offices. The prospects for such clearance would be greatly improved for the following reasons:

(a) No significant funds would be required until about the fourth year of the relationship.

(b) The procedure would advance us vary cautiously, step by step, into the project, with a long-deferred final commitment, and ample and specific opportunity to decide not to proceed beyond any given step.

3. *Initial International Approach*

After obtaining clearance, NASA would approach the Soviet Academy (or Aerospace Ministry) and the ESA (with backup visit at least to the principal ESA members—Germany, UK, France and Italy) on the following basis:

"The next major step in space, following the Shuttle/Spacelab, could well be a space station—'permanent,' resuppliable, recycling, etc. Such a space station would represent a facility of very wide interest and potential value to nations. As a very considerable and beneficial undertaking, it would require and deserve the pooling of resources. Accordingly, we feel that the question of such a space station should be explored as a *possible* international undertaking.

"We recognize that it is entirely too early for any nation to consider any commitment whatever to such a project. At the same time, in view of the protracted study and development which would be required before a space station could become a reality, it is out too early to undertake the very first preliminary inquiries regarding the purposes and character of such a facility.

[3] "We propose a very cautiously and conservatively structure[d] approach which would allow the three principal space power centers to examine into the question. They would begin independently, coordinate their next steps and, assuming that progress is satisfactory, proceed on an increasingly integrated basis.

"Thus, we are asking you, the USSR and Europe to agree to explore with us, according to a very highly protective procedure, your possible interest in proceeding into the design, development and operation of a truly international space station."

4. *Detailed International Procedure*

This procedure would proceed on two separate tracks. The first track would move from study and definition to planning the design, construction and establishment of the space station. The second track would aim at setting up the relationships and arrangements among the participants for undertaking, managing, and operating the space station.

The two-track approach is designed to separate the technical from the political problems in the early phases of the project. The second track, on management and operation, begins only at a specific point, when it should be clear whether the first track is making satisfactory progress.

This arrangement will give us the best chance to see if we can agree on what it is that we might want to do together. We could then turn to how we want to do it. Our entire experience, especially the Spacelab negotiations, demonstrates that if you get into how before what, you argue about abstractions and principles and problems which will never arise instead of arguing about a specific job to be done.

Farther down the road, the two tracks must be brought together so that we end up with a coherent plan and program.

(a) *First Track*

i. The three participants would initiate independent conceptual (pre-phase A) studies of a space station in order to develop their own very preliminary notions of its possible objectives, benefits, character and use, configuration and approach to placing and maintaining the station on orbit. (3/75)

ii. The participants would interchange their independent studies and consider them. (9/75)

[4] iii. The participants would form a (technical) joint study group to produce a single "strawman" concept. This would have no necessary relationship to the prior independent studies nor would the participants be bound by the views of their technical representatives. (12/75)

iv. The participants would independently review the "strawman" study. (9/76)

v. Technical representatives of the three participants would convene to formulate plans for a formal Phase A conceptual study to be conducted on an integrated (joint) basis. These plans would provide for integrated management of the study with a joint project team supported by "contractors," public or private, in the three countries. (12/76)

vi. Implementation of the Phase A study per above. (3/76-3/78)

vii. Those participants prepared to proceed, on the basis of Phase A results, to formulate a Phase B plan would do so. (They would do whatever might be appropriate to preserve the participation of any member with reservations at any step.) (6/78)

viii. Implementation of Phase II Program. (6/78-6/80)

ix. Review of Phase B program in manner similar to the review of Phase A above. (6/80-9/80)

x. Formulation of Phase C/D program. (9/80-3/81)

xi. Review of formulation and commitment to Phase C/D. (3/81-6/81)

(b) *Second Track*

i. At approximately the time when the formal Phase A study is agreed in Track One, the parties would convene a separate Joint Implementation Working Group to initiate an implementation plan for managing a possible Phase B and beyond.

ii. The Joint Implementation Working Group would address the financial arrangements, the form and location of management, method of decision making, provision for a systems integration mechanism, the division of labor among the participants, the degree to which management [5] authority should reflect the relative responsibility of the parties, questions of mutual access, and ultimately the operation and use of the system. The target for final agreement on an implementation plan would be the conclusion of the formal study of Phase A.

5. *Technology Transfer*

Each participant will expect the ultimate space station to be fully available for his use, alone or in concert with the other participants. Therefore, each will want essentially a total knowledge of the system. In all likelihood, narrow commercial processes could be held back as proprietary. I believe we should face this prospect squarely—in approaching domestic clearances and later in reaching understandings with the other participants.

Thus, for the present, we would not hold out any tenuous, complex or artificial prospects for restricting technology in the course of the program. I believe we could support such a policy on the basis that the space station itself would be a valuable consideration and that the technology entering into its structure would be unlikely to have significant commercial application. I propose, however, to keep this question under review to see if an alternative is feasible.

6. *Additional Accessions*

The question of participation by additional countries might be handled in the following way:

(a) In the design and development phase, any one of the three major participants could absorb personnel from additional countries within its own participation without in any way reducing its own responsibilities. It could not sub-contract its responsibilities to foreign companies or the equivalent without the specific knowledge and consent of the other major participants.

(b) In the use phase, other nations might apply for use of the system to a combined use-control board composed of the major participants according to provisions which would have to be worked out by the Joint Implementation Working Group.

7. *Assurances*

The participants would have to exchange government-level assurances relating to peaceful purposes, the openness of scientific results, [and] descriptive information of technical [6] activities (allowing for reservation of proprietary rights to industrial processes tested or employed in space, etc.).

Arnold W. Frutkin

Document I-31

Document title: Kenneth S. Pedersen, Director of International Affairs, NASA, to Director, Space Station Task Force, "Strategy for International Cooperation in Space Station Planning," undated [August 1982].

Source: NASA Historical Reference Collection, NASA History Office, NASA Headquarters, Washington, D.C.

This memorandum by NASA Director of International Affairs Kenneth Pedersen, who had joined the space agency in 1979, was prepared in response to a query from John Hodge, Director of NASA's Space Station Task Force, about the elements of a strategy for international cooperation in a possible station program. The Space Station Task Force had been established earlier in 1982 as a focal point for developing a NASA proposal for such an undertaking, which new Administrator James Beggs and Deputy Administrator Hans Mark had made a top priority in their approach to the space agency's future.

