

## MISSILE DEVELOPMENT AND SPACE SCIENCES

---

HOUSE OF REPRESENTATIVES,  
COMMITTEE ON SCIENCE AND ASTRONAUTICS,  
*Washington, D.C., Tuesday, February 24, 1959.*

### EXECUTIVE SESSION

The committee met at 10 a.m. in executive session in room 356, Old House Office Building, the Honorable Overton Brooks, chairman, presiding.

The Honorable Allen W. Dulles, Director of the Central Intelligence Agency, and his associates briefed the committee on various aspects of the Soviet missile and space programs. All proceedings were off the record.

The committee adjourned at 12:15 p.m., until 10 a.m. the following day to consider another subject.

## MISSILE DEVELOPMENT AND SPACE SCIENCES

---

HOUSE OF REPRESENTATIVES,  
COMMITTEE ON SCIENCE AND ASTRONAUTICS,  
*Washington, D.C., Monday, March 2, 1959.*

The committee met at 10 a.m., in the caucus room, Old House Office Building, Hon. Overton Brooks, chairman, presiding.

The CHAIRMAN. The committee will please come to order.

This morning, gentlemen of the committee, we have two important witnesses here before us. We have the privilege of having for the first time the Secretary of Defense, the Honorable Neil McElroy, and we also have the pleasure and privilege of having before us the Chairman of the Joint Chiefs of Staff, General Twining.

I would say to the members of the press: If you still want to take more pictures we will give you more time but the rule is, of course, that after the committee gets underway there will be no pictures taken. That is the rule of the House, so I will ask you before we get started to complete your picture taking so we can go ahead.

All right, everybody seems to have the pictures he wanted, so, we shall proceed. Mr. Secretary, the Committee on Science and Astronautics has been working for several weeks on hearings regarding the development of space possibilities. Within those hearings we have especially concerned ourselves with missiles and particularly with ballistic missiles. There is some concern in the committee whether the matter is being pushed with utmost vigor and whether we are pursuing the right policies, so we are especially pleased to have the benefit of your judgment, your experience and your position to fortify the committee on this occasion.

You have a prepared statement and we would appreciate it if you would proceed with the statement.

Secretary McELROY. Thank you very much, Mr. Chairman, and members of the committee. My statement is quite brief. I will read it if that will be satisfactory.

The CHAIRMAN. Surely.

### STATEMENT OF HON. NEIL H. McELROY, SECRETARY OF DEFENSE

Secretary McELROY. I welcome this opportunity to appear before you, along with General Twining, and answer to the best of my ability questions you may have regarding the missile and space programs of the Department of Defense. We share with you a conviction regard-

ing the importance of our activities in this field; in fact we are convinced that the future security of the Nation depends on our skill in moving forward our capabilities not only in these vital areas but in the many other fields embraced by the interest of this committee.

Many of the specific matters regarding our missile and space programs have already been taken up with such highly qualified individuals as Dr. York, Mr. Johnson and Mr. Holaday. You may have some questions to ask me on these programs, but before we turn to such questions I believe it might be helpful for me to state in a few words the way in which our Department has now organized itself to carry out our responsibilities in research in general, which includes our military and space programs.

As you know, one of the most important objectives of the recent reorganization of the Defense Department was to insure that our research and engineering activities would have the integrated direction and leadership needed for our national security now and in the future. To this end a new position was created, that of the Director of Defense Research and Engineering, and Dr. Herbert F. York has since been appointed to occupy that position. The Director of Defense Research and Engineering is my principal adviser on scientific and technical matters and is responsible for the supervision of all research and engineering activities in the Department of Defense.

The interrelationship of the Director's activities with those of other elements of the Department of Defense can best be understood if we look at the whole operation. There are four basic operating research and engineering agencies in the Department of Defense: Army, Navy, Air Force, and the Advanced Research Projects Agency. These agencies do research and engineering of a varied nature consistent with their assigned duties. The research they undertake may be done within their own facilities or by contract with outside sources, depending on which in their judgment will produce the best results. The function of the Director of Defense Research and Engineering is to supervise and coordinate all research and engineering, regardless of what element of the Department of Defense does the work or the nature of the work undertaken.

I look to the Director to provide the dynamic leadership which will see that our research and engineering programs are far reaching and imaginative, move forward without unnecessary duplication, and represent an optimum integrated program to meet the requirements of national military objectives.

With respect to the Advanced Research Projects Agency—we plan to continue this Agency as an operating element paralleling the research and engineering organizations of the military departments. The Director of this Agency will report to me administratively in much the same manner as the military departments do. However, as I stated previously, his research program will be subject to the supervision and coordination of Director York's office just as are those of the military departments.

With respect to the Director of Guided Missiles, his responsibilities formerly had two different aspects. One has been to monitor and supervise all research and engineering work in the field of guided missiles; the other has been to keep me informed of any impediments in these high priority programs which I as Secretary might expedi-

tiously help to remove so that maximum progress might be achieved. The research and engineering duties of the Director of Guided Missiles together with personnel involved will in the near future be transferred to the Director of Defense Research and Engineering. This transfer will be made in a way which will insure no loss of the momentum our missile program has developed. Mr. Holaday will, for an indeterminate period, remain as a special assistant to me to continue to handle those aspects of the guided-missile program which are beyond the research and engineering and testing phase in addition to his duties as Chairman of the Civilian Military Liaison Committee provided for in the act establishing the National Aeronautics and Space Agency.

I believe this represents a sound organizational framework within which we can move forward with an aggressive effort in the fields of this committee's interest to insure the defense of this country—recognizing, of course, that it is men not organization which produce final results.

I should be happy to answer any questions the committee may have. Thank you.

The CHAIRMAN. Thank you very much, Mr. Secretary, for your statement. I would like to ask you this in line with your statement: Dr. Herbert York now is the man with authority to make decisions with reference to guided missiles, ballistic missiles, and generally that type of work, is that correct?

Secretary McELROY. The research and engineering aspect, yes, sir.

The CHAIRMAN. He has full and final authority, subject, of course, to your supervision to make these decisions, and if there are any delays in decisions in the future, the responsibility lies at his doorstep for delay and if they are properly and promptly made he is entitled to all of the credit.

Secretary McELROY. Yes, as to engineering and research.

The CHAIRMAN. And subject to your authority as Secretary of Defense.

Secretary McELROY. Yes, and it is also my responsibility if it does not go correctly.

The CHAIRMAN. But he is responsible directly to you. He does not go through any other channel or medium in order to reach you if there is any question about his decision?

Secretary McELROY. That is correct, sir.

The CHAIRMAN. And the agencies below him will go direct to him for the determination of vital questions?

Secretary McELROY. That is correct.

The CHAIRMAN. What I am leading up to is this Nike-Zeus matter. One of the members of the committee, Mr. Teague of Texas, has suggested, and I think it is a very relevant suggestion he has made, that I ask you to simply explain in detail in your own words, if you will—because you do not have it prepared in the statement—what the situation is in reference to the defense of this country against ballistic missiles.

There was an article in the press this morning, for instance, that worried me a great deal, about the fact that we were not prepared as a nation to defend ourselves against ballistic missiles and in fact we

were not prepared to know when ballistic missiles even were being used until they arrived in this country.

Secretary McELROY. As of the present it is true that we have no defense against ballistic missiles. The program which is expected to be in position and operating in time to give us warning of the launching of any substantial number of ballistic missiles in this direction is the Ballistic Missile Early Warning System which is nicknamed BMEWS. This is moving forward on a very high priority basis. There will be one detecting station in Greenland—it is under construction—one in Alaska, and there will be a third someplace in the British Isles, after the proper negotiations are carried on with the British Government. It is expected, however, that the important area that needs to be scanned will be coverable by the Greenland and the Alaska stations and they will be in place and operable within the time period that we expect that our potential enemy may have sufficient number of missiles to be a real threat to this country. As far as actual spot defense of the type that will knock down missiles, we are working under the highest national priority in the research and development aspects of the Nike-Zeus system as the system on which we have placed our bet as the one which has the best prospects for a moderately early operational capability.

But that is still several years away. The defense of this country against ballistic missiles for some period of time to come will have to be a capability offensively to respond with such tremendous destructive power to any attack on this country by an enemy that the potential enemy would not in his own interest initiate any attack against this country, because we do not visualize for some years having specific defense against incoming ballistic missiles. We have no assurance that even if we had in place a ballistic missile defense system we would be in a position to knock down any more than a modest percentage of any mass attack by an enemy with ballistic missiles.

The CHAIRMAN. Well, Mr. Secretary, for the time being I think most experts agree that we are reasonably safe because Russia does not have the capability at present, so our people feel, to launch a mass ballistic missile attack against this country. But as you move on and the capability is developed, are we in turn moving on to develop a defense against an aggressive capability of a foreign power? What I am referring to specifically is the Zeus program. You say it is being pushed with utmost priority in the research and development stage, but that is going to require several years. That being the case, when it is perfected and you are ready to put it on the assembly line you have a time lag again, have you not?

Secretary McELROY. After you are clear as to just what your various components are going to be, it will take some time to put yourself in a position to produce these in the very large numbers that will be required.

The CHAIRMAN. That is what I am getting at. Is there a way to lessen that time, even if you are taking a calculated risk? Is there not a way to eliminate some of the time lag so this country will be in a much better defense posture at a much earlier date than you plan in the Pentagon now?

Secretary McELROY. Well, one of the things that we propose to do, Mr. Chairman, and it is under intensive study now, is to try to develop—and this may require a rather comprehensive engineering study—either inside or outside of the Department, ways in which we can kind of preplan production prior to the freezing of design of various components. We are not in any position to freeze design at this point in the opinion of our scientific advisers. But as of the time that we are ready to freeze design and go into production we are now looking very intensively at the ways in which we might do the kind of preplanning that would shorten the time between that freezing of design and the actual turning out of substantial quantities.

The CHAIRMAN. Can you not at this point begin your planning toward ultimate production of the Nike missile, assuming it develops all right?

Secretary McELROY. Well, we think we should do planning. The thing that we do not think we should do is to build plants and do tooling, when we do not know what we want to produce or the type of design of these very highly advanced kinds of components. The reason for the hesitation in going into production or actually producing plants for production is solely that these are not sufficiently clear to the scientists as being effective components for the job that has to be done to warrant going into the production stage.

The CHAIRMAN. It has been testified before this committee that the sum of \$40 million is sufficient for the next 12 months to go ahead with your preplanning on the possibility of ultimate production. Could you not go ahead with that expenditure—I recognize that is a calculated risk, if the Zeus does not pan out, the money is lost and the public ought to know it in advance; and it is a calculated risk in the use of the money. Could you not go ahead with a program of preplanning for production and then, say at the end of another 12-month period, reappraise the situation before you go into large-scale spending on actual production? I think they testified the second year it would cost \$700 million in planning for production.

Secretary McELROY. The thing which you are suggesting is the thing which is under study at this time. Whether we need to spend that amount of money I do not know, but what we will do is see if there is any preplanning that can be done. We will do this, again, under the best scientific advice that is available to us. And I will say to you, Mr. Chairman, that the best scientific advice in the country has been put against this program because of its obvious importance, which we recognize as well as this committee recognizes, and if there is any preplanning which can make any sense from the standpoint of shortcutting toward ultimate earlier production, that we will want to do. It could very well be, if your committee would like to have us do so, we will keep the committee informed as we go along with this study.

The CHAIRMAN. The committee would certainly appreciate that, Mr. Secretary, very much, because they are concerned. For instance, I read this morning in the press an article by Mr. Alsop in reference to his view. For instance, 150 ICBM's launched from Russia might wipe out completely our retaliatory force. Right now, parenthetically, I would like to put in a good word for the Air Force for the magnificent job SAC is doing now to set up that deterrent force.

But assuming that this writer is correct and that 150 ICBM's launched from Russia might completely wipe out our deterrent force, then we have nothing. We have no deterrent, and we have no defense against the ICBM.

Secretary McELROY. The only part of your statement to which I must take exception is the first five words, the introductory statement, "assuming the writer is correct." We think the writer is incorrect.

The CHAIRMAN. There is some question about the ability of our people to know in advance what the Russians are going to do and to be able to meet it offensively by meeting defensively the ICBM attack.

Secretary McELROY. Well, Mr. Chairman, there is no question at all that when we are thinking of survival we must be extremely conservative in what we do. This committee feels that way and so does the Department of Defense. We must not take these matters lightly. This entire subject, as I am sure you would realize, has been given review not once but many times, and it will be given in the months to come review and review and review. We believe we are acting in the conduct of our military affairs on the basis that provides a cushion for the national security and I mean a considerable cushion, which we should do. Now when you start making assumptions about enemy capability which are greatly in excess of what is calculated to be the enemy capability by the best intelligence sources available to the country—and there can be no better sources of intelligence to anyone, whether he be a writer or whether he be this committee—I think we have no real basis for conducting our affairs except within what seems to be the limits of conservative interpretation of those intelligence statistics and that is what your Defense Department is doing.

The CHAIRMAN. I think that is an excellent answer but I would call to your attention this, Mr. Secretary: Somewhere down the road the Russians may have that capability and at that time would we be in shape with a defense such as we hope the Nike-Zeus to be, in production, to meet that threat. That is the thing that concerns me personally and, I am sure, many many Members of Congress.

