

HOUSTON, TEXAS

APOLLO/SOYUZ TEST PROJECT  
NEWS CONFERENCE  
LYNDON B. JOHNSON SPACE CENTER  
March 30, 1973

PARTICIPANTS:

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PAO

Good afternoon ladies and gentlemen. This is the final day in the current sessions of Apollo/Soyuz test project meetings between the Soviet Union and the United States. We have the technical directors of each country with us today to report to you on the events of the past two weeks. I believe you know both of them by this time. Dr. Glynn Lunney and Professor Konstantin Bushuyev. Dr. Lunney.

LUNNEY

Ladies and gentlemen, we have had a meeting of all five of the working groups plus Professor Bushuyev and myself meeting actively for the last two weeks here at the center. As I told you at the beginning of the meeting, there are a number of specific subjects that we had to discuss. But in general the kind of work that we were doing was to further detail and to further advance the work that we had already begun in the previous meetings. We have actually done exactly that in the last two weeks. We have handled a number of specific subjects, which I will touch upon, but indeed we have spent most of our time taking all of our agreements to one more level of detail. We have, just to give you an idea, we had a review of all of the schedules associated with the project, that is the Professor and I did, and we find that still everything is on schedule. We talked about a subject which is becoming fairly eminent in the program and that's the training, the actual familiarization and training, of the astronauts and

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cosmonauts. And we have laid out preliminary schedules for that activity, for those activities. And we have also laid out some of the format and types of documentation that will be used onboard. We have had some discussion about the mission operations and you heard us discuss at the first press conference the use of specialists in each others control centers to help out. We've agreed on the communications between the control centers in terms of the requirements, that is, the number of lines, et cetera. And also, some plans for developing and implementing these communications. We reviewed - we reviewed a set of experiments. At this stage of our talks I would have to characterize our discussions on experiments as still fairly preliminary. We exchanged the kinds of experiments that, that both sides would like now to consider further. On both sides we made it very clear though that we were not, at this point, near committing to any particular experiments for the flight. And we have laid out a schedule of meetings and data exchanges where we would hope to arrive at some conclusions by July, this summer. We had a fair bit of discussion on the subject of the transfer procedures between the docking module and the Soyuz. We worked on the cable communications that will exist when we hook the two spacecraft together. We talked about flammability and tests and precautions to take against

LUNNEY

flammability. We talked about some, oh perhaps lesser de - more detailed subjects, but of some importance and some discussion in the past. We talked about the possibility of reentering astronauts and cosmonauts in the other ship in contingency situations. And we exchanged some data on the size of our crewmen. We worked on the trajectory plans and we ended up actually moving the time of the rendezvous on the first Apollo launch opportunity from approximately one day after lift-off to approximately two days after lift-off. We still have work to do on the question of the seals in the docking system and we laid again out a further test program in which we will be exchanging seals and doing more tests on the seals with the intent of discussing the results in June and arriving at a final configuration. I guess I ought to say also in terms of trying to characterize the work for you as I did earlier, that the tempo and the momentum of the work on the project is picking up and indeed has already reached a surprising speed. As a matter of fact, for almost the next year we have a meeting of, either in Houston or in Moscow, of not all the working groups but some members of the working groups, almost every month. There might be a month or two in there that we'll miss but there will be an activity, a joint activity, on the project almost every month from now until as far as we've laid the plan down on paper.

LUNNEY

which is about a year from now. With that I would ask Professor Bushuyev perhaps to make a few remarks to you and then we would try to answer your question.

BUSHUYEV

Ladies and gentlemen, my colleague Dr. Lunney told you about the results and conclusions and work done at our meeting during March of this year. I fully agree with everything he has just told you. And obviously I will not repeat what he said because I don't want to take too much of your valuable time. I will only say that our work here in Houston was performed with very good results. This was made possible by the fact that both sides prepared themselves very seriously for this meeting. We achieved great progress in solving many technical and organizational questions. This, of course, commits us to go forward with a certain amount of certainty in our work to a final completion of the program of this joint flight. I would like to take this occasion once again to thank Dr. Kraft and Dr. Lunney for the remarkably good conditions that were created here for us in Houston for this joint and very fruitful labor. I am sure that that is one of the reasons why we were able to achieve so much during this meeting. I would like also to note that our work was helped by the spirit of friendship and mutual understanding which exists between us. And the tendency on both sides to seek a rational compromise in all the complicated and difficult

