Harold Brown, Oral History Interview—JFK#2, 5/6/1964
Administrative Information

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Biographical Note
Brown, Director of Defense Research Engineering in the Department of Defense from 1961-1965 and Secretary of Defense from 1977-1981, discusses his job description; the factors that went into his, Robert S. McNamara's, and John F. Kennedy's decision making about whether or not a particular weapons system should be developed; and the Nike Zeus and Nike X missile systems, among other issues.

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Harold Brown—JFK#2

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Second of Six Oral History Interviews

with

Harold Brown

May 6, 1964

For the John F. Kennedy Library

INTERVIEWER: We have been over some of the major background issues that have conditioned the three years of the Kennedy Administration [John F. Kennedy]. I wonder if in summation you would want to talk about your own role in connection with the basic issues, especially those of a more strategic nature?

BROWN: Well, perhaps I should start out by defining my own role within the Defense Department. It is quite specifically spelled out in the Defense Reorganization Act of 1958, and it consists of three parts.

First, to be the principal advisor on scientific and technical matters to the Secretary of Defense.

Second, to supervise the research and engineering activities of the Defense Department.

Third, to direct and control such research or engineering which the Secretary deems to require centralized management.

The first role, that of technical advice, is the one that brings me into the broader issues, because many of the broader issues of strategy do have a substantial technical component. When one talks about the B-70 or about antiballistic missiles, or about Skybolt, one clearly is talking about things that have a substantial technical component, but are not purely technical matters. They are also military questions, questions

of national goals are involved sometimes, financial questions are always involved. I try in such a circumstance to distinguish between the matters on which I am offering—the technical matters on which I am offering an expert opinion—and the overall question on which I am offering a personal opinion, which includes my own hopefully expert technical assessment of technical facts, but also inevitably includes my own personal less expert opinion on the other facets of the problem.

In any event, this is a very important—I am sorry, this is a part of my function which brings me most closely into contact and occasionally into conflict with other points of view about the big problems.

The second role, that of supervising the research and engineering activities, is essentially an internal role and what it has to do with is the way in which these programs are carried out. That is to say, once it is decided that there shall be an antiballistic missile development program, or that there shall be a B-70 program, it then becomes my responsibility to supervise the execution of those activities by whoever does them in the Defense Department. Almost always they are done by one of the services or by one of the Defense agencies with which I am not in a line position, or with respect to which I am not in a line position. In other words, I don't pick the people who do these things in the services, but I do by controlling the funding and by having approval authority over

the program, the nature of the program, I do supervise the program.

INTERVIEWER: The Secretary of Defense controls the funds of all the services?

BROWN: Oh, yes.

INTERVIEWER: Of all the service departments.

BROWN: Yes. And in the case of the research and development test and evaluation title of the budget, that is, those funds which amount to between six and seven billion dollars out of the fifty-odd billions that are the Defense Department's total expenditure, he in effect delegates the program control over those programs to me, and I inform the Comptroller as to when to release funds and when not to release funds.

I also essentially make up the budget for research, development, test, and evaluation on the basis of service and Defense agency submissions. They get a first crack at it, and I take what they put in and I can subtract things from them, or add to them.

INTERVIEWER: Do they go to you by name, or do they go to the Secretary by name?

BROWN: Sometimes they go either way. In effect, the Secretary has delegated this authority to me in these matters except when he wants to exercise it himself. So after I review the service submissions and make up my own budget, he and I get

together on the basis of what I have made up, and he will change that sometimes, sometimes in a direction that a service favors, sometimes in a direction that neither I nor a service favors, but that he does favor.

To summarize, I have supervisory control over the nature of the RDT&E program once the decision as to whether to develop something has been made. I have supervisory responsibility over how that gets done, which is essentially as complete as it can be in the absence of authority to select the people to do it. There I don't have authority. I have only influence. And subject only to the overriding authority of the Secretary. The services can always appeal what I direct them to do or what I tell them as changes to make in order to get my approval. Occasionally they do, and once in a while they will successfully carry a reclama of this kind with the Secretary.

INTERVIEWER: What issues have been reclamaed successfully?

BROWN: It is hard to think of very many. I am sure there are one or two. I can remember one which John Connally [John B. Connally, Jr.] reclamaed in 1961, which was the total funding for the SUBROC. He got the Secretary of Defense [Robert S. McNamara] to put back $6 million that I didn't think belonged there. That is lost in the history of the SUBROC [Submarine Rocket] program which has since had to have many more dollars added to it. But that is the kind of thing. There

probably have been two or three more in the three years since the beginning of 1961.

INTERVIEWER: But most of them have been failures?

BROWN: Oh, yes.

INTERVIEWER: About how many, by comparison?

BROWN: Oh, I am sure there are a hundred unsuccessful reclamas. Most of them were early, as you would expect.

INTERVIEWER: Testing out the system?

BROWN: Yes. When shotgun reclamas fail, then the number of reclamas decreased.

INTERVIEWER: Is this a significant improvement over previous administrations?

BROWN: No, I think it was probably very closely the same way with Herb York and Neil McElroy [Neil H. McElroy], Herb York [Herbert York] and Tom Gates [Thomas S. Gates, Jr.], or Herb York and McNamara. Quite often, in fact, I will be the route by which the services try to persuade the Secretary of Defense to do something. In other words, they will frequently try to get my agreement to something, and then have me try to persuade the Secretary to go along with it, or the service secretary and myself together will try to persuade him.

INTERVIEWER: In this sense you are talking about a third power, not the supervisory Power?

BROWN: No, I am still speaking—this applies or this technique can apply to either the force level strategy area

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in which I am a technical advisor, or it can apply to a problem having to do with the content of the research and engineering program. These two areas are not unrelated, because in principle the research and development you do should be based on a strategy and a proposed force structure, and inevitably the research and development that you do affects both the options that you have for a defense strategy in a force structure, and its actual characteristics. You can say you are going to have one kind of system, you are going to have a certain kind of system, but if the research and development is aimed at a slightly different line, you will find yourself ending up with a different system. This would be true, for example, of manned aircraft. Suppose you decided that you really did want a reconnaissance strike manned aircraft, like the RS-70. This is a hypothetical case, because that decision was made several times negatively. But suppose it had been made affirmatively. One could then devise a research and development program that would at least be aimed at giving you a reconnaissance strike capability, or one could devise a research and development program that would give you just a plain old bomber aimed at bombing exclusively targets whose positions were known. So you could call it an RS-70 in that case, but it would still be a B-70.

Let me proceed briefly to the third function which is to direct and control those items of research and development which are deemed by the Secretary to require centralized

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management. This is carried out by and large through ARPA. That is to say, ARPA, the Advanced Research Project Agency, which does not deal with big engineering systems, and although it had a brief history before I arrived of being in charge of all space systems, abandoned that. It was in the process of abandoning that to the Air Force before I came. ARPA is a line agency which has about a $250 million a year budget, and which reports to me in a line function, or in a line capacity. On occasion there have been temporary arrangements whereby I have had more than staff responsibility, more close to line responsibility over other Defense agency activities, such as the technical support of the

National Military Command System. But I have always viewed such things as of a temporary nature and tried to hand them back over to the people who are responsible in the line, either the Defense agencies or the military services as soon as I felt they were in shape for that to happen.