Secretary McELROY. I think for some time to come, Mr. Chairman, our defense against incoming missiles will have to be the maintenance of an aggressive position to destroy anyone who sends these in on us. Our defense under the optimum conditions with Nike-Zeus would not be ready and in place in the time period in which we would expect the enemy to have a substantial number of ICBM's in place. So our deterrent must be an offensive deterrent, and the kind of thing, such as an air alert, that could very well be added to give us a greater defense capability as the months and years go by and we grant him a greater missile capability.

We now have a ground alert for one-third of the force because the Joint Chiefs of Staff regard that as the type of alert for which we currently have a military requirement. As of the time that the Joint Chiefs of Staff consider that we have a military requirement which involves air alert of a certain share of our SAC bombers, we will have air alert. We have experimented with it and we know that we can do it but there is no reason to put this kind of very rigorous requirements against both equipment and men until you need to.

The CHAIRMAN. Well, do you not feel that anything that can reduce our time lag on the development of a Nike-Zeus type of defense should be adopted by the Defense Department?

Secretary McELROY. I do, sir, and this is implicit in the development of the program on a top national priority basis. This is true of very few of the programs that we have. It includes our Atlas. It included Thor, Jupiter, Polaris, and there may be one or two others but it does include Nike-Zeus. This is a priority which is established, as you know, sir, by the authority of the National Security Council, and this priority is held by the Nike-Zeus development.

The CHAIRMAN. And in the event our deterrent fails and the unthinkable does occur, that is war, we have nothing to offer better hopes of defending our shores against the ICBM than the Nike-Zeus at this time.

Secretary McELROY. We do not. We have placed our bet on the Nike-Zeus system. We have at the same time, however, a program in the Advanced Research Projects Agency which permits the Army to go down the direct development road while over in the Advanced Research Projects Agency we are already working with a very substantial program. In 1960 it will be over \$100 million for the development of advanced techniques, particularly in the area of discrimination between the incoming warhead of an ICBM of an enemy and any decoy material that he might throw into the air to confuse your radars or your antimissile missile as it moves out to intercept.

The CHAIRMAN. One more question and I am through. Then, as I understand it, are you prepared to go ahead and authorize preplanning on the Nike-Zeus production program at a relatively inexpensive beginning?

Secretary McELROY. I am, sir. This may not be precisely the thing that has been said to this committee in the past by other witnesses. I do not know precisely what was in mind.

The CHAIRMAN. As a matter of fact, they told us there was a division of opinion on that and therefore I thought it was something that the committee could well take up since there was a division of opinion.

Secretary McELROY. I will only say to you, Mr. Chairman, as late as this morning in anticipation of my appearance before this committee, I have had confirmed again that this study of the method by which we could best preplan production as a means of short-cutting the time between the freezing of design and the actual mass production of components is a study which is actively being pursued in the Department of Defense Research and Engineering, under Dr. York.

The CHAIRMAN. Well, is there still a division of opinion about that?

Secretary McELROY. I cannot tell whether there is a division of opinion until this part of the Department comes out with its recommendation. I think there may very well be a difference of opinion as to how to proceed, that is, just how to proceed with the preplanning.

The CHAIRMAN. Well, has there been a difference of opinion?

Secretary McELROY. It has not come to me, Mr. Chairman, if there has been. I am sure that there are differences of opinion on quite a few things down below me, but they ultimately come to me if they are really of importance.

The CHAIRMAN. Well, if the Army recommended a speeding up of the production program, or beginning of the production, it has not come to you and you have not passed on it?



Secretary McELROY. Well, I am aware of the fact that the Army did want to go into production as part of the 1960 budget. That part I am quite clear on. The Army wanted a substantially higher expenditure and the expenditure beyond the amount that is included in the 1960 budget, which is \$300 million to the Army, was for the purpose of building factories and doing some tooling. Now that did come to me and the decision was made by me not to go ahead with this, and this was on the best scientific advice that I have available to me. This is not only my advice but it is also the advice that is available to the top administrative levels. But the thing that I take it you and I am now discussing, Mr. Chairman, is some interim step which is: If we do not immediately go on with the production of factories and tooling of factories, is there some way in which we can do some planning for that, so that we can reduce the time required to move in that direction once a freezing of design is possible?

The CHAIRMAN. What we are discussing is those methods which can be taken with a reasonably calculated risk which will reduce the ultimate time lag to put this country on a defensive basis against the intercontinental ballistic missile.

Secretary McELROY. I can tell you that I am very much interested in this personally and I intend to pursue it in order to get a specific proposal from our Research and Engineering Department and then we will move toward a decision.

The CHAIRMAN. Mr. McCormack.

Mr. McCORMACK. Well, Mr. Secretary, what you have said in substance is that our whole military position is predicated upon the policy that under no conditions will we attack first.

Secretary McELROY. Our policy is that we will not attack first, Mr. McCormack.

Mr. McCORMACK. Rather an untenable one from a military angle in case of grave emergency; is it not?

Secretary McELROY. I think it is a rather difficult one, but I think it is the one that would be supported by public opinion in this country.

Mr. McCORMACK. Well, public opinion is not going to win wars. We are coming down to leadership.

Secretary McELROY. In any case——

Mr. McCORMACK. Public opinion is important, but other things win wars.

Secretary McELROY. I agree that this is a very difficult thing militarily, Mr. McCormack.

Mr. McCORMACK. Well, we are tied to that.

Secretary McELROY. That is our policy.

Mr. McCORMACK. That is described by the President, by the executive branch. That is correct; is it not?

Secretary McELROY. That is currently true. Whether that will always be true I think could be something else, Mr. McCormack.

Mr. McCORMACK. Well, I am glad to get that latter now because that is a little relaxation. Could you see conditions under which that would no apply?

Secretary McELROY. This would again be a matter of national policy which would take quite high review. I think I must return to where I began, which is that for the present and the indeterminate future our policy is not to attack with the big weapons first.

Mr. McCORMACK. What do you mean not to attack with big weapons first, would we attack with other weapons first?

Secretary McELROY. No, I think we would not attack first even with other weapons.

Mr. McCORMACK. So no matter how powerful our military might be we are strictly in a defensive posture.

Secretary McELROY. Yes, because we are not aggressors.

Mr. McCORMACK. I just want to have that established. Now our main reliance, of course, is SAC. That is correct, is it not?

Secretary McELROY. Yes, our principal deterrent is the Strategic Air Command. We have other very major elements.

Mr. McCORMACK. Well, that is true, but you have already said on a number of occasions—only in the U.S. News & World Report a few weeks ago—that our principal reliance at this time is on the heavy and medium bomber capacity of the Strategic Air Command—that is certainly No. 1.

Secretary McELROY. That is correct, that is true.

Mr. McCORMACK. Well, suppose they have a defense against our bombers, what then?

Secretary McELROY. Well, of course, if they have a defense against anything that we have then it makes our problem just that much tougher. But I think we have some right to judgments on whether or not they can have a defense against our bombers that will keep us out and I think that the belief of our military people is that they will not keep us out any more than we can keep all of their bombers out if they come at us.

Mr. McCORMACK. Well, of course it is not a question of keeping them all out, it is a question of the attrition rate.

Secretary McELROY. Yes, there would be some attrition.

Mr. McCORMACK. If the rate is too high there is the question of sustaining the attack?

Secretary McELROY. There would be a question of sustaining but I think in this kind of war you are likely to use most of what you have in your initial strike.

Mr. McCORMACK. We are going to strike after we are hit?

Secretary McELROY. Yes, but you are going to use most of what you have left.

Mr. McCORMACK. You have also stated that within a year or two you expect the Soviet Union to be considerably ahead of us in intercontinental ballistic missiles.

Secretary McELROY. I do not expect that they will. I consistently say that they can be. The intelligence that we have, of course, does not get inside the Russian mind to know what they are going to do. The only thing we can judge is what they could do with their facilities of scientists, facilities of materials, their facilities of production, manpower, and so on. Now then, there is one of the interesting points really that is under discussion in this general debate. We do assume in what we are preparing to do with our own forces that they will make use of their top scientists and their material facilities and their production facilities to make this quantity of weapons but we do not say they will produce these. We say they could produce these if they had the national decision to do so.

Mr. McCORMACK. Well, it is reasonable to assume they are going to do what they think they ought to do.

Secretary McELROY. Yes; but the interesting point in retrospect on that, Mr. McCormack, lies in the history of that they did on heavy bombers.

Mr. McELROY. I know. You refer to that in this article here. You refer to General Twining's views when he came back from Moscow. Is that what you have reference to?

Secretary McELROY. Yes. General Twining—and he can speak for himself at any point here if you would like him to—came back from Moscow feeling that the Russian capability to manufacture heavy bombers was such that we could really expect Russia to have a superiority of heavy bomber capabilities over the United States. This was very disturbing to the country. He had this capability but he did not produce it. Why, I do not know. Everybody has his own theory as to why he did not do so. In addition to a capability to do, you have to have a national decision to do. The only thing we can say in our intelligence is that he has the capability to do; whether he is going to make the national decision to do we do not know.

Mr. McCORMACK. Might it not be that they concentrated on missiles rather than bombers realizing that the perfecting of missiles would more or less outmode bombers?

Secretary McELROY. The thing that makes that doubtful is our observation of new bombers in the air over there, so they have not given up bomber aircraft. They have an advanced bomber, we believe, in test.

Mr. McCORMACK. I do not want to appear to be in a position of cross examining any of you gentlemen, because we are all Americans. We all want to do the best we can.

Secretary McELROY. Surely.

Mr. McCORMACK. We have our limitations up here. We can appropriate money, but we can't compel it to be spent. We have seen that in the Army and the Marine Corps in the last year.

By the way, do you think the reduction in our Army, in the light of the situation today, was wise?

Secretary McELROY. We think the size of the Army is adequate.

Mr. McCORMACK. That isn't answering my question.

Secretary McELROY. I will leave it there.

The CHAIRMAN. Mr. Fulton.

Mr. McCORMACK. No; I have just one or two more questions.

The CHAIRMAN. Excuse me.

Mr. McCORMACK. For the benefit of the people: What is your opinion as to the relationship of the Soviet Union and our own country in the development of the intercontinental ballistic missile? Are they ahead of us?

Secretary McELROY. My judgment is—and when I say “my judgment,” let me say that this is a distillation of the views of the intelligence community and of our own scientists, so that I am not talking as an individual, I am simply reflecting a combined view—my judgment in that context is that developmentally we are very close to each other in the development stage of the ICBM.

Mr. Khrushchev announced, I would guess maybe a couple of months ago, maybe not quite that much, that their ICBM was in serial production. This was a term not commonly understood here. It was interpreted by some to mean mass production, and you all may have

read recently that a Russian scientist who was in this country explained—and this was reported in the New York Times—that “serial production” is not mass production but is production that is in between prototype production and mass production.

I can read it right here, if the committee would be interested.

This is in the New York Times of Friday, February 13, and this was a meeting of scientists.

The questioning shifted momentarily “as Mr. Lebedev explained the ‘serial production’ of the intercontinental ballistic missile. He said this was an intermediary stage”—I guess intermediate is what should be here—I hate to correct the New York Times. Maybe I better not do that. “He said this was an intermediate stage between the ‘specimen’ or ‘prototype,’ and mass production.” “It means, he said,” “the production of limited quantities.”

Now, of course, the Atlas is in serial production in that sense. I believe that this committee has visited the production facilities of the Atlas, has it not? I know that you have been down at Cape Canaveral and at Huntsville.

In any case, if you have observed this, the Atlas missiles are moving through on what I would consider in this sense serial production; but whether we are in serial production or not doesn’t make much difference to me.

I think in answer to your question, sir, that the evidence seems to me to be that there is very little difference in the development stage of their missile and ours from everything that we can judge.

Mr. McCORMACK. Would you express an opinion, either you or General Twining—I know when you express your opinion it is the collective judgment of many others—as to how long the SAC will be our main reliance so far as retaliatory action is concerned?

Secretary McELROY. Well, in answering this, I think we should make clear that the intercontinental ballistic missiles are being assigned for deployment to SAC, so I think your question has to do with SAC bombers.

Mr. McCORMACK. I am talking about the bombers now.

General TWINING. Well, I think it will be several years, certainly until sufficient quantities of the ICBM’s of proven dependability are not only in stockpile but on launchers. Then it will be a combination of the two. The bombers will still stay as the missiles come in. Even though the ICBM’s may be perfect, we still want the capability from the manned bombers, for, I would say, 10 or 15 years, but not just the bomber. It will be the missile, too—a combination of both. But SAC will still be the unit, as the Secretary said, that is the deterrent force for the country. It will always maintain the deterrent, with a combination later on of both the missile and the airman.

Mr. McCORMACK. Is it fair to assume that there might be discoveries through tests and a satisfactory bomber might be used more effectively than now; whether there might be a capacity to project a weapon a longer distance than they can now toward the target?

General TWINING. The Hound Dog is an example of that. I am thinking of that when I say the bomber will stay with us 10 or 15 years. The bomber can carry a great load of nuclear power and pinpoint targets, and you will need that capability.

Mr. McCORMACK. The greater the increase in the mileage from the target, the more effective the bomber will be in the future?

General TWINING. It can stand off a thousand miles from a target, keep out of a heavily defended area, and launch a missile from a bomber.

Mr. McCORMACK. Is it reasonable to assume there is a capability of 500 miles?

General TWINING. Definitely. We are encouraged on that.

Mr. McCORMACK. Mr. Secretary, you said a few weeks ago that the danger from the Russian conspiracy is about the same: "I think they intend to destroy us if they can, one way or another."

You remember you said that in the interview with United States News & World Report?

Secretary McELROY. Yes.