[1]

TO: MFA-13/Director, Space Station Task Force

FROM: LI-15/Director of International Affairs

SUBJECT: Strategy for International Cooperation in Space Station Planning

In your July 30 memo, you raised some interesting questions concerning international cooperation strategies. I would like to set down some thoughts on the matter, beginning with a quick look back to how we proceeded during Post-Apollo planning.

LESSONS LEARNED.

The most important lesson is to avoid making premature commitments or promises. Along with this, we must be careful to avoid broad statements that can be misconstrued.

Based on long-standing U.S. policy to cooperate internationally in space (that was reconfirmed in a 1969 White House Space Task Force report) and to encourage a European community, President Nixon told NASA that the U.S. should have European participation in Post-Apollo activities. NASA, as a result, immediately began to seek European cooperation in its Shuttle and Space Station activities. In late 1971, NASA and the European Space Conference (ESC) agreed that Europe would study a Tug and RAM (a Spacelab-like module that could either be operated within the Shuttle bay or on a space station), and that European companies would formally team with U.S. companies during Phase A and look at specific parts of the Shuttle (i.e., tail, payload bay doors). Also, NASA and European labs engaged in studying technologies needed for Post-Apollo activities. All in all, Europe spent about $20M on these Phase A (and in some cases, Phase B) studies. In the end, Europe's main interest was to develop the Tug.

Meanwhile, the U.S. position with respect to the level and kind of European participation it wanted crystallized. First, the Administration's interest in cooperating was later interpreted as an interest in European involvement in the use of space; i.e., the development of payloads and international manned operations rather than joint engineering projects. Second, [2] NASA, through an extensive review of European industry, found that European industry lagged approximately five to ten years behind U.S. industry. Therefore, NASA dropped the idea of joint development of technology, speculating that the U.S. might stand to lose more than it would gain. Third, NASA also decided that it did not want to depend on foreign countries for critical items on the Shuttle, so that the Shuttle could fly independent of foreign activities. Fourth, NASA decided that, for safety reasons, it did not want to fly a Tug using liquid propellants, the only type Europe was studying. Moreover, there was real concern that Europe did not have all the technology to develop a Tug.

A smaller lesson learned was the undesirability of formal teaming in the study phase. While this teaming was for joint development of [the] Shuttle, which was eventually dropped for the reason stated above, it did reveal the possibility of losing flexibility in subsequent development. NASA might prefer certain European companies while not wanting to choose the U.S. companies with which they were teamed, or vice versa. Most important, individual European companies could be denied participation in the program if they had prematurely teamed with a U.S. company which did not end up winning the bid.

The U.S. Government thus found itself in the position of having to walk back from the European perception of the cooperative possibilities in Post-Apollo that were encouraged by the way the U.S. and Europe had proceeded to define that cooperation. In some quarters in Europe, these misperceptions still exist, particularly as they concern the reasons why we rejected European development of the Tug.

Therefore, it must be decided whether certain systems and subsystems are going to be off-limits before we enter Phase B, so that we can avoid not only dashed expectations but also the possibility of missused [sic] foreign funding. Looking at it from the positive side, we should seek to identify, as soon as possible after we understand the basic design of the space station and before Phase B, what systems are realistic possibilities for foreign cooperation.

Further along in our program as we begin our negotiations with potential partners on an MOU, we need also to avoid some of the features which have proved troublesome in the Spacelab agreement. Neither NASA nor potential foreign partners will want an arrangement where one piece of hardware is contributed, and NASA is obligated to buy the additional units. Instead, our foreign partners will probably want preferential or free access to the Space Station as the quid pro quo. As an internal exercise, they will probably want to assure themselves there will be industrial spin-offs for their industry. And while NASA may indeed want to buy additional units from the foreign source, it is not desirable for NASA to be either [3] obligated to do so or restricted from developing similar types of hardware.

MISSION REQUIREMENTS STUDIES . . . HOW WE'VE PROCEEDED TO DATE.

The first key step was to involve foreigners early on in the process. This is responsive to their longtime requests for earlier participation in major NASA projects. It creates some ambiguity such as schedules, false starts, etc., but not enough so that it outweighs the benefits of beginning this way. Therefore, I think we are on the right track.

Each space agency that is undertaking a parallel mission requirements study has made the mission requirements aspect the first effort of its study, so that the results of its study can be factored into NASA's similar efforts. This results from the numerous times NASA has emphasized in its discussions with foreign officials the importance of identifying the potential uses of a space station, and from the realization by foreign officials that key U.S. players need to be apprised of the requirements that justify developing a space station.

Nonetheless, these same space agencies are also studying possible hardware contributions to a NASA space station. These efforts result from their own political realities at home; i.e., they have to justify spending their resources in a space station not only on potential space station *utilization*, but on potential industrial return as well. It also derives from the fact that if NASA is successful in its attempts to get Phase B approval for FY84, then they are going to have to move quickly to get big bucks from their governments to fund their Phase B activities. Thus, they are preparing the information necessary for their governments to determine if they are interested.

While this is acceptable, we must not let the emphasis on requirements get lost in the next several months. We can accomplish this by immediately addressing the question of how we plan to exchange results of the studies, thus reenforcing [sic] in the foreign space officials' minds that we are most interested in this aspect. I believe we will accomplish this at the September 13 meeting. I have outlined a proposal for this in the next section.

HOW WE SHOULD PROCEED FROM HERE.

Phase A

We have already laid the groundwork for this Phase. We saw an intense interest in our Space Station plans, and we have effectively translated that interest into several foreign mission requirements studies which are useful to both NASA and our potential partners. The complementary studies are designed to determine how much foreign interest exists in contributing to and using a U.S. Space Station. The results of these [4] studies will help both NASA and the potential partners decide if there is mutual interest in continuing cooperative activities in Phase B.

The next eight months—the duration of the mission requirements studies—are a very important time. It is incumbent upon NASA to maintain the emphasis on these requirements studies. I believe we have to continue to demonstrate that these studies are important for all the reasons we discussed at the beginning.