Well, those are the three responsibilities which I have from the Defense Reorganization Act of 1958, and the way in which I consider them as being carried out.

INTERVIEWER: In the first category, technical advice, what is the outer limit which you think you have reached in this field? At what point do you begin to tread on others' areas of interest?

BROWN: Oh, it happens all the time, because there are very few broad problems that don't have non-technical inputs, as

well. When one considers force structure questions, even force structure questions that have to do with yes or no, should you deploy an antiballistic missile system, clearly I tread on the toes of the military people who have an opinion on that broad question, just as I have, and I overlap the area of the OSD Comptroller, who also gets into both financial questions and force structure questions.

However, I consider it completely within my purview to offer advice on such matters. I don't see how I can confine myself to purely technical advice, that is, as to how well something will work under what circumstances, again talking about the antiballistic missile case as an example. Certainly I am the expert who should say if the Soviets send in a ballistic missile with 10,000 pounds payload divided into ten 200 pound warheads and 350 pound reentry vehicle plus 50 thirty pound decoys, plus 20 jammers, and so on, plus chaff to the extent of 500 pounds, then the Nike Zeus would have such and such an expected capability against such a payload, the Nike X would have such and such a capability. That is a purely technical statement, and that is my function. But I don't think that I can stop there. I have to say what I think about how likely the Soviets are to have such a payload, which is partly an intelligence question, and largely a military judgment question. I have to say what I think the economic tradeoffs are, that is, how much do they have to spend to do that, compared to how much

we have to spend to have a certain level of defense, which is both a military question, a fiscal question and a cost effective ness question,

I feel I must say those things, and I feel in the end when asked, as I often am, I have to say whether I would then deploy Nike Zeus or Nike X. When I do answer the last couple of questions or the ones that have gone before that I mentioned, I try to make it clear by what I say that that is not purely a technical matter. Of course, the Secretary, or the President, when they ask that question of me, know that it is not purely a technical question.

INTERVIEWER: How can one man form a judgment on all of these ranges with all of these considerations?

BROWN: Well, every man who offers general advice has to, and every man who makes a decision has to.

INTERVIEWER: Well, making a decision is somewhat different from giving advice, because presumably you have a collection of advice on which to operate. The way you sketched out your responsibilities, you gave advice over a tremendous range of problems, and with a tremendous number of factors bearing on them.

BROWN: When asked. But then of course it depends on how the decision maker asks. A decision maker can ask his questions of his advisors in such a way that they are confined to answering very specific questions, which are clearly within

their fields of competence. Then he can try to put them all together himself. That is one way of trying to reduce the impact of advice given by advisors who have rather narrow expertise, as many advisors do. In other words, a decision maker can say, “I am only going to ask narrowly technical questions of my technical advisors, narrowly military questions of my military advisors, narrowly fiscal questions of my economic advisors.” And as I say, that is one way of taking all, not only of taking all the responsibility on the decision maker, but trying to isolate people's advice to those things on which they are undoubted experts.

INTERVIEWER: Has McNamara used you this way?

BROWN: Generally not, but sometimes. The disadvantage of doing that is that it leaves it to the decision maker to make all the necessary connections between these things, and leaves it to him to establish in his own mind all the give and take that would normally take place if each person were asked a more general question. So quite often he doesn't handle it in the narrow way, as I said, but will ask the general question of each of a number of people, concentrating always in the area where they have the most expertise, and then forming his own decision in the end.

INTERVIEWER: Well, when you came in, you had great personal expertise in bomb building. In any other areas?

BROWN: I knew I would say more about the

antiballistic missile question than anybody in the level of the Army

above that of the project officer. That wasn't very much, but it was more than anybody in the Army above the level of the project officer.

INTERVIEWER: How about aircraft performance? Or technology in general? Strategies for making decisions on technological ripeness?

BROWN: Well, you have offered a variety of different things there, different cases in which to test my own expertise. I had been involved as an advisor to the Air Force, to the Secretary of Defense, and to the State Department, on a rather broad range of technical systems questions since 1957, and the Navy Department, since the beginning of 1957, four years before I came here. So that I did not arrive with a handbook and a slide rule, and a knowledge of various equations. I had deep experience in one area and shallow experience in a variety of areas involving systems. The bombs of course were built for systems, and I had had quite a lot of experience in seeing how systems were managed, how Polaris was managed. I had served for three years on the steering committee of the Polaris Program.

INTERVIEWER: Interestingly enough, by the time the Limited Test Ban Treaty came around, the factor that you emphasized was the insignificance of the warhead in the overall effectiveness of the system.

BROWN: I don't believe that characterizes my testimony properly. I would say that I knew that without a warhead, the system was useless, and I said that. The question about the Limited Test Ban Treaty was how much would improvements in the warhead change the systems in subsequent years. There is no question that if one had tried to build the Polaris with 1954 warhead technology, there would have been no Polaris system. The question at the time of the Limited Test Ban Treaty in 1963 was what new systems will result from future advances in warhead technology. So there had been quite a lot of change. I think that there are still further systems that will be developed with the warhead technology that one can do, or advances one can attain by further underground testing. I think that there are still further system advances that could be made by atmospheric testing. The question was how important they were, each of those.

Now, if one projects oneself backwards, the same thing must have been true before, that is to say, the Polaris system therefore could not have depended very much on advances in warhead technology nor could the ICBM. One is making an unwarranted projection which happens also to lead to an incorrect and untrue result.

So systems were intimately tied up with nuclear warheads. They still are. And I had quite a lot of experience with them. Now, it would be a mistake to say that I knew a lot

about aircraft design, or that I know a lot about aircraft design now. What I had I think was the—and I hope I have maintained, although it is not easy to maintain it around here—the

ability to look at a new problem on the basis of relatively fundamental physical laws, and come up with the correct technical assessment, listening of course to people who know quite a lot more about the details and about the physical laws involved than one knows oneself.

INTERVIEWER: Well, that is what I was going to ask you next, if in expressing judgments, in part you could be only a transmission belt, and if that is the case, to what extent would it prevail?

BROWN: I think what you are asking here is the most fundamental question about technical advice. Does it get better or does it get worse by being filtered through a series of people? The answer is, it depends on the people. A good technical advisor can extract the vital issues and a judgment on what the right answers to the questions involved in those issues are, better sometimes than the individuals who are doing the detail, because he has different standards with which to compare what they say than they have themselves. In other words, the sample question is, who is the best person to decide between a particular missile and a particular aircraft design, as to whether it can meet its—which is more likely to meet its performance goals, to take a very restrictive question, but a

technical question, not a military question. I am not asking here which is better, the missile or the aircraft. Which is more likely to meet its performance goals? Is it the man who designed the missile, or is it the man who designed the aircraft, or is it a decision maker who has designed neither an aircraft nor a missile, and who is not a technical man, or is it somebody who is technical and who may know about one or the other, but didn't design either one of them? It is a loaded question with an obvious answer.