BUSHUYEV questions which are inevitable in the complicated work that we are doing. I would like to add and also mention our gratitude that we were being given possibilities, not only to work hard and fruitfully, but to have - to enjoy very good and pleasant relaxation during the few days when we were not occupied in the office. We will always remember with gratitude that Sunday which we were privileged to spend at the ranch of Governor Daniel. The hospitality that we encountered there exceeded anything that you could ever imagine. It is precisely there, at that ranch, that we got the feeling of real Texas. And once again became convinced of the kind of remarkable and talented people who live in Texas. All of us had a wonderful rest at the ranch. When I put on that Texas 10-gallon hat that was given to me by Governor Daniel and especially when I got on the horse, for a moment I began to feel like a real cowboy. It is possible that is the reason why the next day I was even more energetic in my work. In conclusion, I would like once again thank, in the name of my delegation, to thank everyone and say that we had a great pleasure and we are very happy with the results of our meeting. And to say thank-you to all those who contributed to this fruitful work of ours. And to express my certainty that our joint work in the future will go on as well as it has so far. Thank you for your attention.

PAO We do have an official written joint communique on the results of the meeting that will be distributed to you shortly. We are ready for questions now.

QUERY Yes, I got three points - First I wonder if Prof. Bushuyev before he leaves, might be able to tell us this time who the two members of the Russian flight crew might be. Secondly, Glynn, if you could explain a little bit further, on the reasons behind the shifting the rendezvous from the 1st to the 2nd day and along with that, I am wondering if this doesn't eat into the contingency pad as far as the Soviet spacecraft is concerned, as far as getting a full 48 hours together, and that sort of thing, and thirdly, the - perhaps you can go into more detail on just exactly what it looks like the training schedule, and things that will be done, and when they will be done with the cosmonauts and astronauts.

LURNEY He wants to know about the naming of the crew, and then I will answer the other two questions.

BUSHUYEV During the time that we spent working here I received no new information, have no new information to give you on the cosmonauts that will be appointed for this mission. But I would like to repeat what I said before, that this will take place in the very near future. And the two cosmonauts who are here now, Gen. Shatalov, and Dr. Yeliseyev are excellent candidates, both of them.

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The second question had to do with the decision to change the time of rendezvous, from what we call  $M = 14$  to  $M = 30$ , which is really from about 1 day of the Apollo lift-off to about 2 days after the Apollo lift-off, for the first launch opportunity. At our last discussion last fall, the Soviet side expressed some concern on accomplishing all of the systems checks, and performing the maneuvers with the Soyuz spacecraft in the 7-1/2 hours available to them, from the time of their lift-off until the time of the Apollo lift-off. We were concerned about the intensity of that schedule of events, plus the fact that the plan did assume that the vehicle would be in a certain orbit and if there were any reason to decide to slip the maneuver, at a given revolution, then the plan would be a little bit awry. It seemed to us that the best solution to this was to stretch out the activity of the Soyuz spacecraft in establishing itself in a target orbit and to permit a longer time, that is, up to about 2 days for the Apollo to rendezvous with the Soyuz. We don't think that this will cut in any way into the operational lifetime of the Soyuz spacecraft, because it is configured for at least 5 days of nominal flight, with a days reserve. So we will, in effect, use up 2 days at the beginning, rather than 1 day, leading up to the rendezvous. On the training, Art, our plan is of

LUNNEY

right now, is really only detailed through the first set of training sessions. We would expect to entertain a group of cosmonauts here this summer, probably in July, where we would provide a series of lectures on the spacecraft, primarily in the systems that would be of most importance during the time of their visit, like the life support system, general familiarization with the structure of the vehicle and the layout, etc., and the docking module. By this summer, we would also have a version of the crew activities plan, which you would call a flight plan in our country. We would have a version of that, that the cosmonauts and astronauts would be able to spend some time sitting down and talking their way through as a form of training and familiarization, also. There will probably be some visit to the simulator, as a matter of fact the two cosmonauts who are here have already visited the simulator on a couple of occasions, and to the control center also, so as to familiarize them with our operation here at the Johnson Center. In the fall, probably in September, or October, and with some care and scheduling around the Skylab activities we have going on at that time, a group of American astronauts would go to Moscow for approximately equivalent series of familiarization sessions, that is, there would be lectures on the Soyuz spacecraft, and a look at the Soyuz simulator probably, and whatever

LUNNEY        mockups would exist by that time, so as to familiarize our men with the looks and the workings of the Soviet spaceship.