Mr. McCORMACK. That is still your opinion today?

Secretary McELROY. It is my belief.

Mr. McCORMACK. Have the events of the past week, the visit of the representative of an ally of ours, caused you to change your opinion?

Secretary McELROY. If anything, it has reaffirmed my opinion.

Mr. McCORMACK. Just one more field: Is there any consideration being given to the establishment of one agency in the field of outer space to take over military and civilian research and development?

Secretary McELROY. There is nothing current in that direction. It is our belief in the Department of Defense that the agency that has been set up, and the Space Council which has been set up to give common direction to the overall program, can best do its work along with the military as carrying a portion of this responsibility.

We think that it would be a quite doubtful thing for the military use of space to be assigned outside of the military for development, with all that could mean—not necessarily would mean, but all that it could mean—of difference in point of view on the part of the military and of the other agency as to the importance militarily of certain use of outer space.

Mr. McCORMACK. Well, you have used very guarded language, which I understand, I think.

In other words, you think it would be a great mistake if military research and development was to be transferred to an agency embracing both military research and development and civilian?

Secretary McELROY. I think the present setup is a good setup and will be workable.

Mr. McCORMACK. Well, there are many twilight zones on some of those questions I would judge?

Secretary McELROY. Yes; there are; but I don't see why we can't work this out as reasonable men working together. In the aeronautical field, Mr. McCormack, when NACA was the agency, the Department of Defense really had no problem in working out the division of functions as between the two groups.

Mr. McCORMACK. But the powers of the two are different now. You have more power in NASA than in NACA. They are more competitive.

Secretary McELROY. They have somewhat more power, but I think the legislation was very well written to reserve to the military the military use of space.

Mr. McCORMACK. Well, take the twilight zone, don't you think the doubt should be resolved in the world of today on the side of the military?

Secretary McELROY. I think I would prefer to say, Mr. McCormack, that the President, as the Chairman of the Space Council—

Mr. McCORMACK. I was chairman of the committee.

Secretary McELROY. I know you were, sir. I think it was a wise conclusion that any doubts that there are as to jurisdiction should be resolvable at the highest executive level through the Space Council, of course, which is chairmanned by the President.

Mr. McCORMACK. We put language in our bill that the Congress further declares that such activities shall be the responsibility of and directed by a civilian agency exercising control over aeronautical and space activities sponsored by the United States, except that activities peculiar to or primarily associated with development of weapons systems, military operations, or the defense of the United States, and, in brackets, making it stronger, including the research and development to make effective the defense of the United States, shall be the responsibility of and shall be directed by the Department of Defense, and that determination as to which such agency has responsibility for and direction of such activity shall be made by the President in conformity with section 201(e).

That is pretty strong language there, and we made it just as strong as we could. In other words, if there is a situation that develops in the world of today—tomorrow it might be different, but in the world of today we have to consider these things. What might be military today may not be in a peaceful world, we recognize that, but in case there is any attempt to transfer what is considered to be of vital importance to our country in the military field, are you prepared to fight for the retention by the military of those things you consider to be essential for our preservation?

Secretary McELROY. Without any hesitation. And I think on the other side that I am not likely to need to fight, because the man who is the head of NASA is a man who is, I think, a very reasonable man and a very good man. I think the point was excellent, and I don't anticipate any problem at all in working these out with Mr. Glennan. But if for some reason or other there is an honest difference between him and me, I would certainly be quite prepared to fight, yes.

The CHAIRMAN. Mr. Fulton.

Mr. FULTON. May I just ask one question in advance? I have been asked to ask this question.

There is an article in the morning's New York Times which attributes the loss of the satellite which was launched out on the Pacific coast to the lack of cooperation between agencies authorized to engage in space. The charge is made by Dr. J. Allen Hynek.

What would you say about that, Mr. Secretary?

Secretary McELROY. I asked that question of my associates in the Department, because I thought perhaps it might come up this morning, and I am assured that all observation or tracking of satellites that was believed to have any opportunity really of tracking or observing was notified about this, and if there was not notification of this particular station, it was not because of any conflict between space agencies. It was solely because the judgment of the people who were sending this notification around to the various observation or tracking stations in the world was that this particular satellite would not be observable by this particular station.

The CHAIRMAN. He needs 24 hours' notice. He says he could be of help if given the notice.

Secretary McELROY. There may be a difference of opinion between this scientist and the people in charge of this program as to whether or not this station could have been helpful, but it had nothing to do with any overlapping or conflicting competition between space agencies.

Mr. FULTON. Tell me the time, so I won't go too far.

We are glad to have you here, Mr. Secretary and General Twining, and I think you are certainly contributing to the security and defense of this country and the free world, and we want to thank you on behalf of this committee and my own people for the good job you are doing.

When it comes to who shall attack first, isn't it provided under the Constitution that the Congress shall declare the war and gives the authority for making the attack?

Secretary McELROY. Yes, this is in the Constitution.

Mr. FULTON. So the military, itself, doesn't make that decision, the Congress does, but if there is not time for retaliation and a posture to defend against an obvious attack, it is the President who makes the authorization, is it not?

Secretary McELROY. Yes. It would not be the military without civilian authority.

Mr. FULTON. So you and I both agree with Harry Truman when he took that posture in the Korean war, because it had to be done immediately?

Secretary McELROY. Oh, yes.

Mr. FULTON. We shouldn't forget that Congress has the power to declare war, and we shouldn't be talking of attacking or authorizing an attack in this country without Congress authorizing it under the Constitution, isn't that right?

Secretary McELROY. That would be my feeling.

Mr. FULTON. Thank you.

Then our defense—

Mr. McCORMACK. Do you want to limit your answer to that completely now, as to the powers of the President?

Secretary McELROY. I am not binding the President. I am binding myself. This is a matter which is written into the Constitution, and as it is written into the Constitution, I have no choice but to answer Mr. Fulton as I have.

Mr. FULTON. The next point is this:

In the defense of the United States and the free world, we base our defense system on a balanced defense structure. That means that we don't depend on any one weapon or group of weapons or any weaponry system, but we have a broad system across the board, isn't that right?

Secretary McELROY. It is, and it consists of whatever combination of weapons system best serves our particular situation.

Mr. FULTON. Then when you referred to the Strategic Air Command, we already urged using some missiles to help them, and we are going to increase those missiles. For example, we have in production the Snark, an IRBM guided missile, which can go .94 of the speed of sound, mach 1, and that will be supplementing, even before we give up

the manned bombers, just as maybe the Hound Dog, and the Air Force would come in and help us, is that not right?

I will ask the general.

General TWINING. That is correct.

Mr. FULTON. So we are not going to have one particular time when manned bombers or the SAC is obsolete. We will gradually feed in and supplement the present force with backup missiles, IRBM's, and air-to-air and other types, like Sidewinders and things of that type, is that not right?

General TWINING. That is correct; keep the forces in balance. Diversification gives great strength in any military force. Of course, we want to get the best weapons for all of these forces, but it is not—it does not necessarily mean that we have to go out completely on one line of defensive force. We must have diversification.

Mr. FULTON. We have heard all of this talk about the Russians and the ICBM's, and they might be used in some indefinite date in the future, but we likewise must look at a threat as a continuing threat right at the present time, right straight through. The dependence, as you move through that period, may vary as to what weight you give various weapons, depending on geography, the totality of the threat, and whether it is a limited threat, isn't that right?

Secretary McELROY. We think that that is very right, and we think the availability of the diversification of a delivery system puts you in a position to use anything which at a given time has a particular effectiveness against the background of the total defensive capability of the enemy.

Mr. FULTON. So that the particular phase we are in now—and I am a member of the House Foreign Affairs Committee—is a May 27 deadline that has been given to us on Berlin.

Now, are we able at the present time to adequately protect our firm position taken by the President and likewise by Mr. Macmillan—I understand on his visit to Russia—or are we not in such a position?

If we are not, what should we do? Should we mobilize in full or in part?

Secretary McELROY. What we should do as we move along in what is the developing prevailing situation is something which has had very specific consideration by the Joint Chiefs of Staff along with the Department of State. This is something which we cannot discuss in detail, but we are prepared to meet various stages of this Berlin situation as it develops, and we are prepared to make good on the statement of the President that we will not yield one inch in our rights in Berlin.

Mr. FULTON. That is very reassuring that you say we will not yield an inch and we are able to reinforce it. I think that the American people will be glad to hear that.

Then it isn't quite correct to say, is it, that if the Russians get their ICBM in quantity, then we would have nothing against it, because actually we would have 250 bases abroad? They would have no such bases abroad. We would have our nuclear submarines. We would have the Polaris, the Juno, the Thor, the Jupiter, the Atlas, the Titan, the Snark, the Hounddog, and many others?

Secretary McELROY. We don't have the Polaris yet.



Mr. FULTON. But if the Russians had 150 ICBM's, it wouldn't be correct to say we would then have nothing, because by then we would have a lot?

Secretary McELROY. That is right.

Mr. FULTON. Then I think it ought to be cleared up, because I have never heard anything to the effect that the Russians have been able to shoot an ICBM and get a reentry—that is, a target reentry. All of this talk about the Russians having ICBM's in some kind of serial production is really meaningless until they can make it into something that can hit a target with reasonable accuracy.

Now, have you ever heard—I have not—of any Russian flight that has ever had a CEP, circle of probable error—or that they have released any statement that has told us they were able to have a degree of accuracy which would be a weaponry system on any ICBM, nor have they given us a date in the future for that?

Secretary McELROY. There have been some quite broad claims of high accuracy, but not in any such specific terms as to justify any judgments on our part as to what validity there is for any claim of this kind.

It should be understood, too—and this is without thinking on our part that we should over-downgrade the Russian capability—it should be understood that there is in Russia a range for these firings of only about 3,500 miles. Everything that is needed for an attack on this country is in the range of 5,500 miles. The degree to which you can expect a test at 3,500 miles to be extendable on a 5,500-mile requirement is something about which you will find varying opinions among various scientists.

Mr. FULTON. And on the 3,500-mile range it goes off the eastern end of Asia, so that it would be a sea landing, and they have no equipment, no *Vityaz* over there, the hydrographic ship, to pick the stuff up.

Secretary McELROY. Not that we know of.

Of course, there is no reason why they couldn't do so if they wanted to organize to do so.

Mr. FULTON. I want to bring to your attention this Russian ship, the *Vityaz*, that has bracketed our whole west coast and then moved out to the missile range, being able to pick out currents, sonar channels, temperatures, depths, so that they could find places where a submarine could lurk or get out of the sonar channels where we couldn't pick it up. I think that is something that is just a little bit more than doing a good job for the International Geophysical Year. Whereas we have been firm with a Russian trawler in the east, in the Atlantic, I think we should likewise have given notice that we want to have an American *Vityaz* that goes over into their missile range. We should just go up and down and pick up the range all the time, just as they have done, and let us take a few of their scientists out. I would suggest that we have a United States hydrographic ship that operates off the Sea of Okhotsk, maybe the Siberian Sea, and the East Siberian Sea. We can watch these missile ranges awhile, as they are doing, but only do it as an extension of the International Geophysical Year.

Now, we have other information. They do have a 1,100-mile intermediate missile range, do they not?

Secretary McELROY. They have intermediate mileage missile ranges up to a thousand miles. Of course, they could have them up to 3,500 within their country.

Mr. FULTON. So that as far as we have been able to get from intelligence or from their statements, we have no evidence in this country of any Russian capability on an ICBM level that the ICBM can be used as a successful weapon with a target in mind?

I would like to pin that down at this time.

Secretary McELROY. We are having to make assumptions about their accuracy, but for the purpose of our own calculations, we are assuming without knowing it that they have the same target accuracy that we would have with our firings. Whether that is true, I just don't know.

Mr. FULTON. We don't have any firm information at this time?

Secretary McELROY. We think that is the conservative calculation from the standpoint of a country that thinks it might be attacked.

Mr. FULTON. Then let's go to the Nike-Zeus.

How long have I been?

The CHAIRMAN. Fifteen minutes.

I will say this: The Secretary has engagements tomorrow. Would you be able to come this afternoon, if we don't finish?

Secretary McELROY. I have a luncheon at the White House that leaves the timing a little bit indeterminate, but I would certainly come back if you wanted me to come back this afternoon.

The CHAIRMAN. I know everybody on the committee is eager, the chairman is eager and so are the others, to ask many, many questions. I think the members are going to have to reduce the number of questions, and even then, Mr. Secretary, we may have to ask you, if you can work in some arrangement, to come this afternoon.

Secretary McELROY. I will come this afternoon, if you like, sir.

The CHAIRMAN. All right, Mr. Fulton.

Mr. FULTON. The Army requested \$730 million in the next 18 months, I think through Maj. Gen. Dwight E. Beach, for the manufacture of components for the Nike-Zeus, that is, to put it into production at the present time, which of course means a cutoff of research and development, is that not right?

Secretary McELROY. You would have to freeze on certain specifications in order to go into production, and we are not ready for it in the opinion of our scientists.

Mr. FULTON. As a matter of fact, I have been a Navy lieutenant assigned for a time to the aircraft scheduling unit at Wright Air Force Base in Dayton, so I have had some experience in it. When you once freeze and put the model into production, if you are not up to a good percentage of accuracy and if you don't have the weapon in stage, you have put a ceiling on your research and development and must then go ahead on an inadequate weapon, is that not right?

Secretary McELROY. That is a practical statement.

Mr. FULTON. Then the total Nike-Zeus system that would not seem to be called for, would, if put into production, would cost \$7½ billion?