INTERVIEWER: Can you generalize about what you did? Let us take it generally first, and then perhaps move into some of the specific issues that express it.

BROWN: Well, I tried to make an independent technically-informed judgment on each of the questions myself, and tried to indicate in my advice, be it to the Secretary of Defense or to the President, not only what my judgment was, but how sure I was of that judgment, because I believe it is a mistake not to in effect give a standard deviation of the answer as well as a number for the answer.

INTERVIEWER: When an issue like the Skybolt, where I gather one of your assistants, John Rubel [John H. Rubel], played a big role, how did you organize the advice that ultimately became your own?

BROWN: What happened in this case was that in the summer of 1962, we made a technical assessment of the Skybolt which indicated that it could be done, but it would be more

expensive than had been thought, and take longer than the current estimates had indicated, and it would be less reliable than the estimates indicated. Then I myself, using Rubel, using Fred Payne of my office, prepared the technical part of an assessment, of which the Comptroller prepared the fiscal assessment, and then both of us independently did cost effectiveness studies comparing the Skybolt as we thought it would be with alternative mixes of weapons, a certain number of Minutemen plus a certain number of Hound Dogs.

INTERVIEWER: Where did you get your information for all of this?

BROWN: The Air Force provided some of the information. Of course there were trips involved to the Skybolt contractor. We just used available information together with independent assessments from some of the raw data on which that information itself was based.

INTERVIEWER: Independent assessments by you or by outside consultants?

BROWN: I don't think we had an outside consultant organization in this case. We did it ourselves. My staff did it and I reviewed it quite carefully. During the summer and fall of that year, 1962, we reached a fairly straightforward conclusion by a number of independent attempts to arrive at an estimate of the situation that no matter how you looked at it, Skybolt would be less

effective, the amount of money spent for Skybolt would be less effective than the same amount of money spent for a mixture of other weapons. No matter what you took to be the purpose of Skybolt, whether it was the destruction of cities or the destruction of surface to air defenses so that the aircraft could penetrate, the Secretary of Defense looked this over and he made his own assessment of it. He asked the Air Force what they thought, and arrived at his conclusion that way. So there is one example.

INTERVIEWER: In general, you put the burden of proof on the proponents of this weapons system to provide information, to develop categories for effectiveness?

BROWN: Not necessarily. I think he is invited to do that, but if he makes an analysis that is unconvincing, and we make one of our own that is convincing, which supports his thesis, even though his own does not, we will go along with his proposal.

INTERVIEWER: Who draws up the categories for the use of the weapon?

BROWN: Well, we invite the proponent service to draw up the categories, but if

they won't, or if they won't separate them, if they say it is good for this, it is good for that, and good for everything else, and we won't tell you what we really intend it for, then we will make up our own categories.

Of course, the Joint Chiefs of Staff have a substantial

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role in this, because they are supposed to analyze, they are supposed to propose the various purposes of weapons systems and categorize them.

INTERVIEWER: Is this where the role of IDA has been…

BROWN: Not particularly. I think that IDA has nothing to do with determining strategy, despite what some people say about it. The Weapons Systems Evaluation Group, which reports to me administratively, is a service which I run mostly for the benefit of the Joint Chiefs of Staff, but also for the benefit of OSD components, or the Secretary of Defense himself, when he wants a systems analysis, a systems effectiveness analysis, a comparison of systems, or an evaluation of systems for the purpose of obtaining guidance on what research and development should be done, for example. Or to take one example of something that is going on right now, a proposed test plan to test one kind of weapon system against its counter. As I say, the chiefs request most of these studies, but I request some of them, or I transmit others from other components of the Office of the Secretary of Defense.

The example to which I referred I guess I could go into a little more additional detail on. It has to do with the question of the effectiveness of tactical aircraft against various modern and projected surface to air defenses, surface to air missile defenses, and one gets here into the question of tactics, which is of course not a technical matter alone by

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any means, various other countermeasures, the feasibility of which and effectiveness of which are a technical question. The nature of possible future surface to air missile systems, either of our own or of the Soviets, which is a technical plus an intelligence question. When one is all through devising a test, carrying out a test, interpreting a test, in the first and third of which categories the Weapons Systems Evaluation Group has been given a role in this particular case, one has all kinds of conclusions that one can draw from such a sequence as to how effective one can hope to make one's own systems, what research and development one should do for that purpose, how various penetration systems of aircraft against surface to air missile compare with each other, and what tactics may be the best to use.

The one thing that you can be sure you won't learn from this is an exact answer to how well U.S. planes would do against Soviet surface to air missiles in a war. The model is never that good. The model can only tell you whether your paper analyses, well, you can hope that the model will tell you—that the results of the test based on this model will tell you whether your paper analyses have forgotten or left out anything very important, and you can hope that the test will verify the predictions of the theoretical paper analyses as to what

tactics are more workable, more effective, and what technical capabilities various equipments have against other equipments.

I have not said yet anything about IDA. Well, IDA

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provides service. It is a nonprofit private organization which provides service to WSEG, the Weapons Systems Evaluation Group, in the form of a group of civilian analysts with technical backgrounds or economic or other analytical, backgrounds, for help in carrying out these evaluations. The professional people in WSEG are military, and have operation experience and analytical capability. The people in the IDA Weapons Systems Evaluation Division which works under contract to WSEG, are technical in background and analytical in background, and they provide contract service. This is perhaps the only place where civilians and military of varying backgrounds work together to produce reports or test plans or evaluations.

INTERVIEWER: Have the chiefs felt that they have had technical support?

BROWN: Each of the chiefs, of course, has an enormous organization, namely, the military service, which has a very large technical capability. It is so diffused through the organization that it does not always get the right advice to the top. The Joint Chiefs as such have technical analytical advice through WSEG from the IDA group. They do not have a technical organization within the Joint Chiefs of Staff. They have occasionally asked me to give my views on a subject with a technical content and I have always done so, although they don't always accept my view of things, they are always willing to listen, and I always find such exchanges very fruitful.

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In the past we have had such meetings—over the past three years I am sure we have had a dozen. The ones I remember best are on the RS-70 question, the Nike Zeus question, the communications satellite question, the military space program, the advanced manned penetrating system which has lately been proposed by the Air Force, the advanced manned interceptor which has been proposed by the Air Force.

INTERVIEWER: Have they felt that their military views would stand a better chance in the last analysis if they had stronger technical capabilities?

BROWN: I don't know the answer to that. I think that they have felt that since they are called on to give overall advice, it would not hurt for them to know what some of the technical—it would help, in fact, for them to know what some of the technical factors were, and when asked, I am willing to offer them my overall opinion, too.

INTERVIEWER: But have they tended to feel that they have lost out on things they have

wanted because they have not done their homework in technical areas?