Thus, the scenario I would like to see happen for the rest of Phase A is as follows. Since the mid-term review of the U.S. contractors will be done individually with each contractor, it is not appropriate to invite our potential partners to observe this review. However, immediately following these reviews, I propose we invite the agencies which are undertaking parallel studies to a NASA summary of the mid-term reviews, and in turn, request each potential partner to brief us on their mid-term results. The final review of the U.S. contractors, I understand, will be an *open* review with all contractors reporting at the same forum. Thus, it is appropriate to invite our foreign agency study managers to attend this review, and present the final results of their studies. Finally, just as the U.S. contractors will prepare a final report on their studies, we should request copies of the reports of the foreign studies. We should also offer to provide to them the unclassified portion of the U.S. contractors' reports.

In addition to the above, we should use any of our NASA trips abroad in the next year as an opportunity to pulse the progress of these foreign studies. Likewise, we should welcome any requests to meet with us at NASA Headquarters to discuss the status of our Space Station planning activities. Given that the current space station activities are being run out of NASA Headquarters, I believe we should request foreign visitors to meet with Headquarters rather than Center personnel. Our foreign visitors should not be needlessly exposed to the Center politics now going on, which could only arouse further confusion as to NASA's objectives at the present time. In addition, if opportunities for NASA personnel to address conferences arise that are attractive and useful, we should accept them, and use the conferences as additional opportunities to meet offline with foreign officials. In particular, we should attempt to find conferences that include potential foreign users of a Space Station: scientists, business groups, and applications-oriented groups. This office will be on the lookout for all such possibilities. Finally, this office will ensure that all foreign visitors to NASA are apprised of our Space Station planning activities and, where relevant, set up meetings with Space Station Task Force personnel. We may be able to identify *new* potential users through this process.

[5] As we planned for our Phase A activities, we discussed with our potential foreign partners the best way for NASA to work with them and with foreign industry. Based on these and our own internal discussions, we decided that NASA would work directly with the foreign agencies, which in turn would keep their respective industries informed. In this way, NASA maintains its ties with its foreign space agency partners. And, since we do not want any formal industry teaming during Phase A, this strategy best suits our objectives. I believe we should maintain this strategy throughout Phase A. However, if a foreign partner invites NASA to address a meeting it has convened for its foreign industry, it might be

beneficial for us to attend. But if we decide to accept one, we must be ready to respond positively to *all* such foreign requests. Finally, we should encourage foreign space agencies to invite foreign industry to the planned January NASA industrial symposium that the [American Institute of Aeronautics and Astronautics] is arranging for us.

Phase B

The following discussion on Phase B presupposes that we get the go-ahead for Phase B in FY84. If not, then NASA would in effect be winding down Phase A activities or stretching them out another year. Our potential foreign partners will only proceed beyond these requirement studies when NASA gets Phase B approval.

Planning for and discussions with our potential partners on Phase B should rightly take place as Phase A winds down and as we have a better fix on the conduct of Phase B. I believe it is too early now to begin publicly speculating in great detail about how Phase B might look. This would only result in the danger of appearing to be overcommitting, and may, in fact, raise expectations in our potential foreign partners that we should not now raise. Although we must begin developing our views on how collaboration in Phase B would look, it would be premature to talk at length with our potential foreign partners at this stage.

The way our potential partners interact with NASA in Phase B is largely dependent on the management scheme we choose. I understand that one of the Task Force's working groups is now looking at various Phase B management schemes and that choice will probably be made around January. However, I would like to set down a few thoughts that I have concerning the way the international aspect of this Phase should proceed, regardless of the management approach chosen.

By the time we reach Phase B, special foreign interests in system and subsystem areas will probably have developed. These can be explicitly recognized within an agreement and used to focus respective studies, but no commitments to hardware development should be made. In a sense, this second phase would be the time when NASA and the potential partners would be [6] trying each other out, to see if cooperation really makes sense, both in the hardware and in the policy sense. But neither side will be quite ready to make a formal commitment.

While the main focus of Phase B is on designing hardware concepts, I believe each party should continue to refine requirements. Mission requirements analysis efforts should be an ongoing activity throughout the life of the Space Station program. In Phase B, we will be farther along in our design of the Space Station, which should help us discover additional uses. In addition, results from past Shuttle flights and other space endeavors should reveal new uses.

Whatever Phase B management scheme we decide upon, it may be desirable to avoid formal teaming of U.S. and foreign industry. The Shuttle experience suggests that it can reduce NASA's flexibility to choose certain foreign proposals because they are so tied to U.S. companies that eventually lose out in the development Phase. We all realize, however, how hard discouraging formal teaming will be, given our recent experience with Phase A.

If foreign space agencies fund Phase B activities, then they are half way there in seeing the merits of cooperating on the development phase. However, they will need to be convinced that a) the piece they eventually build is of significant value to the total system and, b) the returns to them are worth the costs of building it. Thus, regular discussions with our potential partners *throughout* Phase B is important to ensure that we mutually determine the best possible combination of cooperative possibilities that satisfy all our needs. Thus, in addition to meeting with our potential partners on the specifics of the Space Station activities, we must also use these opportunities to begin this type of dialogue.

Phase C/D

While MOU negotiations are at least 1 1/2 to two years away, over the next year, International Affairs will be re-examining past cooperative agreements (in particular Spacelab) to determine what features NASA ought to retain or avoid. In addition, we will be holding informal discussions with our potential partners to determine the things they will be looking for in their MOU's. As we proceed, we will continue to consult with you.

GUIDELINES FOR COOPERATIVE PROPOSALS.

First, we must determine if each specific proposal is beneficial to the U.S.; i.e., contributes to the overall objectives of the Space Station Program, to NASA's scientific and technological goals, and in a broader sense to overall U.S. foreign policy objectives. From our experience, a proposal can be beneficial by:

[7] – encouraging foreign STS and space station use on both a cooperative and reimbursable basis, thus tying other countries' programs to ours;
- sharing the cost of U.S. programs by stimulating contributions from abroad;
- extending ties among scientific and national communities;
- enlarging the potential for the development of the state-of-the-art;
- supporting U.S. foreign relations and foreign policy.