Secretary McELROY. We think that would be minimal.

Mr. FULTON. And somebody would have to come up with the answer as to what taxes would have to be raised to raise \$7½ billion during a 3-year period.

Secretary McELROY. Yes, there is that question and also the question of whether you might not be better defended as a country if you

used a portion of that, or all of it, for the purpose of increasing your aggressive retaliatory potentiality, whether it might not be far more discouraging to the enemy for you to have a greater power to deliver destructive weapons on him than simply to defend against anything that he might throw at you.

Mr. FULTON. Then, because this is a nonpartisan approach to defense, I want to compliment Representative Mahon, of Texas, George Mahon, who is chairman of the Defense Subcommittee of the House Appropriations Committee, when he told the Associated Press: "I agree with the President that we should not provide funds at this time to go into production of the antimissile missile. I feel very strongly about this," says Representative Mahon.

Now, let me ask just a few more questions on background.

As a matter of fact, there are other competing weaponry systems for antimissiles that have been up for discussion. One of them was the Air Force Wizard. That was dropped, I believe, in January of 1958, was it not?

Secretary McELROY. Yes.

Mr. FULTON. Then in addition, of course, the Navy has its air-to-surface Talos, which would be a sea-based missile, that might be a very fine deterrent, because they have done a perfectly wonderful job with the Sidewinder, so far. If they develop the Talos, maybe we might have a plane-carried missile rather than a land-based, fixed-point, antimissile missile like the Nike-Zeus might we not?

Secretary McELROY. The Talos is a ground-to-air missile, and it is one which is regarded as having some possible interim capacity for anti-missile-missile use, but it would only be able to intercept at a minimum altitude.

Mr. FULTON. As a Navy man, might I also say it is a deck-to-air missile too?

Secretary McELROY. Yes.

Mr. FULTON. But you see, that gives it mobility and maneuverability, which the Nike-Zeus based in Alaska, Greenland, and the Aleutian Islands would not have.

Let me get to something else.

The Nike-Zeus is to have an advanced radar system which probably would be pointed in one direction, and to take missiles as they came in.

Now, I think that is a great defect, because it isn't catching the missiles when they start. We already have had some research on picking up the ion-scattering of these missiles when they start off, when they are slow. Possibly with these new weather reconnaissance satellites, if we put a number of those up, we would be able to catch the missile as it started, rather than try to catch it when it started to reenter.

Now, may I ask you, on the angle of start from the pad, the angle of launch, that is very much narrower than the angle of reception which can be very broad, is that not right?

Secretary McELROY. Well, this is a question which I think I could very well get over my head in answering. This becomes sufficiently technical that I would like to be excused, Mr. Fulton, from answering.

Mr. FULTON. Would the General answer?

General TWINING. I would hesitate to answer that one, Mr. Fulton. We can put it into the record, if you would like.

Mr. FULTON. Then if we only have Nike-Zeus installations, with advanced radar receptivity to pick up, up to 15,000 miles an hour, ICBM's in Greenland, Alaska, and the British Isles, obviously that kind of program would not protect the whole United States. It would just protect the particular area, coming from the northeast, where these missiles might likely be coming into our major industrial places and cities, isn't that right?

Secretary McELROY. They have a very wide area of coverage. We are assuming, of course, that we are going to receive this attack during the few years ahead, if we are going to get it, from some place in Russia.

Mr. FULTON. Yes, but they are the current missile bases we know of, and we haven't taken into consideration the 443 submarines Russia now has, nor the submarines they might build that are nuclear submarines to offset us with the Polaris.

Secretary McELROY. If we are to observe incoming missiles of the Polaris type that the Russians might at some point be capable of firing at us, these particular BMEWS stations would not observe those. We will have to have other defenses for that.

Mr. FULTON. So against the massive threat of submarine warfare, even at the 500-mile range, the Nike-Zeus is no good at all?

Secretary McELROY. Well, it would have to be tied in with a different type of warning, that is correct, different type of observation and different type of warning.

Mr. FULTON. With the Russians having 443 submarines that can be modified for deck-type missiles of 500 to 1,000 or 1,100-mile range, IRBM, we would then be caught with maybe megaton bombs regardless of Nike-Zeus if we went ahead and put the whole program in and spent the \$7.5 billion?

Secretary McELROY. Well, that is true, sir.

Mr. FULTON. So Nike-Zeus is no solution overall to the problem of either IRBM's or ICBM's as far as the defense of this country or the free world is concerned, isn't that right?

Secretary McELROY. It would do only a part of the job, and we don't know how much it would do because we haven't enough knowledge yet.

Mr. FULTON. That is fine.

So therefore you must look at other systems which might be taken to be more effective, such as the weather satellites, equatorial satellites, polar satellites that will scan and come up with missiles as they start?

Secretary McELROY. Well, all of which, Mr. Fulton, tells us that because of the just incredible expense of these defensive systems even a country with the tremendous resources of this country may have to make a determination which is a quite basic one as to whether the thing for us to do is to put large amounts of money into passive defense or to put ourselves in so invincible a position to deliver destruction that we would not be attacked because of the fear of an attacking nation of his own destruction.

Mr. FULTON. The deterrent then makes for peace rather than looking ahead always for war, is that not right?

Secretary McELROY. That is right. That is the objective of the deterrent.

Mr. FULTON. May I finish with another idea and take this just from a Navy lieutenant?

We are always talking about intercepting and knocking down the missiles. Why don't we talk about boosting them, shoving them on, the ICBM's, pushing them on around the world and letting them fall on Russia; just give them a boost?

Secretary McELROY. I think that is a better idea. What the scientists could do with that one I don't know, but I am certainly for that.

Mr. FULTON. Well, we might energize them with maybe some infrared on their tails and put them out of course and give them another shove. If we take an ICBM and put it up six or seven thousand miles an hour, it orbits, doesn't it?

Secretary McELROY. Yes.

Mr. FULTON. So maybe the thing to do, instead of knocking them down, is to put them into orbit, isn't that right?

Secretary McELROY. I know that it is right if we could do it.

Mr. FULTON. Are we trying that?

General TWINING. I don't know of any project on that yet.

Mr. FULTON. Why don't we try that?

The CHAIRMAN. We might send them all up to the moon.

General TWINING. It is all interesting to think about.

The CHAIRMAN. Mr. Miller.

Mr. MILLER. General, a lot of this has been a little fantastic to me. It goes a little beyond me, boosting these weapons. I just don't know how we are going to do it, so I am going to try to get back to earth.

You did, as I understand it, in answer to a question by Mr. Fulton, say that we must have a weapons system across the board.

I take it then that that means we are not going to put all our eggs in one basket. We want a complete weapons system to meet the threat of aggression?

Secretary McELROY. What we believe, Mr. Miller, is that our country, defensively, should take its own particular strengths into account and should build on those strengths. We think that that is a better way to build a defensive system than to look at what an opponent may be doing in building on his particular strengths and simply following him blindly. That is the real point of what we are saying about the administration's defense program.

Mr. MILLER. In other words, we should initiate our own systems rather than to follow his?

Secretary McELROY. Blindly.

Mr. MILLER. But in the things we feel are essential, we should have them across the board and have the best we can get?

Secretary McELROY. We should always have the best we can get. We should use any of them, whether he uses them or not; the fact that he uses them shouldn't keep us away from them.

Mr. MILLER. That is what disturbs me, because, Mr. Secretary, you remember attending and addressing the banquet of the Women's Forum of National Security, on about January 29, at the Statler? You made a statement there that I jotted down, because it rather struck me. You said, and I quote:

"While we cannot be first in every detail, we must be first in overall elements of defense."

What do we mean we cannot be first in every detail? I am assuming that the details there are those that we elect to take. Must we have a second-best segment of either aggression or defense?

Secretary McELROY. Perhaps I can give you an example if you would like me to do so, Mr. Miller.

The Russian, in our opinion, has far more military requirement of submarine capability than this country has. He has this because the United States, in order to bring in the raw materials it requires, industrial raw materials, and in order to make good its commitments to its allies, and for many reasons, in order to maintain its military strength, which is an allied military strength, must use the high seas for delivering and receiving goods. Russia, on the other hand, is a land-mass country. It does not depend importantly on trade for its strength. It uses its satellites. It uses China to the extent that need be. So that whereas we would not gain anything at all comparable if we built up the same kind of submarine force, because Russia is not dependent on sea trade, he on the other hand, finds plenty of military reason for building a very large submarine fleet. That is the kind of thing I mean, where we should have the very best submarines to the extent that we have submarines, and I think we have got much better submarines than he has, but we should not, because he builds 450 submarines, build 450 submarines.

Mr. MILLER. I agree with you. I think we have much better submarines than he has, but we haven't got enough.

Do you agree with that?

Secretary McELROY. Whether we have enough is another question, but I would never build 450 of them, because he has 450, because we have a different requirement for submarines than he has.

Mr. MILLER. I would defer to your judgment there and the judgment of the Chiefs of Staff.

On the other hand, we have quite a submarine defensive capability with surface ships that the Russian has not, is that true?

Secretary McELROY. A submarine defensive capability with surface ships, yes, we do.

Mr. MILLER. And the Russians haven't got that?

Secretary McELROY. Well, he is building up his surface navy pretty well.

Mr. MILLER. That is why I wonder where we begin to play second string. I am not concerned whether it is in this field, whether it is in the field of an anti-missile-missile, or whether it is in the field of SAC. I just want to know whether it is the philosophy of the Department of Defense that we can be second in any facet of defense or offense that is essential of this country.

Secretary McELROY. Well, now, when you say "facet," if you are talking—

Mr. MILLER. Well, any element or any department of defense, any section or department.

Secretary McELROY. Let me say this, Mr. Miller:

I don't know whether it answers your question. We must have an adequate capability to protect this country's security. That is a very broad kind of statement, and it may not be satisfactory to your line of questioning, but we must be in a position, for example, No. 1, to deter an attack on us with large weapons; in other words, the initiation of general war. In order to deter, we must be in a position to destroy an enemy that might initiate such an attack against us. That is the No. 1 requirement that is against our defense program.

The No. 2 requirement, and it is almost a concomitant of the first, is we must be in a position to apply whatever power is required against various local situations as they develop around the world. We must apply that power promptly in order to discourage the break-out of local conflict, and if they do break out, to contain them so that they don't expand and become big conflicts.

There we need things like our aircraft carriers. We need a mobile force of Marines and Army, and we need a requirement of airlift to support and a requirement of sealift to support. We need whatever is necessary in the way of escorting ships to protect this sealift.

Now, all of this seems to me to be a requirement that is put upon us to do to the extent required, and the extent required has got to take into consideration the opposition that you would find from a possible opponent.

Now, that is the way we approach our job, and I think that the confidence of your Department of Defense, and I would say of your Joint Chiefs of Staff, is that we are adequately set up to do these first and second major assignments.

Mr. MILLER. Mr. Secretary, the reason I raised that, and the reason I noted your remark, was that some years ago we were taught and told that there was no such thing as a second-class army or a second-class defense or a second-class air force, and I was wondering whether there was an eroding away now; that because it was going to cost dollars, we could have second class in the defense establishment. When I speak of the "defense establishment," I speak of it generically, the one that is going to carry on aggressive warfare as well as the one that is going to carry on defensive warfare.

Secretary McELROY. I don't think that you can stand to have a second-class defense. I don't think you can stand that. This country can't stand it, and it doesn't have to.

Mr. MILLER. I won't argue with you as to the number of submarines we must have, as long as we have the first-class defense against submarines; whether it comes from the surface or beneath is immaterial. That also goes for the Air Force. I have just a couple more questions.

Is the ballistic missile early warning system going to replace SAGE and DEW line or does it supplement them, or what happens in that area?

Secretary McELROY. It won't replace DEW line. DEW line will continue as the protection against manned bombers, because we are not assuming from the Russian buildup of an intercontinental ballistic missile capability, that they will simplify our defense by simply giving up bombers. That we don't quite believe is going to happen. But we think we will have to maintain a detection and defense against manned bombers until such time as this assumption that I am making to you proves false. So what we have to have is a detection system which is a superior detection system in terms of range for the ballistic missile warning in order for us to have sufficient time warning to get whatever retaliatory force we want to put in the air, get it off the ground and on its way, and if we have our defensive system against ballistic missiles for that time, to get it working in relationship to the incoming missile warheads. So we have to maintain both of those.

Mr. MILLER. So all of these would be——

Secretary McELROY. We have to maintain both of them for an indeterminate period.

Mr. MILLER. Now, the next and last question I would like to ask, Mr. Chairman, I would rather direct toward General Twining, if permissible.

General, will the Air Force be as reluctant to abandon manned aircraft, to which it is apparently wedded, as the Army was to getting rid of the cavalry? Are we going to have that same old drag? The boys didn't want to give up their spurs, so we kept the horses so we could have the spurs and riding crops. I might say I was in a mounted service in World War I, and I know how nice it was to have spurs that jingled-jingled on the dance floor, and you could whip your riding crop against your britches. I just want to know what is the position of the Air Force about the manned bomber.

General TWINING. I think the point you bring out about the cavalry and the reluctance to give up the service will still exist in the Air Force. But I think that costs alone, when it comes to that point, will prohibit both, and I am sure that the Air Force realizes what these deadly weapons are. When the missile can really take over the job, has to be proven. We must not give up our heavy bomber force. We know what it can do. It has proved its case. It is getting better all the time, and we must not give that up until we are sure this missile can do the job. But I still feel there will be some reluctance on the part of the pilot and the Air Force to get rid of the bomber, sure, but that will have to be pushed from the top.