BROWN: I think they do recognize that that has occasionally happened, as indeed it has.

INTERVIEWER: In what areas?

BROWN: Well, it is certainly true for the RS-70. I think it was true also for the communications satellite. The Chiefs, of course, don't always agree unanimously on things.

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They are unhappy when they don't offer a unanimous opinion. It is a peculiar thing, but it is not unique. There seems to be a feeling these days that lack of unanimity is a sign of unprofessionalism, as if all professional people would agree on everything. The failure of technical people to agree on a test ban, in their advice on the test ban, even though their disagreement on the technical factors involved was very much less, makes many people feel that scientists can't be trusted. How can you pay any attention to them if they don't all agree? The Joint Chiefs of Staff are apparently worried about the same thing. They are worried that if they split, it implies that they don't know their business, not that every man has his own opinion, even among experts. The same criticism, you may remember, has been applied to the Supreme Court. The Supreme Court can't possibly be any good because it doesn't have—its decisions are not all unanimous. Well, this is a matter of a piece of philosophizing which is by the way.

INTERVIEWER: Don't they also feel that they have less weight as a result if they don't agree unanimously?

BROWN: Yes, I expect they do. It is certainly harder for the Secretary of Defense to overrule all of the chiefs than to overrule half of them, and go along with the other half.

INTERVIEWER: This implies that the chiefs would be willing and would favor the strengthening of mechanisms for

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unanimity, for example, the acquisition of a deputy chairman.

BROWN: I don't see how that strengthens unanimity. The chiefs are not an organization with a man at the top who commands the rest of them. The chiefs are a group of individuals who have a collective existence as Joint Chiefs, but they remain individuals. That is, the chiefs have no—well, I don't know how to put this. The chiefs don't vote and have a majority rule. The chiefs are a group of

people, each of whom has something to say, and what each of them says gets transmitted up to the next echelon, which is the Secretary of Defense, who then considers what each of them has had to say when they were sitting as a collective body.

INTERVIEWER: Before moving on, I wonder if I might ask you if there is any one area, or more, if this may be the case, in which you have had on a technical issue a significant difference of opinion with the Secretary? What are the areas or what are the issues in which your technical judgments have been overruled?

BROWN: Well, I have had a variety of differences of opinion. I believe that I would have decided in favor of a nuclear carrier in 1962, and I told him so. On the other hand, he has to consider other than technical matters with weights different than I would necessarily give them. In any event, he sees things from a different viewpoint, so that this does not surprise me. But that is one example.

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Another case in which I think I differed with him and then was subsequently persuaded that his decision had been right, and which now I think he may be persuaded that my recommendation was right, is in the anti-satellite area. I was against rapid development of an anti-satellite capability, of which we now have one in being, and another one which will be in being I guess this summer. The first was the Nike Zeus capability at Kwajalein. The second is the Thor capability from Johnston Island.

INTERVIEWER: This is destruction?

BROWN: The capability of destroying satellites, that is right. I was against it partly for a technical reason, partly for a political reason. Technically I was dubious that one could destroy a satellite effectively, that is, cost effectively, at a cost small compared with what it costs to put one up and preserve one, if the people putting up the satellites took protective measures, decoys, changing orbits, antiradar covering, short orbits, that is, one or two orbits, getting the information, and doing whatever it wanted to do in one or two orbits. So that I thought it was a losing gain, more losing than antiballistic missiles, probably.

The political reason was that it is more advantageous to the United States to have our satellites and the Soviet satellites up there, than it is to have neither ours nor theirs. So to the extent that we precipitated a war of this kind, and

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to the extent that I was wrong, and that it was easier and cheaper to knock down satellites than to put them up, we were starting out in a direction which would benefit the Soviets more than it would benefit us.

INTERVIEWER: This assumes they recognize that we have this built into our satellite

capability.

BROWN: And that this encourages them to start to do something that they would not otherwise have done. I don't think this encourages them to do something they would not otherwise have done, but I think it could encourage them to use something that they would not otherwise have used.

INTERVIEWER: So we could carry this capability as an experimental antiballistic missile capability rather than an operational anti-satellite capability.

BROWN: Since part of the purpose was as a psychological counter to a threatened Soviet bomb in orbit, at some point its existence will have to be revealed. Its existence has not been revealed yet, but I think inevitably it is going to be.

Well, anyway, the Secretary decided he wanted to go ahead with this, and we did. We spent not very much money on the Nike Zeus at Kwajalein, and then spent quite a lot more money, sixty or seventy million, which is more than he thought it would cost, on the Thors. Those were presented by the Air Force as a $20 million program. That is what the R. and D. [research and development] was.

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But the operation is going to be seven or eight million a year, and the installation plus the R. and D. together were about sixty million, seventy million. So now we have these two things.

INTERVIEWER: What were his reasons for going ahead with it?

BROWN: I think his reasons for going ahead with it were, one, the Soviets had an anti-satellite capability and we had to have an anti-satellite capability; two, that there were a lot of scare headlines in the newspapers and magazines saying the Soviets are going to have a bomb in orbit capability, and then we will be in dreadful danger. These of course overlooked the fact that we are in less danger from that, or would be in less danger from that than we already are from Soviet ballistic missiles, which are a far more efficient way of bombarding the earth. But a psychological reason is a good reason for having these. In other words, if the Soviets have a bomb in orbit threat, this is how I gradually came to be persuaded myself that he was right. The Soviet bomb in orbit is principally a psychological threat, because it is better to have a ballistic missile than a bomb in orbit. It is safer, it is surer, it is more destructive for a given booster capability.

A not very good satellite destroyer, such as we will have, is good enough. It is a good psychological counter to a psychological threat.

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INTERVIEWER: It sounds, then, like this was a decision which was easier to sleep with

once made than it would have been had it not been.

BROWN: Well, as I say, I was persuaded after he made the decision that he had made the right decision and that I had been wrong. However, in the meantime there has been an agreement at the UN not to put bombs into orbit, which makes the threshold for putting a bomb in orbit and trying to exert that psychological pressure much higher, so that it cuts both ways now if the Soviets put a bomb in orbit. It makes our anti-satellite capabilities of less value and they are going to be a continuing drain. So I think he is now sorry that he put so much money on them, and I am not sure he would have two. I think he probably would still want to have one.

I think also he recognizes that the Nike Zeus at Kwajalein, which is the one that he insisted on going ahead with against my advice, is an extremely limited capability. It barely will reach high enough, because it has such a short range, of the order of [redacted] miles. If the Soviets do put up a satellite that we for some reason think we have to knock down, or to kill, rather, and the kill, by the way, takes a nuclear explosion which is against the nuclear test ban treaty—we may have to wait up to a week or so before the satellite comes over the right place. It eventually will, but we may have to wait a week.

INTERVIEWER: Is that facility also for testing out the

Nike Zeus?

BROWN: Yes, it was a simple addition to the Nike Zeus test facilities, so I think it only cost us about $15 million or $20 million. So it was not much wasted money, but it was wasted money.