Second, we should be confident that the industrial and technological infrastructure exists within a foreign country in order to handle the tasks proposed. This point is crucial, because it is one of the most important ways we assure ourselves that little or no technology will be transferred. During the Post-Apollo discussions, we were not that familiar with the European aerospace industry and subsequently toured that industry to make an assessment. We are much more fortunate today in that we have now worked with both European and Canadian industry on STS, and with Japanese industry on several scientific and applications projects. Thus, our analysis will probably be done much more quickly this time around.

We should also assure ourselves that the proposals are realistic in terms of the projected costs involved. ESA, for example, sets ceilings on the amount of money a program will cost. Yet, many times, unforeseen design changes or launch slips will push that cost up. We would want to make sure that the proposals' cost projections include an adequate contingency to hopefully avoid the potential problem of foreign attempts to have NASA pay for these charges and slips.

Finally, while it might be attractive if the potential partner proposed hardware that matched its utilization requirements, I believe that we should be satisfied that the partner has utilization requirements for the Space Station system as a whole, and that its specific proposal contributes to that system.

OTHER U.S. GOVERNMENT INVOLVEMENT.

The decision to involve international partners in NASA's Post-Apollo Program was made before that program was either defined or approved. The White House Space Task Force Group headed by Vice President Agnew confirmed that there would continue to be international involvement in NASA's Post-Apollo programs, and President Nixon reinforced this to Administrator Tom Paine. Afterwards, there was a long, intensive interagency review to determine just what President Nixon meant when he [8] said he wanted international involvement in the Post-Apollo Program. As the program was defined, NASA, too, determined what it thought the optimal international involvement should be. As the development evolved, some conclusions were confirmed, and others were identified as things to avoid in future undertakings.

The 1958 Space Act gave NASA the statutory responsibility to seek international cooperation in its space activities. This policy was interpreted by the Nixon Administration as applying to NASA's Post-Apollo activities. President Reagan's July 4 space policy statement reconfirmed that policy with respect to present and future NASA activities. Therefore, NASA should proceed with pursuing the best possible international involvement in a space station that is beneficial to U.S. interests.

Given this, NASA is responsible for making sure that all U.S. Government agencies or portions thereof that have foreign policy responsibilities are kept informed of our activities. Furthermore, informing them early on in the planning process gives us a much better opportunity to have them onboard as potential supporters for this program.

We started by briefing the interested offices within the State Department. The Space Station Task Force has kept the relevant DOD offices informed of NASA's international activities. NASA is briefing the export control community since U.S. companies are now seeking approval for information exchange agreements during the Phase A mission requirements study. Other agencies such as OSTP, OMB, DOD, NSC and ACDA are probably interested in the international aspects as well as the programmatic ones. We should consider augmenting the briefings the Task Force is giving to these organizations. Further, we typically prepare briefing materials for White House and other U.S. Government agency personnel as they attend foreign and international S&T conferences, summits, etc.; we will include in these materials information on the Space Station activities being undertaken by foreign space agencies.

As we proceed towards designing the Space Station, we will be much more aware of the level and type of DOD involvement expected. It is possible that DOD may express concerns that might drive an interagency review of the international component of a Space Station similar to the type experienced in Post-Apollo planning. Otherwise, I expect the international aspect will be considered within the context of the overall decision on the Space Station program. NASA's best strategy in such a policy review would have to be determined once we saw how the arguments were shaping up.

In terms of the normal State Department review of NASA's international agreements, it will only review the final MOUs.

[9] *SPACE STATION APPROVAL—CAN FOREIGN INVOLVEMENT HELP?*

From the onset, we must be fully aware that a Space Station will be built by the U.S. Government because the U.S. needs and wants it. However, after having said that, I believe there are several ways our potential partners can help NASA gain approval to proceed with building it.

The first is already underway. If the foreign requirements studies reveal that the potential foreign utilization rate is large or moderate, then this can help bolster NASA's contention that it is timely to develop a Space Station. Foreign industrial support can help expand the overall industrial interest in a Space Station and willingness to fund space R&D that can contribute to Space Station utilization. Thus, a larger corps of domestic industry (besides aerospace) may visibly support the Space Station.

Second, foreign contributions will reduce the cost to the U.S. of the Space Station program, something that can help us in our budget deliberations with both OMB and the Congress.

On a different level, the fact that foreign governments are willing to put funds into a U.S. program again shows additional support for the Space Station concept.

Our development of foreign cooperative relationships must be consistent with U.S. foreign policy objectives. While making the argument that this is politically feasible and desirable will never be a sole justification for the program, it is important to recognize that

it could help NASA bring in members of the foreign policy community as supporters, and help produce a willing Presidential ear.

Congress has consistently been an ardent supporter of international space programs. Foreign involvement in a U.S. Space Station will be kindly received there. Moreover, it may help allay Congressional fears that the civil space program is being unduly influenced by the military. Thus, we could see active Congressional support both before and after Presidential approval of the program.

FOREIGN REACTION TO MILITARY INVOLVEMENT.

This is an important issue, since the interest and debate over the militarization of space is at an all-time high—much more intense than during the Post-Apollo planning activities. Foreign reaction to military involvement in a U.S. Space Station will largely rest on three factors: 1) the nature of the military involvement and the architecture of the Space Station; 2) the manner in which these countries already interact with the U.S. military; and 3) the tradeoff these countries perceive between: (a) the benefits from participating and (b) the domestic and foreign reaction to such participation.

The first depends on the final Space Station design and how the U.S. structures military involvement. If military operational weapons systems are to be part of one U.S. space station, other countries would probably be reluctant to join since doing so would constitute tacit acceptance of weapons activities in space. They might also be concerned that the station could be considered an attractive military target. If DOD use of a single space station were restricted to peaceful military purposes (i.e., reconnaissance and communications), the reluctance would be greatly reduced since both of the above concerns would be lessened. If there are two space stations (one military and one civil), foreign participation on the civil unit should pose no problem to anyone.