Again, I will say these weapons are going to cost so much that the dollars will have to be very well spent, and the Air Force will put it in the right place.

The Secretary of Defense is helping.

Mr. MILLER. They will be willing to return it. I may say in closing that I only wish that there had been as much reluctance to place confidence in other fields as in the case of the Army, that I feel we are completely cutting the heart of it right now. That is all I have got to say.

The CHAIRMAN. Mr. McDonough.

Mr. McDONOUGH. Mr. Secretary, I have been informed that the shot at Vandenberg Field, Discoverer I, was a highly successful failure, as stated in the press, meaning that we sought to obtain some knowledge as to the propellant value of the rocket, but we didn't apparently put the satellite in orbit.

What did we learn from that shot that we didn't know before?

Secretary McELROY. I can't tell you what we learned because that had not yet been processed when I left the office this morning, but the intent of the entire Discoverer program, of course, is to find ways to develop the use of a satellite for a variety of packages that it may carry in the future.

Principally, these are inanimate packages. They are packages of communications equipment. They are packages of weather-observing equipment. They are packages of surveillance equipment. But they also would be expected to generate information which would be turned over as all of this information does go back and forth to the space agency, which has the responsibility for the developing of a man-in-



space program. But I can't answer you specifically about just what we learned on this one, and we didn't even know this morning definitely whether it is orbiting.

There was an indication that it was, but again it was one of those things that didn't have quite the positiveness about it I would like to report to you.

Mr. McDONOUGH. Did we use any new propellants or any new type of rocket propulsion in this shot that we didn't do before?

Secretary McELROY. Again, this is something sufficiently technical that I can't specifically answer you on it. I can only say that this was not primarily a propellant test. This was primarily a test of the package that is in the satellite, itself.

Mr. McDONOUGH. In your discussion with Mr. Fulton a moment ago—the detection we have on rockets is mostly on the eastern coast of the United States.

What do we have to protect and detect the west coast in the event of a shot in that are?

Secretary McELROY. Well, you would have a similar facility in Alaska.

Mr. McDONOUGH. Well, what about way down south, Central and South America?

Secretary McELROY. We don't think they will come from there. The distances are infinitely increased. It must add three or four thousand miles, unless you come over the pole.

Mr. McDONOUGH. And in coming over the pole, the Alaskan detection system is the only one we have?

Secretary McELROY. But you should have in mind, and this much we do know, that a combination of Alaska and Greenland overlap each other. The scope of this thing is so tremendous, these are colossal things, and each one of them costs, as I am sure you have been told, some hundreds of millions of dollars, to give you some idea of what the size and scope of these are.

But this does give you the coverage that is required. That is the only thing that you can say is economical about these—that you don't need to have a whole fistful of them up there.

Mr. McDONOUGH. Do we have cooperation and coordination with Canada on such a detection system?

Secretary McELROY. Yes. It happens in this instances we do not have a location of these on Canadian soil, Greenland, of course, being Denmark, and Alaska being our own, but a good many of the lines coming down have to use lines which come across Canada, and our entire continental defense system, as you know, is tied right in with Canada in the North American Continent.

Mr. McDONOUGH. That is all.

The CHAIRMAN. Mr. Teague.

Mr. TEAGUE. You have stated as to the Nike-Zeus program that you are not proceeding with Nike-Zeus based strictly on a scientific basis, is that correct?

Secretary McELROY. I would rather say it in positive terms.

We are proceeding on the basis of the best scientific techniques we have. We are proceeding in a research and development way.

Mr. TEAGUE. Is it not true that a responsible scientific study group did recommend to proceed in production?

Secretary McELROY. There has been no scientific—well, let me back up a little bit. I think that there was a scientific advisory group that did recommend at one point that we move ahead with this program in a manufacturing way as well as research and development. I think there was one at that point.

Mr. TEAGUE. I think there was too, Mr. Secretary. And I am concerned that maybe one or two persons come along after a recommendation has been made like that and would cause you to decide not to proceed when maybe you should proceed.

Secretary McELROY. That is always a question. In the field of science as you know there are people who have different judgments from looking at the same factual material. The advisers that guided me were not only the people in the Department of Defense itself on whom I placed the heaviest reliance, including Dr. York, but also as I say, scientific advisers who are available to the top administrative levels of the entire Government. A man has to make a decision as to which group to follow and I felt that the decision I made was the correct one. I do not know but what you might feel different. I do not know.

Mr. TEAGUE. Mr. Secretary, I do not envy you the decisions you have to make as far as our national defense is concerned and I hope that this committee may help you to always make the correct decision, but there is no question but that a good offense is always a good defense. I would hope that we do not put all our eggs in one basket.

Now, Mr. Secretary, you have intimated a number of times this morning that you do not have sufficient money for offensive missiles. You have said that if there was more money to put into this program then probably it should go into offensive missiles. Is it true that you do not have the money you would like to have to put into your offensive missile program?

Secretary McELROY. No, I think that that might have been inferred from what I said, but I was not meaning to say that. What I was saying was that if you had a requirement of some \$7½ billion to \$10 billion as the price tag for a defensive system like that of Nike-Zeus, it would be essential that in looking at that you would consider what other things you might be able to buy for that same money. Because even a very rich country like this does not have indefinitely extendable resources. I do not mean just money. Money may be the big translator of it all but the big question is the use of your scientific manpower. You just plain run out of it after a while. In this country we are putting 50 percent of the scientific manpower of the country against military programs now as you probably know. We believe that the budget that is recommended by the President is adequate for the programs of national security as required at this time, so we are not asking for additional money at this time. We are saying, however, that we reserve the right to look at the development of the various major programs that we have under development and as any of those seem to have reached a point where they justify further funding, we reserve the right to come back to the Congress and ask for additional funds, for supplemental funds. We did that last year and I honestly believe that it is the proper way for the Defense Department to be run.

The CHAIRMAN. Mr. Secretary, I want to interrupt at this point. The warning bell has rung and you stated, I think, you had an appointment at the White House. We do not want to make you late for it, of course. What is your pleasure?

Secretary McELROY. Well, I can stay here this morning if you want me to until 20 minutes of 1 or something like that.

The CHAIRMAN. Suppose we run until 12:30, would that be all right?

Secretary McELROY. That would be fine.

Mr. TEAGUE. I have one more question. You do not need to comment on it if you do not want to. But from every television program, radio program, magazine or newspaper article, you can find contradictions as to the missile program. How good is your intelligence about the Russian missiles? You can comment or not as you wish.

Secretary McELROY. I will comment in the general terms that I can comment. We think that the intelligence is good. Any time that you do not have hard intelligence—which means that you have seen it or heard it—you have an area of some uncertainty. We would like to have far better intelligence than we have, but after very careful appraisal of the validity of our intelligence—and this is the intelligence community view, the group getting together and reaching a common judgment about what the various strengths of our enemy are—our belief is that we cannot be very far away in these judgments from what the facts are.

Do you want to say any more about that?

General TWINING. No, I think that the military intelligence that we present is the best intelligence there is available and if anybody disagrees with it, that is their privilege, but they should not publish it in the newspaper. Let us stick to one intelligence. Of course you will have confusion when people do not believe. We believe in this intelligence, and we base our planning on it. If it is not right, I do not think it is correct for somebody else to take some other intelligence that is contrary to the intelligence of the United States that is being used by the Nation. Let us have one intelligence system. Sure it is not perfect. As the Secretary said, we are doing the best we can. No intelligence system is perfect and we are getting better at it, but let us use the agreed intelligence estimate. If we would stick to that we would not have a lot of this confusion.

The CHAIRMAN. Mr. Chenoweth.

Mr. CHENOWETH. Mr. Secretary, I want to commend you on your very frank and straightforward answers to all of these questions this morning. We are aware of the tremendous responsibilities and the heavy load you are carrying. I personally think you are doing a grand job and I think you have the confidence of the American people in what you are doing. That goes not only for you but all of the members of the Joint Chiefs.

Now I do not want to go too far afield, but I would be anxious to inquire about your concern as to the present military missile program. Should we appropriate more money for it or is there anything we should be doing that we are not doing as far as the military missile program is concerned?

Secretary McELROY. I think our program both in military missiles and satellites is an adequate program and a program of forward motion. We are in a field here of very rapid evolution. Any time you start out on a new type of weaponry you know that the first one you put out is going to be obsolete almost the minute you make it. We think we will be able to use the Atlas for some time but we all know that there are considerable deficiencies there. What we are trying to do is make some commonsense out of the maintenance of an adequate deterrent, using a combination of ICBM's aircraft, aircraft launched from aircraft carriers, aircraft of the fighter-bomber type, all of these combinations, and then move as rapidly as we can in the development of an ICBM like the Minuteman, which then has overcome many of the deficiencies of the first generation ICBM and can be relied on, I hope, for some considerable period of time to give us this ICBM deterrent force.

Mr. CHENOWETH. Well, I was interested in what you said, Mr. Secretary, about the fact that all space explorations—all of the scientific studies and research being done in the space exploration program do not have military value at present. You are concerned with the military value and there is a certain field there beyond what the military is interested in right now.

Secretary McELROY. That is right, sir, although it also is true that because of the very very small knowledge of outer space that we now have that almost everything that is done of a nonmilitary nature in learning about the environmental aspects of outer space can be usable in the designing of the various kinds of devices which we want to use in outer space for military purposes.

Mr. CHENOWETH. Well, as Secretary of Defense, you are charged with the defense of this country because you are concerned immediately with what will have practical application right now, not 10 or 15 years from now.

Secretary McELROY. That is right.

Mr. CHENOWETH. We are concerned with the defense of this country at this moment.

Secretary McELROY. That is right, and one of the major things that we need from outer space is an improvement in communications, strictly military. I do not mean that it cannot be used for other than military, but we need it for military, we need it for surveillance, and we should go after it for that purpose.

Mr. CHENOWETH. Do you feel we are spending an adequate amount of money as to missiles, intercontinental ballistic missiles?

Secretary McELROY. I do, sir. All of the three programs in intercontinental ballistic missiles are on this top national priority basis, and as such are constantly watched by an assistant specially assigned to this expediting purpose. That is the degree of importance I attach to it.

Mr. CHENOWETH. That is why you appointed Dr. York?

Secretary McELROY. That happens to be Mr. Holaday. Dr. York has the general research and engineering responsibility in every part of the Defense Department.

Mr. CHENOWETH. You mentioned you are retaining Mr. Holaday.

Secretary McELROY. Really as a true expeditor of the entire missile program beyond the research and development field.

Mr. CHENOWETH. What is the relationship between Mr. Holaday and Dr. York?

Secretary McELROY. Dr. York has the responsibility for the research and development aspects and is taking these over from Mr. Holaday. Those we are passing over to Dr. York so that Mr. Holaday from here on will concern himself primarily with keeping me informed of what may be things that I can do beyond the research and development phase.

Mr. CHENOWETH. An expediter.

Secretary McELROY. Yes.

Mr. CHENOWETH. I think that is all, Mr. Secretary. Thank you.

The CHAIRMAN. Mr. Secretary, I would not want your position to be misunderstood now, in stating that your prime interest is in military development of space. I can see that you and the Defense Department would be interested in the development of a space reconnaissance ship, for instance, would you not?

Secretary McELROY. We think of reconnaissance as definitely military.

The CHAIRMAN. Rather than peacetime use?

Secretary McELROY. I do not see much need for a peacetime use of reconnaissance. Maybe there is some but I have some difficulty in understanding what they might be, but a military use of a reconnaissance satellite is quite obvious.

The CHAIRMAN. What about a weather satellite?

Secretary McELROY. A weather satellite could have both military and civilian use and I think you could say for forecasting weather that any knowledge of cloud cover and that kind of thing around the world would help the meteorologist.

The CHAIRMAN. The Sentry program?

Secretary McELROY. It would also have some military importance, for obvious reasons.

The CHAIRMAN. The Sentry program would have a military importance?

Secretary McELROY. Yes, sir.

The CHAIRMAN. Most of the programs that you speak of have directly or indirectly military importance.

Secretary McELROY. At this stage when there is so little knowledge, as I said, Mr. Brooks, if you did not have the Civilian Space Agency you would probably have to do almost everything it is doing in order to understand the environmental aspects of your strictly military applications—

The CHAIRMAN. I would not want the country to feel that some of this is a luxury program. Rather it really is a survival program in my book.

Secretary McELROY. We do not consider it a luxury program.

The CHAIRMAN. Mr. Anfuso.

Mr. ANFUSO. Mr. Secretary, I join with my colleague, Mr. Chenoweth, in saying that you have made a very frank statement before this committee and I think you are doing the best possible job any human being could do under the circumstances. I think this is a time when we all could stand a boost instead of a kick in the pants.

Secretary McELROY. I am much obliged.

Mr. ANFUSO. Now, Mr. Secretary, the Berlin situation could very well involve us in a world conflict. That is a possibility, is it not?

Secretary McELROY. Every time you resist aggression you have to make up your mind you are willing to take it as a possibility.

Mr. ANFUSO. And, if that happened right now or in May or some other time this year, we would be in a better defensive and offensive posture than the Russians, is that not correct?

Secretary McELROY. We think that we have definite superiority over the Russians offensively at this time.

Mr. ANFUSO. And we will have it all throughout this year. There is no question about that.