INTERVIEWER: Were there any other differences of opinion?

BROWN: Oh, I can probably think of some, but they don't stick in my memory, which I guess is another way of saying they don't rankle.

INTERVIEWER: This leads me to ask the extent to which your own approach to your job reflects McNamara's needs, and his own attitudes. To what extent have you accommodated him?

BROWN: Well, if you are asking do I think I am here to run the Defense Department or to do the best I can to help him run it properly, the answer is the latter. I am not trying to make an independent mark here. Rather, let us put it this way. Making an independent mark here is not my guiding principle. I think working for a strong Secretary of Defense has made it easier for me to do what I want to do, because his staff inevitably takes on some of his strength.

INTERVIEWER: When was the first time you met him?

BROWN: The first time I met him was the day he offered me the job, which was February of 1961.

INTERVIEWER: Had you heard of him before he came into office?

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BROWN: No, I never had. I guess I had heard of him because he had been named president of the Ford Motor Company just about a month before he was named Secretary of Defense, but I don't think I had ever heard of him before then.

I would say that the biggest change in my own thinking that McNamara has effected, in my own field, research and technology, science and technology, something which has changed my view or in which I have accommodated to his views and concluded that my views required accommodation—that I had not been taking the right approach—is in the area of requiring that large scale developments be responsive to a real need. In other words, I would now maintain strongly that although research should be done for its own sake, and exploratory development to a degree should be done for its own sake, here I think he and I differ a little bit—I am not sure he would agree with this—advanced developments, developments requiring hundreds of millions of dollars, or even he would say tens of millions, I think where we differ is on the size for which this is true—should be done only in response to clearly defined needs.

INTERVIEWER: What have your views changed from?

BROWN: Well, I would have said if you could do something—I don't think I have thought about it enough. I would have said if you have a good group of people who want to do something that is technically feasible and could conceivably prove useful, they should be allowed to do it. I am speaking of

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technical people. I would not have put a dollar limit on that, and now I would. I am not sure where it is, but maybe it is $100 million.

INTERVIEWER: Do you think dollars are the best measure?

BROWN: It is the measure that you end up dealing with. I am not sure they are the best measure. What you really have to do is decide how much something would cost to do, decide how likely it is to be used, and how valuable it would be if it were used. In simplest terms you have to compare the first number with the product of the second two numbers and see which is bigger. I guess it is the idea that you should do this where he has changed my thinking on that. It would not have

occurred to me beforehand that this is the right way to do it. I now believe that it is the right way to make decisions.

INTERVIEWER: Do you really think you could place a price tag on utility?

BROWN: You try. I think that is what I would say. You try by comparing it with other things which you could do.

INTERVIEWER: But that is not the be-all and end-all.

BROWN: It is as close as you can come to the kind of criterion the decision maker has to use.

INTERVIEWER: In other words, the staff supplying the decision maker must operate in these terms.

BROWN: Yes, must try to think in those terms, and

you can't always think in those terms, because there are some advances that are just not commensurable, that give you capabilities that are just not commensurable very easily with others. Those I think have to be considered on a separate basis. But I think it is always worth trying to set up a measure for effectiveness, decide what the probability is that the system would be used—I am sorry, that the results would be used, and then decide how much they would cost to get.

Now, this applies, as I say, above a certain size. I think that an exploratory development, I would still stick to my own earlier criterion. A group of good people working on something in which they are interested should be supported. There is no question that that should be the case in research. I would apply it also to exploratory development, which is a group of things which are time oriented, or can be time oriented, as research is not, and have some possible hardware application in mind, which research does not and need not.

INTERVIEWER: The time orientation is pretty critical, isn't it? For example the DEW Line [Distant Early Warning Line].

BROWN: Well, the DEW Line of course is not a piece of exploratory development. It is a big engineering development.

INTERVIEWER: But I am saying that all through this, especially in the development phase, the time of the likely availability…

BROWN: That tells you how much something is worth.

That is a factor in how much something is worth. The later something comes in, the less valuable it is, both because it will have failed to perform any function in the interim, but also because the threat, which it is likely to have to face, is greater.

INTERVIEWER: I wonder if you could relate this analysis to some particular decision to go ahead with a weapon.

BROWN: Well, to relate this analysis to a decision to go ahead with a full scale engineering development or deployment of a weapon system is easy. To relate it to exploratory development or sample hardware that may later get turned into a system but is not itself suitable for a service use is harder. In the first instance, that is, the decision to deploy something, I think this is the most fundamental judgment that goes into the question, not the only judgment. There are always political reasons for doing something or for not doing it, and so on. But in deployment decisions, I think this is the most fundamental criterion.

In a decision to go ahead with an engineering development, it is also a fundamental criterion except that this extra factor of what is the probability that you will actually use it, that you will actually deploy it, comes in. I think the best example of both of these is the Nike Zeus and Nike X history. In the case of Nike Zeus, it is fairly easy to show near the end of its development that a very much

smaller expenditure on the part of an offensive system, a very much smaller expenditure increment in money spent by an offense would be enough to overcome the additional defensive capability that the Nike Zeus would have provided, by a very large factor, like 30 to one, or 10 to one. By that time the development had been completed, but it still seemed worthwhile to go through with the test to try to find out more about the general problem of AICBM [Anti-Intercontinental Ballistic Missiles], which is a very central one to the current strategic balance.

In the case of the Nike X, our calculations indicate that roughly speaking—and of course it depends on whether one side is clever or the reverse of clever, and the same about the other side, but assuming good judgment on both sides, with roughly equal technical facility and capability, knowledge, to defend the U.S. population, assuming one deployed fallout shelters, which one has to do if one is going to have an anti-ballistic missile defense, to the extent that only 30 percent U.S. civilian casualties would be suffered, only 30 percent of the U.S. population would be killed, requires three times the expenditure, roughly, on our part than it would require on the part of the Soviets, to get that percentage of casualties in the U.S.

To preserve 50 percent of the U.S. population under these circumstances requires only about an equal expenditure on our part as compared to the Soviet offensive expenditures.

Well, one does not know on the basis of this whether one should deploy or not, but it does indicate roughly what you should make your judgment on.

INTERVIEWER: Well, do you have any feeling about where it makes sense for us to overspend the Soviets? What the proper ratio might be, assuming we have more resources available?

BROWN: I think we can afford to spend about twice as much, but the question is, suppose we can afford to spend three times as much, is it worth spending at the rate of three to one in order to raise our potential survival of people and industry? They work out about the same. That is from fifty percent to seventy percent, especially considering this is only true in a case where you are going to lose 30 percent. Let us put it this way. If you know there was going to be a thermonuclear war, this is the best way you could spend your money. If you knew there was not going to be a thermonuclear war, this money is completely wasted. You don't know whether there is going to be a thermonuclear war or not, so you have to judge…

INTERVIEWER: So the calculation is necessarily meaningless.