In that case, we must then look at our potential partners' current activities with and attitudes toward the U.S. military. [10]

- Most member nations of ESA are also members of NATO (exceptions being Austria, Sweden and Switzerland; France, while still a NATO member, has withdrawn from all NATO military activities). Therefore, most of the ESA member states have a long-standing involvement and NATO commitment to work with the U.S. militarily. Thus, while ESA is a civilian space agency, there is solid foundation among a majority of its member states to cooperate in a program that may have some military aspects. In fact, ESA did make that decision a decade ago when it decided to cooperate with NASA on STS and contribute Spacelab, despite the fact that the U.S. military *would use* STS and possibly Spacelab. In fact, ESA wanted the Spacelab MOU and Intergovernmental Agreement to state that Spacelab would be used by the *U.S. Government* (not just NASA) for peaceful purposes. However, it is important to point out that, on the one hand, Sweden chose not to participate in Spacelab because it did not want to contribute to any system which would be used by the U.S. military; on the other hand, neutral Switzerland has participated. Thus, we can foresee a situation where ESA might sign on, while some of its individual member countries might choose not to participate for political reasons. France has raised an additional concern; that is, the possibility that military involvement would mean that international users could be bumped. In fact, this is a current Ariane claim with respect to STS reliability to provide launch services to domestic and international commercial users. The question of how military involvement would infringe on access rights to the station is a vital issue—probably in the end the single most important factor influencing foreign participation.

- The Science Minister of the ruling LDP Party in Japan has recently stated that Japan's participation in cooperative projects such as space station would be "unavoidably narrowed" if the U.S. plans to use them for largely military purposes. This statement is not unexpected. Since World War II, Japan has been consistent in not wanting for political and economic reason to divert national resources for military reasons, even [11] if defensive in nature. The LDP is extremely sensitive to opposition party charges that its policies are tied too much to what the U.S. wants. For mainly economic reasons, Japan needs to be highly sensitive to Third World attitudes, including the current focus on "the militarization of space." Japan is critically dependent on the Third World suppliers for virtually all of its energy needs and raw materials. Given Japanese interest in the Third World as both a supplier and a consumer, Japan could thus be expected to be very cautious about participating with the U.S. in a space station perceived as largely military. However, the above has to be balanced with Japan's strong ties to the U.S. for defense. Therefore, Japan's participation will largely depend on the tradeoff between the benefits it sees from a Space Station and potential domestic and foreign negative reaction if the station has obvious military roles. Japan's assessment of involvement in a Space Station will also be driven by a frank eagerness to join the U.S. and other developed countries in the next major step, since Japan feels it missed a key opportunity to participate in the Shuttle.

- Canada is probably the country that would least object to any military involvement in a space station. Canada is also a member of NATO, but even more than that, is part of NORAD and has several defense sharing agreements with the U.S. The line between civil and military for Canada is probably slightly fuzzier than ours. Furthermore, Canada strongly supports DOD use of [the Remote Manipulator System (RMS)], and would work hard to ensure that DOD did not use an alternative.

When making an analysis like this, we must keep in mind that this is the situation as we perceive it today. Who knows what the political situation might be like a few years from now when we are ready to make a commitment to cooperate? In the interim, these countries will stay in the game because they do not want to be the only developed country to miss out and because they want to make sure they are ready to participate when the time comes to sign on the dotted line. It is at that point that each country will weigh the pros and cons of their participation.

From NASA's perspective, I believe it is important to be fairly straightforward at all times on the probability and level of DOD involvement expected. Since NASA wants to maintain and even strengthen the civil role of space activities in the next few years, it is to our advantage to actively seek and encourage international civil involvement in our next major step. We should be working to accommodate both civil and military uses within the basic design of the space station, so that one does not make the other impossible.

[12] *TECHNOLOGY TRANSFER.*

The greatest source of technology transfer, in my mind, is through industry to industry relationships. NASA's cooperative programs have been structured carefully to avoid technology transfer. Historically, our partners have agreed to provide a discrete piece of the overall project, and have then been fully responsible for the R&D on that piece. Only the minimum amount of technical information necessary to achieve a successful interface among the various elements of a project has been exchanged.

Secondly, while it might have been true ten years ago that U.S. industry was several years ahead of foreign industry overall, I do not think the same claim can be made today. During the past decade, we have seen measurable growth in foreign space budgets and capabilities. European, Japanese and Canadian industries are challenging U.S. industry in several fields: communications, remote sensing and launch vehicle development. We see increasing evidence that foreign governments are adopting sophisticated strategies to enhance their aerospace industries' competitive positions. Many foreign governments support their space industry not only through direct R&D funding (which often is targeted to areas with demonstrable commercial payoff), but also by price subsidization and financing assistance, development of attractive package deals, and creation of quasi-governmental marketing organizations. As a result, the U.S. probably stands to gain as much as our potential partners.

I want to reemphasize what I said earlier, that one of the more important criteria we should use in evaluating specific proposals for cooperation is that the cooperating country has the necessary industrial and technological infrastructure to successfully complete the job. If we carefully choose the cooperative arrangements—for example, we might make sure that they are discrete hardware pieces with minimal interfaces—we can minimize the potential for technology transfer in the normal conduct of the project.

However, even if we at NASA are satisfied we have structured a program which minimizes the opportunity for technology transfer, we must be sensitive to the growing interest in this topic throughout the government. Evidence of closer application of existing export guidelines and review of appropriate future steps in staunching the flow of advanced technology is readily apparent. In a long-term, multi-faceted program of this type, we must maintain close and continuing contacts with the export control community. Thus, we must keep the export control community continually informed on our activities and our efforts to protect against technology transfer. As I mentioned above, this process has been initiated.

[13] *POTENTIAL FOREIGN CONTRIBUTIONS TO SPACE STATION.*

An assessment of potential foreign contributions to a U.S. Space Station can only be a speculative one. Foreign decisions and commitments on participation will be reached during the end of Phase B, at least two years away. Impacting each country's decision will be the domestic and international economic situation at that time.

However, it is possible to make some assumptions based on the size of foreign space budgets and the level of contributions already made to NASA STS-related programs. Ultimately, the size of the contributions will be related to the potential benefits perceived by the contributors and the terms of cooperation proposed by NASA.

ESA's current annual budget is approximately $750 million a year. In addition, the combined space budgets of the ESA Member States is approximately $1.5 billion, apportioned between ESA contributions and individual space programs.

Canada recently increased its space budget by one third to almost $500 million for the next four years. Japan's annual space budgets for recent years have been on the order of $500 million and could be expected to remain at least at that level.

In sum, our potential partners now have moderate-sized space budgets that have greatly increased over the past decade, reflecting a realization by these nations of the importance and benefits from space activities.