QUERY        One thing we sort of left hanging, at least in my mind, when we left here at the last press conference, is exactly where American specialists will be going to a Russian control center. In other words, where is it located?

BUSHUYEV    First of all, they will visit the place where the astronauts and cosmonauts are training and preparing for the flight, and then they will visit the control center where the control of the flight, and the vehicles will be done, from where the control will be done. We have agreed on exact plans for these trips. At the present time we have developed plans of what will be done during these visits. All of these questions are completely clarified for our satisfaction, and we hope that they will clarify and solve all the problems that may occur.

QUERY        I am afraid I still don't understand where the control center is.

BUSHUYEV    I am amazed at the insistence with which you for the second time ask me the same question. We have several locations where the astronauts are trained and from where the control of the flight takes place. We choose those locations that are especially appropriate for the solving of the problems that we have with a flight. Of course, American astronauts and specialists, will go to a well defined place.

QUERY We may be leading into more misunderstanding here, are you saying then that you will construct a new control center in Moscow, Minsk, or Leningrad, or wherever, for this flight, or will you use a control center that you all ready have?

BUSHUYEV Of course we will not erect a special center just for this flight. That would not be reasonable at all. We will utilize the centers that exist now in the Soviet Union, and that are utilized by us during our space flights.

QUERY Okay, so tell us then how many control centers you have?

BUSHUYEV For different programs, there are different centers.

QUERY I am looking for a number, is it, 1, 2, 3, 4, or how many? Approximately then.

BUSHUYEV I don't think that is relevant to the problem that we're discussing here. On this program I will give you the figure. For the preparation of astronauts and cosmonauts, one center will be used. Our American colleagues know it very well. American specialists and astronauts have visited it. It is named after our great deceased cosmonaut Gagarin. For flight control, we will also utilize a single center.

QUERY Where is the flight control center located, what town is it located in, the last one that you just spoke of just then?

BUSHUYEV At the present time we are choosing one of two centers, that we believe will be most appropriate for this flight. When

BUSHUYEV we decide which one we are going to use, of course we will publish that information.

QUERY Do you agree that a complex operation of this kind will require a perfect knowledge of each others language, including very intricate technical terms? And if so, do you think that that can be achieved in 2-3/2 years?

LUNNEY I think both of us feel that the success and safety of the flight is going to be enhanced almost proportionally, perhaps, to whatever extent that we can make the astronauts and cosmonauts fluent in each others language. However, we've taken people who are fluent in both languages, for example Dr. Tatistcheff here, into the control center and he doesn't understand a word that's being said in English. And probably some of you have had the same experience. We are really going to find a need to create almost our own equivalent of joint vocabulary that we have in our own program. I don't want to minimize, and we have full intention to train as far as we possibly can our astronauts and the cosmonauts, I understand, in the language of the other country. In addition to that, we are starting to create special operational vocabularies that we could use for both normal and contingency actions. We are also trying to prepare all the documentation that we would use onboard; that is, checklists, flight plans, et cetera, in two languages and we will probably

LUNNEY go to great lengths on those kind of things. For example, we have talked about, although we haven't agreed to, we have talked about outside of our meetings, making tapes up with the astronauts and cosmonauts themselves pronouncing the words that would be expressed in the flight plan or in the checklist. So that perhaps is a long answer to your question, but in two parts, we're going to do all we can to make them fluent or as fluent as we can make them in a conversational sense, and we're going to do all that we can in the way of providing an operational vocabulary that both sides would be familiar and comfortable with and use for some amount of time prior to the flight, like perhaps 2 years. Okay?

QUERY

Glynn, on the business of crew transfer procedures you mentioned, have you decided who will go first to which ship? And also, have you decided in our own situation who will be driving when they dock - which astronaut?

LUNNEY

Jim, the second part of your question I haven't really paid attention to yet. I assume the commander would do the docking. As to the transfer, yes, we have worked out a procedure for the transfer and who goes first is determined by mundane engineering consideration that we would like the docking module, which is the transfer module, to be operated by at least one American. And on the first

LUNNEY visit that means really that two Americans go through the docking module first and into the Soyuz and then they return and there is a night's sleep. On the next day, two go over and then they - one astronaut will bring one Russian cosmonaut back and that sequence will be repeated twice more during the course of the day. But at all times and in each transfer there would be an American astronaut involved in the operation of the docking module system. Okay?