BROWN: No, it is not. You can make a judgment on what that probability is. First you have to say I believe that my deterrent probability is so and so, but an accident can happen, wars can escalate, the Soviets can be irrational and start a war. What is the probability of that?

Now, I don't know that anybody can give a good answer, but a president has to have some number in his mind—well, let us put it another way. Whether he has a number in his mind or not, he acts as if there is such a number. Many actions of his involve the same kind of judgment that is involved in the judgment of that number.

INTERVIEWER: But you people made recommendations to the President.

BROWN: Sure, on the Nike Zeus, we recommended not, but that was a simple one. That is a simple one, because the exchange ratio was so large, thirty to one, it just doesn't make sense to spend to build to put in something that can be countered by one thirtieth or even one tenth of the cost. So that was a simple one.

It was also relatively simple to decide to develop the Nike X. There is a billion and a half dollar expenditure, which if we don't deploy it is in a sense wasted, not quite, because so much of the work is applicable also to our own offensive systems. The same phenomena that you learn about in designing a defensive system are the ones that you have to learn about in order to develop and decide, develop and install the correct penetration aids. So that there

are lots of reasons for developing something there. But there is a finite probability that you are going to deploy the system, and I don't know whether it is 70 percent, 50 percent, 30 percent.

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If it is even 30 percent, then you almost have to spend this money, even though it is a billion and a half dollars, not a hundred million dollars, but a billion and a half, because the strategic balance is central to a deterrent strategy, or damage limitation strategy, either one.

INTERVIEWER: What is the probability of deployment attached to the Nike X and not to the Nike Zeus?

BROWN: Because that is the decision we are now faced with, or we were faced with a year ago. Should we develop Nike X?

INTERVIEWER: It is not relevant until you decide—deployment is not relevant until you decide to make a development.

BROWN: That is right. Well, we decided to make a development decision a year and a half ago, and so the probability of deployment was a relative factor. You see, if one goes back and looks to the Nike X and Nike Zeus decision which was made in 1957, just about, I guess, if we had made as careful analysis then as we made when the time came to deploy Nike Zeus, I don't think we would have developed it. What we would have developed was something like Nike X. So it is a good lesson, it seems to me, a good lesson as to why the McNamara approach has had an influence on me. I think had we been as operationally oriented, as user oriented, as effectiveness oriented in 1957, then we would have changed the development of Nike Zeus, so that it would have been more like

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what we wanted.

INTERVIEWER: The development of the Nike Zeus has had some relevance to development of the Nike X picture.

BROWN: Oh, yes, the money is not wasted, or at least not all of it.

INTERVIEWER: Are you brought to a decision to deploy Nike X because you failed to decide to deploy Nike Zeus? Do you feel that having made one negative decision, you would have a bias toward making a second affirmative decision?

BROWN: No, not for that reason. I think that since the Nike X was instituted in

this administration by me and by McNamara, President Kennedy, there is always a tendency to be more tolerant of your own children. I confess that I am human enough so that this has an effect on me which I try to put aside. I am sure that McNamara will put it aside. I guess what I am saying is that the Nike Zeus-Nike X experience has indicated to me that it is very important that the R. and D. people think hard about what it is they are trying to do, what kind of operational capability they are going to be providing, and what the threat against it will be. If we had done that on the Nike Zeus, I think we would have changed it earlier. Of course, I was on the outside at that time, and I knew enough about it so that I was recommending that.

INTERVIEWER: Recommending that it be changed?

BROWN: Recommending that it be changed, that it was not

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going to do what it was supposed to do. The threat would have been changed so that although it was very, very good against a simple threat, it would be useless against the kind of threat it was likely to encounter. I was saying that even though I was on the outside.

Since I have come here, I have recognized that McNamara is correct, and that the reason this kind of failure takes place is that the R. and D. people are too enamored with what they are doing sometimes, and are not willing to stand aside and say, “Well, what is it this thing is really going to have to do?” Instead of saying, “I can do so and so; therefore I should do it,” we have to say, especially with a big development program, “What is it that I want to do, and what is it that I will have to do in order to serve any useful purpose?” and then try to do that. If you can't do it, then you fall back and see whether what you can do is worth anything. But you don't start out with a bias that because you can do something, it is therefore worth doing.

INTERVIEWER: Have you been aware of Henry Kissinger's [Henry A. Kissinger] recent expression of views that people who think this way lack humility?

BROWN: Yes, I read what Henry had to say. The trouble with his attitude as he expressed it is that feasibility is not a sufficient criterion to make a decision among things, so one has to find another criterion. There are always more things

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to do than you have resources—not just financial resources but human resources allow you to do.

INTERVIEWER: Feasibility, though, bears on likelihood of something ever being

deployed.

BROWN: Feasibility is a necessary criterion for a development program, but it is not a sufficient criterion, because if it is a sufficient criterion, then we should be doing ten times as many things as we possibly can do. So one has to find another criterion. As I said, my previous bent was to say that the criterion should be, what is it that the people who are doing these things want to do? I am now saying that although that is not a criterion that I would entirely reject even now, I think it is far from a sufficient criterion. That is, somebody has to pay attention to what it is that you want. Sometimes the people who are doing these things know better than the users. I accept that, too. But they both have to be considered.

INTERVIEWER: The one reed which you are resting on, which may be a very good one or may not be, is your expectation of what the threat would be like at some point in the future.

BROWN: Well, suppose that reed is abandoned. Then what should be the criterion? I submit that the only other criterion is the other one that I mentioned. Namely, what is it that the—depending on how you think of them—what is it that the dedicated scientists or importuning salesmen or hungry

industrialists or special interest congressmen think can be done? I just don't consider that a particularly—I consider that a criterion of such wide variability that it is not useful to a decision maker.

INTERVIEWER: At the same time, you are aware of the fact that taking a narrow criterion may be taking the wrong one.

BROWN: If you take too narrow a criterion, there is never a requirement for anything. I agree.

INTERVIEWER: How have you hedged your judgment?

BROWN: Well, we are developing the Nike X. We are spending $30 million on vertical take-off and landing aircraft advance development, even though no one has been able to establish a clear requirement for vertical take-off and landing aircraft. Now, there is a piece of paper called a requirement for them, but that is not a requirement. No one has been able to show why you need them, but we are still spending $80 million a year on them. There are a variety of things in the same category.

In the end you are going to be relying on the judgment of informed individuals. Research and development in the Defense Department has always depended upon the vision of the people who have the authority and the influence, and even the brightest of them have

not always been able to see the future. As an example, Vannevar Bush predicted in the late ’40s that ballistic missiles would never be important. Well, he was wrong. He was wrong because he failed to foresee two pieces of

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technology, the greatly improved guidance which developed, or was developed by people like Stark Draper [Charles Stark Draper] and some industrial organizations during the late ’40s and early ’50s, and the thermonuclear weapon, which together made the ballistic missile an awesome weapon. So he was wrong about that.

INTERVIEWER: Is it fair to say that you don't foresee changes of this magnitude in the likely future?