Our STS partners contributed roughly 11-12% of the cost of the development program. ESA contributed a $1 billion Spacelab and Canada contributed a $100 million RMS. Italy currently plans to contribute $30 million to Tether. I believe it is reasonable to expect similar percentage contributions from these countries to Space Station, if they choose to

cooperate. Japan's GNP is roughly half that of the ESA Member States. Thus, it is not unrealistic to expect them to contribute half the European contribution. Furthermore, Japanese space industry has advocated doubling its space budget in the near future. Therefore, a 20% increase (approximately $100 million/year) for Space Station activities would not be unrealistic, given a strong Japanese industrial interest in a Space Station.

We should keep in mind that other space activities and comparable competing concepts for these funds exist. The Canadian Minister for Science and Technology recently told Mr. Beggs that while Canada is interested in cooperating on a Space Station, Canada is already planning several communications and remote sensing missions. Its economy would have to improve before it could take on new space projects. ESA will be considering additional Ariane upgrades at the same time it will [14] consider participating in a NASA Space Station. France has been studying its own robotics-space station, Solaris.

Ultimately, the willingness of these countries to contribute will depend on both prevailing economic conditions and the perceived benefits. Foreign partners will be willing to consider large investments only if they will lead to direct quid pro quos which are highly attractive, such as preferred or free access to the station, and also to spin off benefits which magnify the returns to their industry.

I would be happy to discuss with you any of these topics in greater detail.

Kenneth S. Pedersen

Document I-32

Document title: NASA Fact Sheet, "Space Assistance and Cooperation Policy," August 6, 1982.

Source: NASA Historical Reference Collection, NASA History Office, NASA Headquarters, Washington, D.C.

This statement of U.S. policy concerning launch assistance and international cooperation was an update and revision of a similar policy approved by the Nixon administration on August 30, 1972, and contained in National Security Decision Memorandum 187. The earlier policy statement formalized the modified U.S. approach to international space issues adopted in the post-Apollo period, and the 1982 revision made few changes in the basic principles set out a decade earlier.

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[1] August 6, 1982

Space Assistance and Cooperation Policy

I. *INTRODUCTION*

The fundamental aspects of National Security Decision Memorandum (NSDM) 187 of August 30, 1972, as they apply to today's international space activity have been reviewed. This review highlighted the substantial lead the U.S. enjoys in a wide variety of technological and space related areas—a lead which should be maintained when considering and implementing any international activity or transfer governed by the following directive. Based upon this review, this directive which replaces NSDM 187 is approved and provides general guidance for U.S. space launch assistance; space hardware, software and related technologies assistance; and international space cooperation. Specific implementing guidelines are being issued by the Assistant to the President for National Security Affairs.

II. *POLICY GOVERNING SPACE LAUNCH ASSISTANCE*

In dealing with requests from foreign governments, international organizations or foreign business entities for assistance in launching foreign spacecraft, the following general policy guidance is provided.

[Paragraph excised in declassification review]

[2] III. *POLICY GOVERNING SPACE HARDWARE AND RELATED TECHNOLOGIES ASSISTANCE*

In dealing with requests for the transfer of, or other assistance in the field of space hardware, software and related technologies, the following general policy guidance is provided.

Sales of unclassified U.S. space hardware, software, and related technologies for use in foreign space projects will be for peaceful purposes; will be consistent with relevant international agreements and arrangements and relevant bilateral agreements and arrangements; [phrase excised in declassification review] will contain restrictions on third country transfers; will favor transfers of hardware over transfers of technology; will not adversely affect U.S. national security, foreign policy, or trade interests through diffusion of technology in which the U.S. has international leadership; and will continue to be subject to the export control process. A special interagency coordinating group chaired by the Department of State will be established to consider special bilateral agreements covering the transfer of space hardware, software, and related technologies.

IV. *OBJECTIVES OF INTERNATIONAL COOPERATION IN SPACE ACTIVITIES*

The broad objectives of the United States in international cooperation in space activities are to protect national security; promote foreign policy considerations; advance national science and technology; and maximize national economic benefits, including domestic considerations. The suitability of each cooperative space activity must be judged within the framework of all of these objectives.

[Attachment page 1]

Implementing Guidelines to the Space Assistance and Cooperation Policy

A. *Policy Governing Space Launch Assistance*

1. Space launch assistance will be available, consistent with U.S. laws, either from U.S. launch sites through the acquisition of U.S. launch services on a cooperative or reimbursable basis or from foreign launch sites by purchase of an appropriate U.S. launch vehicle (see policy guidance under Section B). In the case of launchings from foreign sites, the U.S. will require assurance that the launch vehicles will be used solely for peaceful purposes and will not be made available to third parties without prior agreement of the U.S.

2. Although due consideration is to be given to Intelsat definitive arrangements, the absence of a favorable Intelsat recommendation regarding such arrangements should not necessarily preclude U.S. launching of public domestic or international telecommunications satellites when such launching is determined to be in the best interests of the U.S.

3. With respect to the financial conditions for reimbursable launch services from U.S. launch sites, foreign users (including international organizations) will be charged on the same basis as comparable non-U.S. Government domestic users.

4. With respect to the priority and scheduling for launching foreign payloads at U.S. launch sites, such launchings will be dealt with on the same basis as U.S. launchings. Each launching will be treated in terms of its own requirements and as an individual case. Once a payload is scheduled for launch, the launching agency will use its best efforts to meet the scheduling commitments. Should events arise which require rescheduling, such as national security missions, the U.S. will consult with all affected users in an attempt to meet the needs of the users in an equitable manner.

5. Interface drawings and hardware (i.e., spacecraft attach fittings, etc.) provided in connection with the launch assistance provisions of this policy shall be exempt from the provisions of Section B.

B. *Space Hardware, and Related Technologies Assistance*

1. For the purpose of this policy, the following distinctions are recognized:

[2] a. Hardware, software, and related technical information include:

(1) Equipment in the form of launch vehicle components and spacecraft including subsystems and components thereof, associated production and support equipment.

(2) General physical and performance specifications, and operating and maintenance information on the above equipment.

b. Technical assistance technology, data and know-how necessary for design, development and production of space hardware and software, including pertinent laboratory and test equipment or performance of functions and/or the conveyance of oral, visual or documentary information involving the disclosure of information relating to:

(1) Development and testing activities, detailed design drawings and specifications, managerial and engineering know-how and problem solving techniques.