QUERY Glynn, on these experiments can you characterize the general areas of what you're looking at - solar experiments or space effects experiments or what have you? And is the possibility still open that a Soyuz will carry into space an American conceived and built experiment and vice versa or will each country maintain their own experiments on their own spacecraft?

LUNNEY Okay, let me see if I can remember these things. Now, we proposed some experiments - let me just rattle through the ones that the U.S. side proposed. By the way, when I say proposed I should more carefully say made available for discussion since we don't consider any of these things of firm proposal and we might decide on our own basis that we wouldn't want to fly it tomorrow. But we proposed some things in the area of medical interaction of the crew. And that is the different environments that we fly and the different organisms that could grow in those environments and

LUNNEY

sampling them, which is a fairly straight forward thing. We talked about photography and perhaps some other sensing of the Earth and observation of the oceans in what could be characterized as an earth resources class of activity. We have looked at some physics types of experiments, some of which could be done unilaterally from our spacecraft for example, things like releasing gases and observing ionization of the gases in order to gain an insight into planetary atmospheres and things like that. We have also considered the possibility of trying to get a better understanding of the magnetic fields of the Earth by employing an electron beam gun which would be operated from one ship and detected with receivers onboard the other ship. That's a fairly complex one that would be difficult to perform simply in a hardware sense, and there would be operational limitations also, but it is being discussed. There are other experiments which are in the category of the experiments you would be familiar with from Skylab which are sort of technology oriented, like the furnace and the melting of metals, et cetera. On the Soviet side, they proposed similar experiments in the area of the medical ones that I described, also the idea of making observations of the Earth was also a proposal. They also talked about some solar corona photography using one of the other vehicles to occult the Sun.

LUNNEY

And one other one that for some reason is not coming to me - oh, yes, it is - it was one that we considered earlier in our program, and that was to measure a certain range of the spectrum in terms of cosmic rays that would be received in earth orbit. But I really should characterize all these things as preliminary and I wouldn't want us to be obliged to do any one of them on either side. This meeting was a first exchange of these kind of things. We're going to exchange some information on them next month, meet and discuss them in June and then try to meet and decide what we would really want to do in July.

BUSHUYEV

I would like to add something to that. Dr. Lunney gave you in some detail the large number of experiments from which we have to choose. But we would like to select those experiments that would be particularly characteristic of a joint flight of two space ships and that would demonstrate very clearly the mutual friendship and understanding not only between our cosmonauts and astronauts but between the scientists in both countries. Therefore we are reserving ourselves the right - we want to both - on both sides give some more time to thinking about it. We are especially happy that time still permits us to give this some thought. But we have nevertheless a very concrete specific plan to prepare this scientific program. And at the next meeting

BUSHUYEV we will discuss this problem with the participation of scientists on the American side and scientists from the Soviet side.

QUERY Professor Bushuyev, it would be helpful if you could tell us the towns where the two control centers you are considering are located. That is to say, are they in Moscow and Leningrad, and, also, I wonder if in your mind there are any differences in the Russian control center that come to you as compared with the American control center. Although, of course, I understand that their functions would necessarily be the same overall, I'm talking about perhaps little differences in approach that you may follow versus the United States of America.

BUSHUYEV First of all on the exact location of these centers. In our work we have to be armed with patience. I promise you that at our next visit which will take place in July we will be able to give you full satisfaction on this question. As to the characteristics of our control center and how does it compare with the American control center, I must say that in principle there is no difference. And that is because both control centers are called upon to solve the same problems. And the same technique is used to solve these problems both in our country and in your country. There is a difference in the structure itself, in the arrangements inside the

BUSHUYEV control center and where the various types of equipment are located. But I can assure you that our centers are perfectly capable of solving the same problems that are solved in your control center. After your specialists and your astronauts will have visited them I'm sure they will be able to confirm what I'm telling you now. But speaking of your control center, I would like to say the following: I believe that everything has been thought through with great care. The various equipment is located in a very rational manner. I happened to be present in your control center recently during the training - experimental training in connection with Skylab, and I became convinced of something that I was quite certain of even before, that the work in your control center is remarkably well organized. And there is nothing remarkable in that because after all we have the results - the excellent results of your Apollo program prove it.

PAO Thank you.