BROWN: Well, I don't know what they are. I think that they may well happen.

INTERVIEWER: Do you think anyone knew what they might have been in Vannevar Bush's time?

BROWN: I think some people thought that the ballistic missile was going to be one.

INTERVIEWER: Edward Teller thinks the ballistic missile will be…

BROWN: Let me put it this way. We are working as hard on the antiballistic missile as we possibly can, so we can't be accused of the analog of not developing the ballistic missile in the late ’40s.

INTERVIEWER: Although there are other things that you are doing on the offensive side.

BROWN: I was going to get to that. I was going to say that had we not increased the penetration aids program, which is $20 million a year, in fiscal 1961, to $200 million a year this year, then I think the Soviet antiballistic missile

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might have been a comparable weapon, I mean a weapon of comparable importance to the ballistic missile, and might have changed the strategic balance to the same extent. This causes me to come back to something I said at an earlier session, which is that these things take long enough to do, so if you are on your toes, you are not going to be surprised overnight. You have got five or six or seven years to make your judgments. It helps to see the future, but you don't have to be able to see what the situation is going to be seven years from now right now with great precision in order to make sense.

INTERVIEWER: Let's see if this proposition can hold water.

BROWN: It takes that long to develop…

INTERVIEWER: But you are maintaining readiness to do all of these things. You are searching the threat.

BROWN: Yes.

INTERVIEWER: You are confident of your own capabilities to meet the threat on a timely basis.

BROWN: On a timely basis.

INTERVIEWER: What are you doing to…

BROWN: We are spending $200 million a year on penetration aids. We are spending $1.5 billion—no, we are spending almost half a billion a year on antiballistic missile development of Nike X. That is about $350 million, plus $150 million on more far-out schemes, such as those in Project

Defender. When confronted with this, the people who object, and I understand their worry, say, “Ah, but you are not deploying anything,” thus completely shifting the seat of the argument, because if you say you are not deploying anything and that is dangerous, then you have to come down to what are the capabilities right now on both sides. Those I think we know well enough so that we can say our failure to deploy now may make us very weak in 1964 against a 1970 threat, but we know it is not making us weak in 1964 against the 1964 threat. And we think that we can change our minds about deployment in time to meet a 1970 threat if it develops.

INTERVIEWER: To what extent meanwhile are you mindful of the dangerous of contemporary provocation? You are staying away from escalating the strategic situation with the Russians by not deploying Nike Zeus in the meantime.

BROWN: Well, that is true. I think that is sometimes a factor. It is not a factor that is very easy to evaluate technically.

INTERVIEWER: Is it a constraint that you are trying to accommodate, if possible?

BROWN: Let us say if possible, but it is very hard to know how possible it is. I see no sign, for example, that the Soviets are going to deploy, that they

are going to make their decision on whether to deploy or not to deploy an antiballistic missile system on the basis, of whether, we do it

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or not. Yet if they deploy one, even though the rational response is to improve our penetration aids—I am sorry, the optimal cost-effective response is to improve our penetration aid since that is a winning game.

The pressures, and with some reason, for us to deploy an antiballistic missile system of our own so that they won't miscalculate, and say, the Soviet Union won't miscalculate and think they have a good antiballistic missile system and we have none, and think that the strategic balance has changed. Those pressures will be quite strong.

INTERVIEWER: What kind of role did Kennedy play in this thinking?

BROWN: He was very deeply involved in the anti-ballistic missile question. My own involvement with him in this began the day before Thanksgiving of 1961. He had expressed a desire to be brought up to date on the antiballistic missile question, because the deployment or non-deployment of Nike Zeus was a very, very strong issue that fall. You will remember that the Eisenhower Administration [Dwight D. Eisenhower] had decided not to deploy it the previous fall. The Army had attempted to get a commitment for long lead time production items in the spring of 1961. This was one of the first issues with which I was involved.

INTERVIEWER: Producing them or developing them?

BROWN: Produce them. Long lead time production items. I had been involved in that, and the question of full scale

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deployment was going to come up as part of the fiscal 1963 budget decisions. Wiesner [Jerome B. Wiesner] arranged for myself and Jack Rowena, who was director of ARPA, but had the previous year been assistant director of Defense Research and Engineering for defensive systems, so we knew quite a lot about the system, to meet with the President that day. I remember the President was due to leave for Hyannis Port that afternoon, since the next day was Thanksgiving.

INTERVIEWER: Was this within the package formation for the fiscal 1963 budget, or was it a special meeting?

BROWN: A special meeting, just the four of us.

INTERVIEWER: The budget meetings didn't take place for another month?

BROWN: Well, actually there was a budget meeting scheduled for the day after Thanksgiving at Hyannis Port, to which, after this meeting, the President asked me to come.

Well, I think McNamara had already decided that he did not think we should deploy, but the President wanted to be brought up to date, because the Army felt very strongly about this matter, and so…

INTERVIEWER: The Army was getting to the President independently?

BROWN: No, at least some of the Joint Chiefs, General Lemnitzer [Lyman L. Lemnitzer], General Decker [George H. Decker], who was then Chief of Staff of the Army, would talk to him about it, and General Taylor [Maxwell D. Taylor], who

at that time was Military Advisor to the President, also had strong views on this question, strong affirmative views.

Well, we talked for a couple of hours. In fact, I remember he delayed his departure for Hyannis Port past four o'clock in order to complete the discussion. He learned quite a lot about it. That was the first long lesson he had on this. He was a very apt student. There had been a paper written on this for the budget review that year which essentially formed the basis of the discussion that we gave him. Then there was further discussion of it the day after Thanksgiving at Hyannis Port, at which General Taylor, General Lemnitzer had their say. The President made the decision that you would expect him to make under those circumstances. He went along with the Secretary of Defense. But again, this was an easy decision, because it was possible to make a decision on the technical grounds—I am sorry, on the cost effectiveness grounds that this was a thing that would be very easy to counter.

INTERVIEWER: What was the recommended decision?

BROWN: Not to deploy, and the money was not included in the 1963 budget. That really was the end.

INTERVIEWER: Was there any relevance then to the Nike X?

BROWN: The Nike X had not then been developed as an idea. It was something kicking around in the back of our minds at that time, between then and the next year, the fall of 1962, the idea had begun to come along. In my recommendation to

McNamara on Nike Zeus deployment made in the fall of 1961, I listed a number of alternatives, one of which was that we just deploy one Nike Zeus around Washington;

another of which was that we go ahead full bore; another that we not deploy Nike Zeus but complete the development and the tests, and another one was that we stop the development and reorient it quickly toward a new concept which was really in its very primitive stage. We were just thinking about phased array radars, but I don't think we had them. I think the ESAR, which is the first big phased array radar, had not operated yet. I urged actually going to that one, but he considered it premature and we did not really get to it until the next year. I don't think it really mattered very much, because what we did during the next year was what we would have done anyway had we decided to reorient. This is something which I think is worth getting hold of a piece of paper on if you can. This is the Nike Zeus. I am not sure I completely trust my memory on this.