Secretary McELROY. We have no doubt about it and I am sure General Twining, if you asked him the same question, would respond the same way if you would like him to.

General TWINING. Yes; I would agree with what the Secretary has said, Mr. Anfuso.

Mr. ANFUSO. So that we are not in such a tragically unprepared situation as was stated in the Senate last week?

Secretary McELROY. We do not think so.

Mr. ANFUSO. You mentioned something about the offensive nature of our defense. I am inclined to agree with you for this reason. I believe that the Russians are taking the United States on a well-known runaround. I think that they want to show to all peoples that they can be first in all things and therefore they have started many things. As General Twining pointed out, he could not understand why they did not go on with certain things. I think by so doing they intend to keep on embarrassing us and promoting good propaganda throughout the world and getting us to follow them in many things on a large scale which may bankrupt us and finally reduce the United States to a second-rate power.

In other words, what I am trying to say is this: She is trying to be first to embarrass the United States and not necessarily to prepare for war. She thinks that she can win in the long run without the firing of a single shot or the declaration of a war. Would you agree with my thinking along those lines?

Secretary McELROY. Yes; I do not think Russia cares how she defeats this country. I think she intends to stick right with it until she defeats us one way or another; and, as you have indicated in what you have already said, there are more ways to defeat the United States in the world than simply militarily, and a military way is a very expensive way for the aggressor.

Mr. ANFUSO. Mr. Secretary, you are a member, naturally, of the President's Security Council and no doubt this Berlin situation has come up before you and other members of the Security Council, is that correct?

Secretary McELROY. Yes, sir.

Mr. ANFUSO. I do not know whether this is classified or not, but I would like to throw out a thought here. It might be to the advantage of the United States in the event that Russia turns over her authority to East Germany, and I think that is a foregone conclusion—I am convinced that she is going to do that. As I said, in preparation for such an event, I think it might be to the advantage of the United States if we turned over the authority over Berlin—that is the western part—to West Germany, with certain specific guaranties that we will stand 100 percent behind West Germany in whatever consequences resulted from that action. What I had in mind was specifically this: If then a situation did arise, it would be different from stopping an

American convoy or a British convoy or a French convoy. It would be Germans stopping a German convoy and then shooting might or might not take place. The matter might be referred to the United States or many other things could happen, but nevertheless it would be a situation which I think would enhance the prestige of West Germany and place us in a better light as far as world propaganda is concerned and also forestall the possibility of an all-out war.

I think the danger is greater when an American, British, or a French convoy tries to get through than it would be if the matter were left in the situation I described.

Do you care to comment on that, sir?

Secretary McELROY. I would like not to comment specifically on that, Mr. Anfuso, I think for obvious reasons. I would only caution this: We must be extremely careful that whatever of that sort may be considered must be something which could not be construed by the Russians as indicating any reduction in firmness on the part of the United States. I am sure you would agree with that.

Mr. ANFUSO. I agree with that and I think I have laid emphasis on the fact that if we did make a decision like that we would state that we would back West Germany to the hilt and not budge 1 inch. It is only a question of maneuvering. That is my only point, the question of maneuvering, which would have a greater appeal to the undecided peoples of the world, which would raise the prestige of Western Germany, which would raise the prestige of the United States. There is not any question in my mind that when the Russians turn over their authority to the East Germans they are going to make East Germany bigger at least in the eyes of other peoples. We must do something to make West Germany feel that she will have even greater prestige, that she can deal with the Germans. It is my frank opinion, too, that Germans dealing with Germans may bring about a unification. There is one thing that I think the Russians do not want and that is the unification of Germany. She does not want it because she is still smarting over the defeat which a united Germany gave to her. Somehow in the back of my head I think that negotiations between Germans might eventually bring about the unification of Germany. Do you care to comment on that?

Secretary McELROY. I think I would remind you, Mr. Anfuso, of the very great reluctance, in fact the refusal of the present Government of West Germany to consider any direct negotiations so that I think whatever the practical aspects of what you are suggesting, I do not think it is a feasible thing at this time and I think this is something that is very firmly held as a point of view by the German Government.

Mr. ANFUSO. Thank you. I have no further questions, Mr. Chairman.

The CHAIRMAN. Mr. Osmers.

Mr. OSMERS. Mr. Chairman, I just want to make one thing absolutely clear before I direct a question at the Secretary. It is a fact, Mr. Secretary, that the Department of Defense exerts no direct control over NASA. That is correct, is it not—I am referring to the National Aeronautics and Space Administration?

Secretary McELROY. That is correct. The control of NASA is the control of the Space Council which is chaired by the President.

Mr. OSMERS. In a situation—if this is within the scope of your knowledge—in a situation where national security might be involved,

who would have the authority to classify the information coming from NASA?

Secretary McELROY. May I file this for the record, Mr. Osmer, because I really do not know specifically.

(The requested information is as follows:)

The National Aeronautics and Space Administration, when it conducts programs of a direct national security nature and in direct support of DOD programs of a classified nature, may be requested by the Department of Defense to insure such classification and has authority and facilities to do so. In the event that programs of such sensitivity as to merit special handling are undertaken, there is ample provision that administration therefor, as well as actual research, development, or procurement can be undertaken entirely within DOD channels. Accordingly, the question of authority to classify information coming from NASA would appear to be adequate insofar as DOD programs are concerned. Should questions of the propriety of declassification of certain programs not directly related to the Department of Defense occur, they can, as indicated by the Secretary of Defense, be accommodated through reference by any appropriate member to the National Aeronautics and Space Council for decision within that body.

ROY W. JOHNSON, *Director.*

Mr. OSMERS. Mr. Chairman, in order that the purpose of my question may not be obscure; I read in the morning newspaper on page 1 something I was quite upset about until I came upon other information later—certain dates of rockets to Venus, the weights, the purposes, including some April 15 dates, August dates, and so on.

The CHAIRMAN. That—

Mr. OSMERS. Mr. Chairman, if I may finish and defend you. When I came to the committee, very much exercised about the publication of these things which could do the Nation much harm should these things not happen, I find in Aviation Week of February 23, that there is a complete article containing all of the dates and the information which the chairman then was free to use, it having been published.

The CHAIRMAN. Furthermore I read it 2 or 3 days before in a daily newspaper and thirdly I cleared it with NASA before those figures were used yesterday. Yesterday morning we had a representative of NASA present who cleared every one of those dates.

Mr. OSMERS. It would seem to me, Mr. Chairman, and I know how very security minded you are because of your background—

The CHAIRMAN. I want to correct myself, if the gentleman will yield. It was a representative from ARPA rather than NASA yesterday morning.

Mr. OSMERS. Knowing, Mr. Chairman, of your extensive background in defense matters and knowing that you would not under any circumstances in the slightest degree give out information that might be helpful, it would seem to me that it would be a proper area for the Science and Astronautics Committee to look into—the wisdom of having the National Aeronautics and Space Administration make these premature announcements of things that may happen. Now I want to ask Mr. McElroy a question on another subject.

In view of the total experience which you have had, sir, as Secretary of Defense, would you care to make general comments to this committee in the sphere of the committee's operations, about the scientific education situation in this country, about our basic research situation, or general research and development picture and the educational facilities that we have to back it. Would you consider them



adequate, becoming adequate, inadequate; how would you describe them, sir?

Secretary McELROY. I will to some extent be parroting my highly respected associate Dr. Killian in some of what I say but I am very happy to take my cue on some of these things from Dr. Killian. In a recent talk he deplored what he considered the inadequacy of the attention being paid by this country to the development of knowledge beyond the present frontiers of scientific knowledge which is the kind of knowledge which comes from basic research. In some way or other this country has never made quite the contribution in the basic research field that it has done in such a magnificent way in applied research. I do not mean that there have not been major contributions, particularly in the field of medical science, and others as well. But nevertheless this does seem to be true and we have found such important help that we have received from Great Britain and Germany, in some fields which have been very important militarily. I refer to advances in basic scientific knowledge. I think it is important for this country to look at whether it should not enhance the proportion of its scientific capability that it is putting against the advancement of human knowledge in these areas, so that there will be something further along on which to build in the applied line.

Now from the standpoint of education, one of the more disturbing facts that has come out of analysis of the interests, the academic interests of the great family of students in colleges over the country, this past year reflected in the enrollments of this past fall, is that after a couple of years of pickup in enrollment in science and engineering there was a considerable dropoff. I think that it is a very unfortunate and regrettable thing. It can only be corrected, in my opinion, by a systematic program of improved teaching of science and mathematics in secondary schools with a guidance program for the better students, the capable students in that type of knowledge, so that while they are in these secondary school years the preparation will go on which is a required preparation for the colleges to build on in the future. If those youngsters go to college and have not taken the needed amounts of mathematics and science, the college has nothing to build on and it cannot go back and pick this up. It has to be done, in my opinion, at the level of the secondary school education. I have spent a little time on this in the past and I know that Dr. Conant, who has been studying the secondary schools of this country, has been doing a great deal of the same and with the same general kinds of conclusion. I do not know whether this quite answers the question.

Mr. OSMERS. It does answer my question and it confirms an opinion which I have had—which I have never expressed quite so dramatically as the president of our National Science Teachers Association—that about 50 percent of our secondary school scientific teaching in circa 1910. But it seems to me this is a field in which this committee must interest itself if we are to maintain pace with other nations in the world. I think sometimes we give too much attention to how much money is being spent this year to build missiles rather than how much are we doing to maintain an even pace or to get ahead of the rest of the world in scientific knowledge, which is the basis upon which all missiles and everything else must be built.

Secretary McELROY. I think in the long pull, Mr. Osmers, the competition between our free world and the regimented world of our op-

ponents is far more likely to be won on the basis of the relative abilities of the two forms of society to utilize the intellectual capacities of their peoples for the development not just of military science but of the kind of science which also is at the root of any advancement of overall standard of living.

Mr. OSMERS. I think, Mr. Chairman, that statement goes right to the heart of the difficulty.

The CHAIRMAN. Mr. Mitchell.

Mr. MITCHELL. Thank you, Mr. Chairman. Mr. Secretary, my questions will be related to the Nike-Zeus. I would like to preface my remarks by saying that I have no preconceived idea as to whether or not Nike-Zeus should be put into production at this time or not, but there is confusion in my mind and I feel there is confusion in the minds of other members of the committee and of the public in general. Of course, I know, as you do, that the Army feels very strongly that at this time it should be put into production. So I think that the Army should have their day in court and my questions will be along the line: Have they been given an opportunity to present their case and has it been fairly reviewed?

Now, Mr. Secretary, did you appoint this group of scientists from the DOD to make a study as to the feasibility of production—did you order the study?

Secretary McELROY. I ordered a review of studies that had already been made.

Mr. MITCHELL. Now that review was presented to you sometime this fall, I believe in November, is that not correct?

Secretary McELROY. It was in the fall as we were approaching certain budgetary decisions.

Mr. MITCHELL. Was that the time that you were making budgetary decisions?

Secretary McELROY. That is right, because it was quite obvious that an up-to-the minute analysis of what the situation was was necessary for a sound budget decision.

Mr. MITCHELL. Now these scientists were part of your team, they were Department of Defense scientists in the rocket and missile field, is that not correct?

Secretary McELROY. They are not limited to the rocket and missile field.

Mr. MITCHELL. I did not mean to restrict it to that. But they are DOD personnel?

Secretary McELROY. Some of them are but some of them are outsiders.

Mr. MITCHELL. Those that were assigned to make this review, Mr. Secretary, were they outsiders or were they Department of Defense?

Secretary McELROY. There were some of each.

Mr. MITCHELL. Would you give us the names of those?

Secretary McELROY. No; I do not think I will because I think this is the kind of information which is sufficiently restricted, because it is internal working within the Department, that I think I would hesitate to give these.

Mr. MITCHELL. Mr. Secretary, how many men made this review for you?

Secretary McELROY. Well, I cannot tell you that because the people that report to me report to me for a group and exactly how many they had in their group I do not think I could tell you. But I have had at least two groups, one in the Department of Defense and one as I have indicated here indirectly of a higher administrative level in government.

Mr. MITCHELL. I am referring specifically to the Department of Defense group, not the others. The recommendation you received this fall was a favorable recommendation for production for Nike-Zeus, is that correct?

Secretary McELROY. There was one group that did give us such a recommendation, that is correct.

Mr. MITCHELL. Well, that was a Department of Defense group, was it not?

Secretary McELROY. Yes.

Mr. MITCHELL. Now you referred to another report given by those outside the Department, is that correct?

Secretary McELROY. I also have a report from some inside the Department who were my scientific advisers, official scientific advisers.

Mr. MITCHELL. You are referring to Dr. York?

Secretary McELROY. Yes, Dr. York and his group.

Mr. MITCHELL. Was he a part of the team that was ordered to make this review?

Secretary McELROY. Yes.

Mr. MITCHELL. Of course that team you said made a favorable recommendation so I gather from that then, Mr. Secretary, that you overrode your own group of scientists and followed the recommendations of those outside the Department in failing to put Nike-Zeus into production.

Secretary McELROY. Well, you already heard in testimony before this committee what Dr. York thinks about this program. He is fully in support of the decision previously taken, very vigorously so.

Mr. MITCHELL. I am aware of that, and I remember that clearly from his testimony. But I do not think that answers my question. You followed the recommendations of those outside the Department rather than your own—

Secretary McELROY. Dr. York was in the Department.

Mr. MITCHELL. But we are talking about two conflicting recommendations, one made within the Department that it be put into production and one made from without the Department of Defense that it not be put into production.