(2) Production activities in the form of licenses, detailed production drawings, process specifications, and identification of requirements for production equipment.

2. [Sentence excised in declassification review] This does not mean that transfer of certain "technical assistance" under appropriate safeguards should not be considered on a case-by-case basis. In those cases in which "technical assistance" is provided, it should be done under safeguards which ensure protection of U.S. national security and foreign policy interests. Thus, whether the sale involves "hardware, software and related technical information," or "technical assistance," or some combination, adequate assurances to control replication and retransfer and ensure peaceful use must be provided in advance of the transfer through bilateral agreements, export licensing procedures or other mechanisms. [Sentence excised in declassification review]

[3] 3. All requests for the export or exchange of either space "hardware, software and related technical information" or "technical assistance" as defined above must specify the end use for which it is sought.

4. All such requests shall be examined on a case-by-case basis in accordance with applicable U.S. laws and regulations to determine the net advantage to the U.S. The determination shall take into account relevant international agreements and arrangements, relevant bilateral agreements and arrangements, and our objectives for international cooperation in space activities (see Section C).

5. U.S. space "hardware, software and related technical information" or "technical assistance" as defined above shall be made available solely for peaceful purposes. No U.S. space "hardware, software and related technical information" or "technical assistance" as defined above shall be made available by a recipient to a third party without the express prior agreement of the U.S. This includes any cases where U.S. space hardware is launched from a foreign site.

6. U.S. space "hardware, software and related technical information" or "technical assistance" as defined above, or any hardware, software, or technical information and processes derived from such transfers, will not be used to contribute to or assist in the development of any foreign weapon delivery system. Further, any officially promulgated national security policy directive is overriding with respect to the transfer of military-related missile hardware, information or technology within its purview.

7. In view of the sensitivity of space technology, the following distinctions shall be applied in reaching decisions as to its export. These distinctions shall apply both to transfer abroad by federal agencies and to commercial export.

a. Proposals or requests for the export of space "hardware, software and related technical information" should be met, when in the interests of the U.S., through the provision of "hardware, software and related technical information" rather than "technical assistance" as defined above, whenever possible and reasonable to do so.

b. "Technical assistance" as defined above shall be exported only under adequate safeguards providing for its use and protection.

[4] 8. In instances where space "hardware, software and related technical information" and "technical assistance" are intended specifically for use in operational communication satellite projects to provide public domestic or international telecommunications services, its export shall be governed as specified in Section III of the Space Assistance and Cooperation Policy and Section A, paragraph 2 above.

9. Recognizing distinct U.S. national interests, special bilateral agreements covering the transfer of space launch vehicle "hardware, software and related technical information" or "technical assistance" may be considered under the following guidance:

a. The Department of State will convene and chair a special interagency coordinating group consisting of representatives from DOD, ACDA, NASA, NSC, OSTP, DCI, and other interested agencies as appropriate to recommend policy and to decide upon, formulate, negotiate, and provide general guidance on implementation oversight activities regarding bilateral agreements covering transfer to selected foreign governments and international organizations.

b. Such agreements with selected foreign governments and international organizations will contain provisions for peaceful use assurances, restrictions on third country transfers and other appropriate safeguards as may be deemed necessary and mutually agreed.

c. Any agreements that would result in funding demands on the U.S. Government must be approved through the budgetary process prior to any commitment with a foreign entity.

d. Transfer of specific space "hardware, software and related technical information" and "technical assistance" under such agreements will continue to be subject to the export control review process.

10. The U.S. should encourage other supplier nations of space "hardware and related technical information" and "technical assistance" to establish controls on their exports which are comparable to those set forth in this policy.

C. *Objectives of International Cooperation in Space Activities National Security Objectives*

[Paragraph excised in declassification review]

[5] *Foreign Policy Objectives*

a. To gain other countries' support for the U.S. in general by promoting the U.S. national interest through bilateral and multilateral cooperation.

b. To assist in the achievement of foreign policy objectives through:

(1) Strengthening our allies and improving our working relationships with them.
(2) Promoting multilateral cooperation with, and among, other nations similar to on-going U.S. cooperation with the European Space Agency through suitable cooperation with their programs, on a commercial or joint program basis, in the event they desire such cooperation.

c. To encourage other countries to associate their interests with our space program.

d. To enhance U.S. prestige and ensure the U.S. position as the world's leader in science and technology.

e. [Paragraph excised during declassification review]

f. To demonstrate that the U.S. is a reliable partner in international ventures.

Scientific and Technological Objectives

a. To foster cooperation in basic scientific research.

b. To develop precedents and experience in substantial cooperative undertakings which will lend themselves to other international scientific and technological activities.

[6] c. To obtain support and assistance in the development of our national program through (1) acquisition of scientific and technical contributions from areas of excellence abroad and (2) use of facilities abroad that are necessary for mission support—tracking stations, overflights, contingency recovery, etc.

Economic Objectives

a. To maximize economic benefit by appropriately weighing:
(1) Implications of releasing technology which involves commercial "know-how";
(2) [Paragraph excised during declassification review]
(3) ensuring a reasonable return on the American investment in space technology; and
(4) promoting positive effects on domestic employment and our balance of payments.

b. [Paragraph excised during declassification review]

c. To seek opportunities to enhance our overall competitive position in space technology.

d. To seek more productive aggregate use of American and foreign resources and skills.

e. [Paragraph excised during declassification review]

f. To enhance the cost-effectiveness of space systems through increased and more effective use.

D. Effective immediately, National Security Decision Memorandum 187 is rescinded.

[Attachment page 1]

Fact Sheet
Space Assistance and Cooperation Policy

Introduction

On August 6, 1982, the President signed a directive which establishes U.S. national space assistance and cooperation. This policy directive highlights the substantial lead the U.S. enjoys in a wide variety of technological and space related areas—a lead which should be maintained when considering and implementing any international activity or transfer. This directive provides general guidance for U.S. space launch assistance; space hardware, software and related technologies assistance; and international space cooperation.

Policy Governing Space Launch Assistance

In dealing with requests from foreign governments, international organizations or foreign business entities for those space projects which are for peaceful purposes and are consistent with U.S. laws and obligations under relevant international agreements and arrangements (such as Intelsat) as determined by the U.S. Government.