INTERVIEWER: This was prior to your meeting with the President?

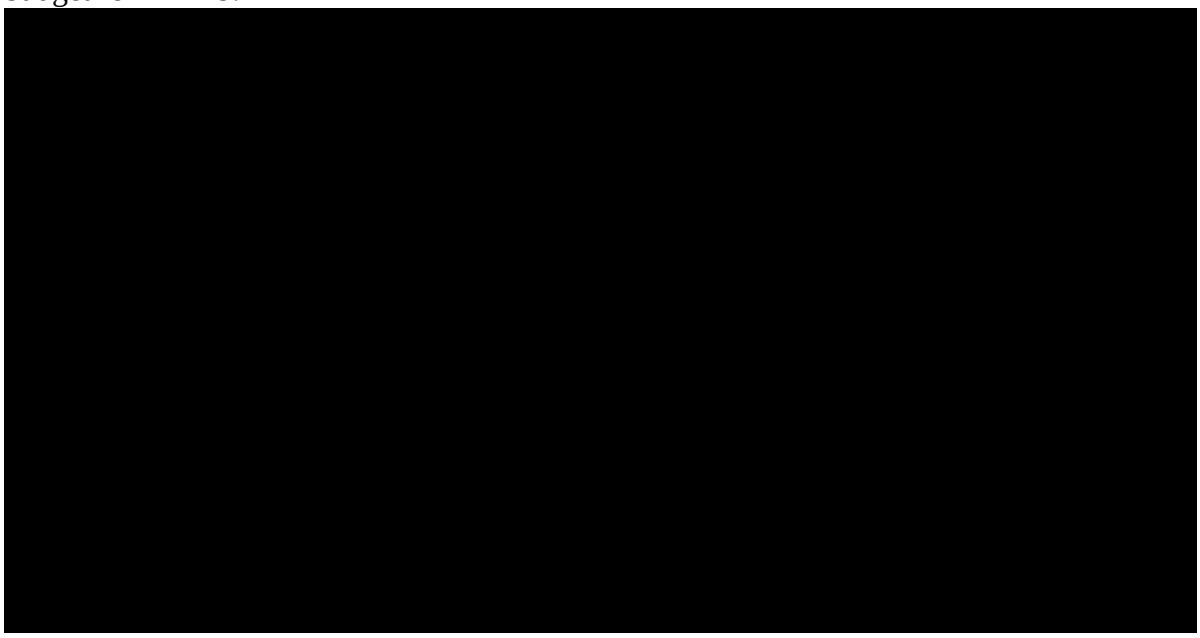
BROWN: I believe so.

INTERVIEWER: And it was a recommendation for fiscal 1963?

BROWN: That is right. I think it took place in September or October of 1961.

INTERVIEWER: Could you indicate briefly what the major deficiencies were as seen at that time of the Nike Zeus, and

what the alternatives were that were in the President’s mind, including what remained in the budget for ABMs?



Well, the President could have decided to deploy. He could have decided to abandon the development, or he could have decided to do what we said we would do, go on with further developments and see whether we could come up with something better and see how good that was. That is what we did.

INTERVIEWER: You spent more money on Nike Zeus, even though you knew that it would be unfruitful.

BROWN: Well, we spent money only on those parts of Nike Zeus which we felt would teach us something about the general problem of ballistic missile defense. We went ahead and completed the discrimination radar, which is now operable at Kwajalein, because there was no discrimination radar anywhere in the U.S., and we felt we had to get some experience in this matter. We continued spending money on the test program because this was the way to get such a result.

But such things as contributed really to—well, such things as contribute, for example, to a tactical version of Nike Zeus, they were going to make some changes from the test version to the deployed version, and it didn't seem to make sense to do that, since there was not going to be any deployed version. So that kind of money was cut down, and eventually was cut out.

INTERVIEWER: Do you remember anything about the President's personal insertion in these discussions with you and then subsequently with the Generals?

BROWN: Well, this took place over two and a half years so that I may again be confusing what happened at some times and what happened at other times. I know that we discussed it again the following year. General Taylor was now chairman of the Joint Chiefs of Staff. He was still in favor of deployment. I think he had some pretty good reasons, non-technical reasons, such statements as if we were out of balance between offense and defense, something which I think is true, by the way, or I thought then was true, that the psychological effects of not having one if the Soviets had one, antiballistic missile, were important, and some arguments that I gave him myself, such as the failure to have an antiballistic missile defense turns an end plus one dimensional problem for the Soviets into an end dimensional one, so it makes life easier for them. But these were always overcome in my mind, in McNamara's mind, and President Kennedy made it clear in his mind, although he may have had some other reasons which I will come to in a moment, by the gross difference in offense and defense costs, if the defense was represented by Nike Zeus.

The other reasons that he may have had in mind were that he did not want the U.S. to be the first country to take the next big step in the arms race. A Nike X, fallout shelter—I am sorry, very extensive blast shelter program with many, many weapons on both side was not the kind of world that appealed to him, nor do I think it appeals to most of us. So although I

think he was prepared to do it, if it looked as if we were in that game, I don't think he was anxious to start the game.

INTERVIEWER: Were shelters, either blast or fallout, tied up with the Nike Zeus proposal?

BROWN: Well, it was recognized that in order to have the Nike Zeus be at all useful, you had to have fallout shelters, but it was agreed that we would go ahead with fallout shelters, and it was presented to the Congress. I think the administration may have been ambivalent on this, but the pro-fallout shelter people consistently won the day so far as official action and budget proposals were concerned. This was a fairly straightforward thing to justify on a cost effectiveness basis, too, because here is a case where the money spent on a defense, maybe a few billion dollars, would save of the order of, say, 20 percent of the U.S., 40 million people for a few billion dollars should war come. The amount of money that the offense has to spend in order to counter it is probably in this case rather more. In other words, there is a favorable exchange ratio here.

INTERVIEWER: Did the President make decisions in your meeting with him, or the next day in his meetings up at Hyannis?

BROWN: Yes, I think he made a decision both on the ballistic missile defense and on civil defense the day after Thanksgiving at Hyannis. I remember that the Attorney General [Robert F. Kennedy] came in to discuss civil defense, after having spent half an hour outside on the rained-on grass playing touch football.

He was perspiring and all wet, and his father, Ambassador Kennedy [Joseph P. Kennedy, Sr.], was waiting at the door for him with a towel and change of clothing. I was very impressed by that example. I was genuinely impressed by that example of family devotion and of vigor, both.

INTERVIEWER: The Attorney General functioned well?

BROWN: Yes.

INTERVIEWER: What was Wiesner's role in these meetings?

BROWN: He was there, and I think he agreed on not deploying Nike Zeus: I think he was not very enthusiastic about civil defense. Why don't we conclude here?

INTERVIEWER: All right. Next time we talk, why don't we get to the subsequent course of the ABM, and also these other examples.

BROWN: All right.

[END OF INTERVIEW #2]

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