Secretary McELROY. You are saying that there was only one within the Department. I am saying there were more than one.

Mr. MITCHELL. When were they made?

Secretary McELROY. At the same time.

Mr. MITCHELL. How many reports were made within the Department at the same time?

Secretary McELROY. As I say, the report that you are referring to was a formal report. The other was a review of that report by the people that are my scientific advisers.

Mr. MITCHELL. Why would you order several different reviews of the same question at one time? I fail to get the point of that, Mr. Secretary.

Secretary McELROY. Well, the group that you are talking about is a group that is a continuing group in the field of missile science and they are advisory. But I also have a continuously employed scientist and he has what advisers he wants to pull to himself, to consider these matters and to advise me as to whether I should adopt that or whether I should not. In addition to that I have outside scientists as I say who are of top level on whom I draw for a judgment on a matter which is of this degree of importance. You see the kind of thing that we are talking about here is not a question of whether you spend \$300 million or whether you spend \$700 million. This is a question of whether you spend \$7½ to \$10 billion. You are making that decision when you make the decision about going into production and that is a very big decision and we are not ready for it.

The CHAIRMAN. Will the gentleman yield at that point?

Mr. MITCHELL. I would be glad to, Mr. Chairman.

The CHAIRMAN. Can you not, Mr. Secretary, make a reviewable decision? Can you not, for instance, make a decision that you should lay the groundwork and preparation for going into production on that program to reduce the time lag when the missile is available? Can you not do that without any enormous expenditures subject to a review later on?

Secretary McELROY. Yes, but that is not what this gentleman is inquiring about. What is being asked by Mr. Mitchell is whether or not we were right in deciding to go the \$300 million route instead of the \$725 million route—if that was the figure—and the \$725 million route was to go into production. And when you go into production you go into production. You do not go halfway into production. And the route of production is \$7½ to \$10 billion, in my opinion, minimum.

Mr. FULTON. But when the Joint Chiefs decided you were right you had some pretty good backing outside the Department, did you not?

Secretary McELROY. That is right.

Mr. MITCHELL. This \$7 to \$10 billion was stretched over a period of years. It would only be an annual figure of \$1 billion a year after production was begun, is that not right, Mr. Secretary?

Secretary McELROY. It would be a great deal more than that. If you spend a billion dollars a year you would have it ready in 10 years. I do not think anybody would be willing to wait 10 years to get it if it is any good.

Mr. MITCHELL. As a matter of fact, the Army said they could have this ready and have a certain number available ready for shooting in 1963, is that not correct?

Secretary McELROY. My scientific advisers tell me you probably could do this if you were willing to freeze on what you have to do as to your components and if you did that you would have what they regard as an unworkable operation.

Mr. MITCHELL. Of course there was a difference of opinion on that as well.

Secretary McELROY. Yes, sir. If the Army recommends one thing, I am sure they do it because they believe it was right.

Mr. MITCHELL. In answer to Mr. Fulton's question, you said this program would be frozen as far as R. & D. work is concerned. I

don't exactly understand that, Mr. Secretary. I understand that you would have to freeze certain parts if you are going to produce, but you could continue with your R. & D., and if certain modifications were needed while on the assembly line, that modification work could be done.

Secretary McELROY. That is exactly the kind of thing we are talking about. I don't know whether you ever manufactured anything, but you probably have built a house, and if you made 10 or 12 changes in the house in the course of building it, you have some idea of the kind of thing we are talking about here. There are hundreds of thousands of parts to the kind of thing we are talking about, and this is an incredibly complex thing. In the opinion of the scientists, we should not go into production at this time. That is the decision that we took. It is a decision that was counter to what the Army thinks is right. Nevertheless, this is the judgment that the Secretary of Defense has to make, and we made it, and there it is.

Mr. TEAGUE. Will the gentleman yield to me for one question?

Mr. MITCHELL. Yes.

Mr. TEAGUE. Is this comparable to the Jupiter, Thor, and other missiles as to beginning production at a certain time?

Secretary McELROY. It is a much more complex thing, so the scientists tell me, Mr. Teague. There is no problem now about putting a missile into the air. In other words, the missile portion of this is not the problem. The problem is the computer. The problem is radar. And the problem is discrimination in all of the clutter that is up in the atmosphere when this comes through, to pick out the thing that is the warhead and not go chasing something which is a harmless piece of exploded missile, for example.

Mr. TEAGUE. So it is not comparable?

Secretary McELROY. No; it is much more complex than anything that we have produced up to this time in the field of weapons.

Mr. FULTON. And at the present time if they blasted the second stage of an incoming ICBM into 30,000 pieces, you do not have the technical know-how developed yet as to how to discriminate and select the ballistic missile which is the real one?

Secretary McELROY. That is right.

Mr. FULTON. And unless you have that, there is no use putting the system into operation?

Secretary McELROY. That is one of the technical problems.

Mr. MITCHELL. I realize the seriousness and complexity of the problem you are confronted with, and I am not trying to be at all critical, but I am trying to see that this matter has been dealt with solely on the merits of the development of the Nike-Zeus system.

Secretary McELROY. Very good.

Mr. MITCHELL. Now, in connection with the questions by the gentleman from Texas, Mr. Teague; you say it is not comparable with the Jupiter and others. As far as the missile, itself, is concerned: Is it more or less considered without bugs and defects?

Secretary McELROY. I think that is a fair statement.

Mr. MITCHELL. So the problem must be as to these other components. Now, as to these other components, have not the Army and your scientists said, insofar as the R. & D. on the other components is concerned, everything is proceeding normally? There actually have not

been any things to develop that have not been swiftly overcome? Is that correct?

Secretary McELROY. If you mean are we moving as they think we might move on a problem of this complexity, you might say that; but they don't know whether you will ever find the answer to some of these things.

Mr. MITCHELL. The Army feels very strongly that they have found the answer.

Secretary McELROY. That is right, but also this is a situation where I think you would expect that the Army might be a little bit more optimistic than a more objective group of scientists.

Mr. MITCHELL. I don't know what you mean by a more objective group of scientists. They seem to have been mighty objective in the past, Mr. Secretary.

Let me close with one question.

Secretary McELROY. Well, would you not concede that somebody that is about to engage in the deployment of a weapon and has it under development as one of its own projects is more likely to have a broadly optimistic view about what it is going to have than somebody who comes in as a completely objective reviewing agency?

Mr. MITCHELL. I would think, Mr. Secretary, that those working on the project would know more about it and probably would be more objective than the reviewing agency from the outside, and I would think this, too: Anyone who recommends a project of this magnitude with the fervor that they have certainly should be given every consideration, because this involves a lot of the taxpayers' money. Of course, we are the guardians of defense, and the purse, and so on—

Secretary McELROY. They are being given every consideration, Mr. Mitchell.

Mr. MITCHELL. I am glad to hear that. So I propose asking you this:

Just what effect did budget matters, money matters, have in entering into the decision?

Secretary McELROY. Not at all. This is a top national priority program. If we had known which way to go, we would have moved out to produce. We do not know which way to go, so we are not recommending going on to produce. What we are doing is substantially increasing the amount of money being spent on Nike-Zeus, in research and development, in the Department of Defense Advanced Research Projects Agency, as well as in the Army. I think it is evidence of the fact that again the best scientific advisers we have say that this is the most that you could effectively spend, so we are giving it everything we know how, because we believe that this is a program that must be pursued with top priority.

Mr. MITCHELL. Thank you, Mr. Secretary.

The CHAIRMAN. Mr. Secretary, before we adjourn, I want to ask you this:

How did the Department divide; did it divide along service lines on that point?

Secretary McELROY. Do you mean on the overall appropriation?

The CHAIRMAN. No; on the question of the Zeus, the use of the Zeus for a defensive weapon and in production at this time; did the Department divide on service lines? You referred to the Army as being a supporter of the program. What about the Navy?

Secretary McELROY. Well, the Army has been assigned the deploying responsibility for this weapon. The Navy, the Air Force and the Chairman of the Joint Chiefs of Staff all in reviewing this program recommended against proceeding with the manufacturing phase of it.

The CHAIRMAN. So the Army stood out alone as supporting the beginning of production?

Secretary McELROY. That is right.

The CHAIRMAN. Now, let me ask you this: This afternoon some of the members would like to ask you questions. What time could you return?

Secretary McELROY. Well, I can be firm on 3 o'clock.

The CHAIRMAN. Three o'clock.

Secretary McELROY. If it needed to be before then, it would be chancey, and I do not like to ask you gentlemen to wait for me.

The CHAIRMAN. What about General Twining. We have great respect for his ability and judgment, too, and we would like to have him back.

General TWINING. Very well.

Secretary McELROY. Well, I can be firm as to 3, then, if that would be satisfactory.

The CHAIRMAN. Very well, then the committee will adjourn until 3 o'clock this afternoon.

(Whereupon, at 12:32 p.m., the committee recessed to reconvene at 3 p.m. of the same day.)

#### AFTERNOON SESSION

The committee met at 3 p.m. in the caucus room, Old House Office Building, Hon. Overton Brooks, chairman, presiding.

The CHAIRMAN. The committee will come to order.

When we recessed I had recognized Mr. Mitchell and he had completed his interrogations and Mr. Baumhart was the next one. However, he is not here.

Mr. Quigley is not here either, is he?

Mr. Sisk is here.

Mr. SISK. Mr. Chairman, I have just a few questions here. I hope to make this as rapid as possible.

Mr. Secretary, we appreciate very much your coming back this afternoon to discuss these matters. I will tell you, my questions primarily will concern R. & D. funds and their breakdown and distribution and so forth because, as I understand, that is part of the jurisdiction of our committee—having to do with research and development and scientific matters, both in the field of civilian as well as the military.

Now the first question I would like to ask, Mr. Secretary, is a general question of this nature: Are you satisfied with the amount of money, or let us say the proportionate share of the money, that will be called for in the 1960 budget for the military as compared to the civilian agencies?

Now to clarify that question a little bit, I have in mind, of course, the money that will be made available to NASA and its affiliated or-

ganizations such as the National Science Foundation and so on—having to do with civilian or peaceful space exploration, as against that having specifically to do with the military.

Now I would like to have you comment on that a little bit, as to what you think of the allocation of funds between these various agencies, looking ahead to the 1960 budget.

Secretary McELROY. As I believe I indicated this morning, Mr. Sisk, I believe really at this stage of the research and development activity in outer space almost everything that is done, whether by the civilian agency or by the military, has some importance from a military standpoint because there is so little known about that that you would have to do the fundamental things of understanding the environmental problems like radiation and things of that sort, whether there was any civilian interest in it or not. You have to do it for your exploration of the military possibilities.

But I would like to answer your question, if I might, in terms of the overall combined civilian and military because to me it never has been terribly important whether a civilian agency or a military agency did this work provided those things that were needed for the military were done.

That is the reason to me it makes more sense to answer your question in terms of the composite program of the two agencies and I would like to talk to that point, if I might.

I think that the combined program of the two agencies is a sound program from the standpoint of our military objectives for outer space, and I refer there—our No. 1 objective falls in the area, really, of communications, surveillance, and that kind of thing.

That program is under vigorous advancement. The rest of the program which seems to have some importance from a military standpoint, but somewhat lesser than those first two, seems also to me to be progressing at an adequate pace—probably not as far as it could, but as fast as I think it needs to. My net answer to your question is that I think it is a good program for the military necessities.

Mr. SISK. I think in general that is responsive to at least a part of what I had in mind.

That thing that sometimes I get a little concerned about, as I am sure other Members of Congress do, are statements by the individuals who say well, No. 1, the most important thing before our country today is security—national security and national defense and all the things that go with it—and that therefore we should, at least for the time being, concentrate almost 100 percent in this field—I am speaking now of research, scientific development, and so on—in the military fields, both as to its application from the standpoint of space, as well as the ballistic missile and so on—anything that is involved in that realm of thinking at all, and that what we are doing is possibly tending to hurt our defense posture by this split, or by this setting up of a new agency exclusively for, let us say peaceful exploration, as against ARPA having to do, let us say, with the military.

I was interested in your own thinking on that subject because I think it is important that we do realize the rather pressing situation that we are faced with in the military field to make certain that we maintain adequate security.

Secretary McELROY. I consider it the responsibility of the military in this overall programing of outer space to make certain that those



things which are specifically military objectives are taken care of one way or the other either by NASA or by ARPA—again as I said earlier that division seems to me to be less important that the assurance that the job is being done by competent people in one or the other.

Mr. SISK. You feel that from the standpoint of economy—I am speaking now of economy in time and economy in money—that this is being just as well done, or possibly better by the new agencies—or a multiplicity of agencies—as it would by simply concentrating upon ARPA at the present time?

Secretary McELROY. I would like not to see a multiplicity; but I do think the two agencies combine, and I think there is a very definite advantage in having part of this done by a civilian agency which gets into the area of international cooperation. It is very difficult to get international cooperation with an activity that is run by the military because the military has to be very closemouthed about what it says. A civilian agency can engage in cooperative effort internationally and I think over a period of time we do hope that quite a good deal of this outer space work will have international participation.

Mr. SISK. Now, Mr. Secretary, another question that I would like to discuss with you for just a couple of minutes has to do with certain statements that our committee has heard, both I think actually in committee as well as by individuals who are concerned with this problem—having to do with the constant review and re-review of various programs.

It seems to me there is a feeling—and I am sure this is true among many of our military people—that if they can be given a job to do, a project, and then for example set it up for let us say a 2-year period in time, or at least a long enough period in time where they knew they can go ahead and proceed, that we could much more expeditiously do the things that are necessary in defense. Of course that applies also to the peaceful projects in space.