Policy Governing Space Hardware, and Related Technologies Assistance

In dealing with requests for the transfer of, or other assistance in the field of space hardware, software and related technologies, the following general policy guidance is provided.

Sales of unclassified U.S. space hardware, software, and related technologies for use in foreign space projects will be for peaceful purposes; will be consistent with relevant bilateral and international agreements and arrangements; will serve U.S. objectives for international cooperation in space activities (see the following section); will contain restrictions of third country transfer; will favor transfers of hardware over transfers of technology; will not adversely affect U.S. national security, foreign policy, or trade interests through diffusion of technology in which the U.S. has international leadership; and will continue to be subject to the export control process. The Department of State will chair an interagency coordinating group when it becomes necessary to consider bilateral agreements which cover the transfer of space hardware, software, and related technologies.

[2] *Objectives of International Cooperation in Space Activities*

The broad objectives of the United States in international cooperation in space activities are to protect national security; promote foreign policy consideration; advance national science and technology; and maximize national economic benefits, including domestic considerations. The suitability of each cooperative space activity must be judged within the framework of all these objectives.

Document I-33

Document title: James M. Beggs, NASA Administrator, to Honorable George P. Shultz, Secretary of State, March 16, 1984.

Source: NASA Historical Reference Collection, NASA History Office, NASA Headquarters, Washington, D.C.

From March 3 to 13, 1984, a NASA delegation led by Administrator James Beggs visited London, Rome, Bonn, Paris, and Tokyo to extend personally President Ronald Reagan's invitation to U.S. "friends and allies" to participate in the U.S. space station program that Reagan had announced in his January 25, 1984, State of the Union address. (The group visited Ottawa later in March.) In this letter to the Secretary of State, Beggs reported the results of his trip.

[1] MAR 16, 1984

Honorable George P. Shultz
Secretary of State
Washington, DC 20520

Dear George:

As you recall, the President recently asked me to visit certain of our Allies to invite international participation in our Space Station program. This followed up, of course, on the President's announcement of this initiative during January's State of the Union address. I've just come back from Europe and Japan. Before heading off to Ottawa next week, I wanted to fill you in on the first stage of our consultations.

The reaction so far to the President's call for international cooperation has been both strongly positive and openly appreciative. It has been positive in the sense that our principal Allies are moving quickly, or have already moved, to take political decisions to participate. And their reactions clearly show appreciation for the major foreign policy benefits that will flow from open and collaborative cooperation on such a bold, imaginative and visible project. I heard nothing but praise and admiration for the President's foresight and leadership in making this decision. Prime Minister Nakasome and other Japanese officials, while still cautious in public, made it obvious that Japan will participate in a significant way. The Japanese believe they made a mistake in not joining us on the Shuttle and are determined not to be left behind again. In Europe, Italian Prime Minister Craxi was openly ebullient about the prospect of cooperation and strong Italian participation is assured. Mitterrand and Cheysson were both well informed and prepared to move ahead. Mitterrand, in particular, has obviously thought deeply about the need to press ahead with the exploration and exploitation of space. The French will be tough bargainers, and obviously intend to pursue their own independent space programs, but I am confident that we can agree on mutually beneficial terms for cooperation. By the way, you will be interested that Mitterrand observed to me that his recent proposal for a European military space station fell on deaf ears in Europe.

[2] Chancellor Kohl was in Washington during my stop in Bonn, but the relevant Ministers were quite clear that a major German contribution will be forthcoming. The British were more cautious, and, while I believe they will participate, it will probably be on the same terms that have marked their recent space-related activities—relatively small scale projects done on a multilateral basis.

While in Paris, I also met with the executive leadership of the European Space Agency (ESA) and with delegates from the Agency's eleven member countries—encompassing essentially all of our friends and allies in Western Europe. Here, too, the reception was warm and positive. ESA will almost certainly play a key role in managing Europe's Space Station participation, just as it did in the highly successful Spacelab project.

As businessmen, we both understand the importance of protecting intellectual property if we're to motivate private sector investment in this program. Not surprisingly, the Europeans and the Japanese are as concerned about this—from their point of view—as we are. The whole technology transfer question will obviously be an area where I will look to you, and other relevant agencies, for advice as discussions on the details of cooperation get more specific in the months ahead. I also explained our policy on the possibility of military use of the Space Station. I was pleased to find, even in Japan where the need for caution is clear, general acceptance of our announced position: that while no military use

is contemplated, the Space Station will be a national facility open to any paying customers—including DOD—for peaceful uses.

As a final item, I raised the President's desire to have the London Economic Summit endorse the principle that members will cooperate in developing an international Space Station. Germany, Italy, France and Japan were all supportive. Again, the British were more cautious and will need more convincing. The next step here—as laid out by Bud McFarlane—is for NASA, with State's help, to prepare a report on approaches to international collaboration before the Summit. I plan to present that report to the President and also to report to him on my trip. I hope you will join me in that meeting.

I'd like to thank you for the excellent support provided by the Department and by our Embassies at every step of the way. I especially want to express my appreciation and gratitude for the fine work done by Mark Platt and Mike Michalak who accompanied me on the trip. They are true professionals whose [3] involvement was instrumental in helping to produce the positive reception the President's initiative received. I look forward to continuing to work with you and your staff in the months ahead in the same productive and cooperative spirit.

Sincerely,

James M. Beggs
Administrator

Document I-34

Document title: James M. Beggs, Administrator, NASA, to Kenneth Baker, MP, Minister of State for Industry with Special Responsibility for Space and Information Technology, April 6, 1984.

Source: NASA Historical Reference Collection, NASA History Office, NASA Headquarters, Washington, D.C.

After his initial round of visits in Europe, Japan, and Canada to extend President Reagan's invitation to participate in the U.S. space station program, NASA Administrator Beggs wrote essentially identical letters to the most senior official with whom he had met in each country visited. The following is the letter to the minister in charge of space matters for the United Kingdom (U.K.), Kenneth Baker. In his letters, Beggs spelled out what he believed were the results of his visits, and he restated the basic U.S. policy with respect to the station program and international participation in it. He also outlined the next steps in the process of developing international station partnerships.