I wonder if you would comment on that. I know that certainly in, let us say, conversation with the many military people, they feel that this constant review and re-review—and here again, I realize the Congress is as much guilty of this as, for example, DOD, or anyone else, and this is not to be critical or create controversy—I am concerned about this fact, though, that we have a constant change in direction, many times, in some of these projects.

Secretary McELROY. I think this is something that if either you or I were operating these programs we would both feel a lot of sympathy with.

Mr. SISK. That is right.

Secretary McELROY. I do not think we could fail to.

However, we cannot proceed in government quite as we might do, say, if we were in industry. In industry you can kind of say, "This is what we will do," and we will press onward with it.

We have many people in government who want to keep in touch with this and need to have a somewhat continuing understanding of this which the Congress itself or the appropriate committees of Congress may feel is obligatory on them for the carrying on of their responsibilities.

In addition to that, however, in this field of military technology, the speed with which these fields of science have been moving has been so vast that it really is almost necessary to have periodic reviews of programs in order, on the one hand, to see that certain types of technology have not overtaken certain ways in which we are proceeding, or that we grind into a given program some new information which has come along since the program has been charted and set out in the way in which you say—maybe for a 2-year thing, we hope, but some variations in direction make a great deal of sense.

I know that there may be too much of this in certain cases but I expect also that government being what it is we are going to have quite a little bit of that indefinitely just in order to take care of the people who feel as if they have to do a certain amount of auditing of what we do.

Mr. SISK. Of course I think that is one of the prices we pay for democracy and I think it is worth the price. As a matter of fact, I think it is worth any price we have to pay. I think there is not any question but what from the standpoint of getting these kind of things done maybe—maybe a dictatorship would be more economical in time and money, possibly, but certainly we would sacrifice that to something far more important.

Secretary McELROY. This integrated direction we hope will reduce the amount of that by putting it in one organization.

Mr. SISK. Do you feel that it would be feasible at all to consider, for example, money, the appropriations for these specific types of program in a 2-year cycle rather than a 1-year cycle? Do you feel that would speed it up; do you feel that the taxpayer would get, let us say, more "bang" for the "buck"?

Secretary McELROY. Quite a lot of projects for which money is appropriated are appropriated on a more than 1-year basis.

Mr. SISK. A no-year appropriation, some of them.

Secretary McELROY. That is right.

Mr. SISK. Do you feel we could exist by a—for example, what I had in mind is a definite 2-year cycle on various programs rather than what you might call no-year funds. Put them on a 2-year cycle.

Secretary McELROY. From the standpoint of administration I am sure we would rather have appropriation on a 2-year cycle rather than on a 1, but I do not believe you men in Congress are going to give it to us.

Mr. SISK. I would doubt very seriously, Mr. Secretary, that this would come to pass. On the other hand, we are constantly seeking ways in which we might be able to do a better job to speed up our endeavors and particularly in research and development fields, and this is one of the ways—certainly many military people have said to me in off-the-record conversations that they felt it could be done.

There may come a time when possibly it will become a necessity; I do not know.

Secretary McELROY. We do get a certain amount of this, though, Mr. Sisk, through the no-year funding and if we do full funding as we do in the military, with most or at least many of our projects, we get the equivalent of what you are talking about which is the flexibility of long-range planning and financing.

Mr. SISK. Just one last thing, Mr. Chairman, that I would like to discuss for just a few moments, and that has to do with your—that is, the Department of Defense's apportionment of the moneys in research and development to the various services. You do that according to a formula, is that correct? I mean one which you have used over a period of some number of years?

Secretary McELROY. No, the services—

Mr. SISK. I am speaking now of the Army, Navy, and so forth.

Secretary McELROY. The services have their own budgets, and they recommend certain proportions of the budgets to go into research and engineering. They recommend a certain proportion of all that to go into basic research and these are all in relationship to certain projects. The whole thing is specific to certain objectives that they have for their research and development programs. So that it may fall out that the spending ratios have some reasonable comparability from year to year. I would be surprised if that were true. I personally looked at that to find out.

Mr. SISK. The overall appropriation—now, the total appropriation for each service—for example, for the Air Force, for the Navy, and for the Army—then, is worked out on this formula and then each service determines the percentage of that which it shall put into research and development; is that what you are saying, Mr. Secretary?

Secretary McELROY. No; even the first part—at least since I have been around, Mr. Sisk, we do not take any percentage figure for each one of the services against a total, and I think that would be wrong as a method of procedure.

Mr. SISK. I do, too. I want to agree with you there. I have heard statements that would indicate that is being done. You say that is not being done?

Secretary McELROY. Well, it certainly was not this year, and I know about this year because anything that happened this year is entirely on my neck. Last year was partly mine and partly my predecessor.

However, nobody has indicated to me that in recent years—and certainly it did not happen this year—that there was any percentage figure put against the total amount of money that we had in mind as an objective for spending and said "Because of this percentage application against this total you, Army, have this; you, Air Force, have this; you, Navy, have this."

That was not done and, in my opinion, it should not be done because what should be done is to do whatever is needed and let it fall among the services the way it happens to fall.

Mr. SISK. I agree, certainly, with that statement, Mr. Secretary, and I would hope that that is the way it would be done.

As I say, I have a great deal of confidence in you and in the Department of Defense and I know you know far more about this than I do, certainly; but I am going to say quite frankly that I have been concerned, and am still concerned, about the percentage of the dollar for research and development that is being given to the Army as against what is being given to the Air Force. Quite frankly, I am concerned about that. And that is one of the reasons I was asking these questions.

Secretary McELROY. Again I would suggest, Mr. Sisk, that you push at it—not from the standpoint of percentage so much as what is

not being done in the area of Army responsibility that ought to be done. Push at us in that way, I would suggest, rather than: Is it getting enough percentage?

Mr. SISK. As I say, I am not saying these things to be critical. I realize you have a very big job. But, certainly, as we see these various programs in research and development taking place, and see the amount of money that apparently is being given to do one job as against another—as I say, it has caused me to develop quite a bit of concern whether or not the Army, in view of its responsibilities in our overall defense, is getting its proportionate share of the funds needed in this field.

Secretary McELROY. I would like to suggest—because there is a question where I think you have a right to be satisfied—that if you will give us about another 30 days for Dr. York to get organized in his new job, this is exactly the kind of thing where I think it would be well for you to spend a few minutes with him. Then if you wanted to start with the Army, that would also be all right. Then you get what concern the Army has about efficiency.

But I believe that you will find—I know there is no conscious discrimination against the Army, and if there is any greater underdog there than someplace else, it would be solely because of some lack of judgment decision someplace along the line by, probably, myself.

Mr. SISK. Thank you, Mr. Secretary and General Twining.

Thank you, Mr. Chairman.

The CHAIRMAN. Mr. Wolf.

Mr. WOLF. Thank you, Mr. Chairman.

Mr. Secretary, I want to thank you for coming back this afternoon too. I am sure there is no one here who doesn't agree that you are sincerely interested in the defense of this country, as is each and every member of this committee. This is the primary consideration and not a question of balancing the budget. There are many things being written to the contrary, and with this thought in mind, I would like to discuss an article in the recent issue of Newsweek, which has a remarkably fine likeness of you, Mr. Secretary, on the cover. There are a few things which were written here that I thought you might like to discuss in open session.

I am interested in a subarticle within this article which says:

“How much do we know about the military?”

And then in Russia:

They have gone into detail and demonstrated that at some time in the past our Central Intelligence Agency hasn't been able to do the job. They demonstrate this.

I would like to put this in the record.

Secretary McELROY. You say that they have not been able to do the job?

Mr. WOLF. They have demonstrated, where there was a difference of opinion, that it was the Central Intelligence Agency-produced intelligence that proved to be in error when compared to what actually happened.

I would like to have your opinion on them as I read each one of these to you, if I may.

It says that in A-bombs the United States intelligence experts predicted the Russians certainly couldn't explode an atomic bomb before 1951, and probably it would be a year or so later.

To the astonishment of these experts the Russians held their first atomic bomb test in 1949.

Here was one of the first places where our intelligence has failed us. Then they went on to Korea.

The North Korean Communists had staged a carefully planned series of border raids and had made repeated reconnaissance in force. U.S. troops in South Korea had no inkling that the Reds planned an all-out invasion. For several hours after the June 25, 1950, attack, intelligence agencies still thought it was another border raid.

Our intelligence failed us there.

The Mig-15 came as a great surprise to the U.S. Air Force in Korea. It was faster than our F-86, could fly at higher altitudes, and was more heavily armed. Air Force intelligence said the Russians could turn out no more than six Mig-15's a month by hand. The Russians actually built 10,000 of them.

I am reading directly from the article.

H-bombs—

High altitude bombers, planning for AEC intelligence, scooped up air samples that detected the first Soviet thermonuclear explosion in August 1953. Intelligence chemists analyzed the radiations of the Soviet blasts, confirmed the theories of physicist Edward Teller and thereby speeded the detonation of the first U.S. explosion of an H-bomb several months later.

Then on Red bombers—

The Soviets put their Bison bomber, similar to the B-52, into production 3 years sooner than U.S. intelligence expected. The Defense Department got worried at the displays of Red bombers, stepped up B-52 production, built the DEW line across Canada, and rushed through anti-aircraft missiles. While the United States was concentrating on bomber defenses, Russia got busy on missiles.

Then on the question of missiles—

As early as 1954, intelligence gained through technical literature, traveling scientists, and industrial statistics showed that the U.S.S.R. had launched a major program to build missiles. A huge Air Force radar station in Turkey picked up the Soviet intermediate range missile test by monitoring the upper atmosphere. The same station detected the first successful intercontinental missile heads in August 1957.

A vast network of monitoring devices in the Near and Middle East also keeps constant watch on sputniks and Soviet military and commercial missions.

The other day I referred to this article to one of the gentlemen here, and he said this was not true. He didn't use that exact expression, but he implied there was no truth in this.

Now, Mr. McElroy, this is the sort of information the great mass of American society has, and the only place they can go for information. And on the basis of what they read in our magazines and newspapers they are forced to make decisions, and these decisions many times are expressed to us.

I would like to have you now comment on this and how the CIA equates its material, and whether we can now consider our CIA intelligence much more significant. Or are we possibly as far off today on missiles as we have been in these cases?

Secretary McElroy. The specific individual instances you give I would be unable to comment upon because I don't have the specific information. I think it would be well if you did want to ask those particular questions of someone, that you do it sometime when Allen Dulles is before you in closed session. I think he could comment on these to your much greater satisfaction than I could.

Mr. WOLF. You see what I am trying to say, Mr. McElroy? The American people have been exposed to this magazine and many other articles. They are trying to make decisions. All I want to know is do we have new information that makes our CIA more reliable to you as the leader of our Defense Department?

Secretary McELROY. We think we have increasingly good information. We think, as General Twining pointed out, that there are still soft spots in our information because the Russian has been remarkably good at avoiding leaks of information. This he can do because of his rather summary execution of people who are careless with information, whereas, the processes of legal retribution grind a good deal more slowly in this country and a good deal more—well, a good deal less inexorably.

The principal part of what I think I should say in response to your overall question, however, is that we have very recently again questioned for the members of the Joint Chiefs of Staff and for the top-level people in the civilian side of the Department of Defense just what the quality of our intelligence is. Because it is on this that we base many defense decisions. And our belief is that the information we have is good information and information on which we can predicate programs of our own, with confidence.

Now, I know that that isn't quite the answer you would like, but that is certainly all the answer I can give you here in public session.

And I would also urge that in getting at the more specific elements of intelligence that it be done in closed session, and that the person who really gives you this should be the man who can give it to you with the greatest authority, who is the Director of the Central Intelligence Agency.

Mr. WOLF. Then let me pursue another idea along this same vein:

Would you recommend that there be some sort of a formula for the news media, the news gathering people to use, so that we don't have this unfortunate conflict which provokes many people?

Secretary McELROY. I am not optimistic about that being very successful.

I would like to do it, Mr. Wolf, but what so often happens—and again we were talking about democracy and the freedoms we have and how important we think they are, and I am one of those who thinks they are important—we have people who interpret figures differently and also some people, who are important people and very intelligent people, decide that they have better information than the Government has. If they want to circulate this information, there is nothing I suppose under our kind of a system that could put those people in any kind of a straitjacket.

I am not saying that there is anything irresponsible about any of these people, and I don't mean to suggest that, but people are simply inevitably, as individual people, going to interpret the same kinds of information differently, and some people will take hearsay information and give it a good deal more weight than we, of course, can do in the military. We take hearsay evidence, of course, but we only add it up to more hearsay and more and more and more and put it also with other types of information for us to get a total overall intelligence estimate.

**Mr. WOLF.** Then there is another little box in here in very small print:

Contrary to widespread opinion, the Air Force never has had 24-hour air alert; bombers in the air ready to attack, that is.

General Nathan Twining, head of the Joint Chiefs of Staff, told a House committee last week it isn't necessary. But General Power, who actually runs SAC, told a Senate committee he would like to have a number of loaded bombers in the air at all times.

This is in very small print in this article, but if we agree with what we said this morning, agree that SAC is our first line of defense, I thought you might like to comment on this question of whether or not we need something here.

**General TWINING.** There is no requirement today for an airborne alert. In fact, if we tried to do it, it would hurt our capability. We do have a ground alert, as you know. About 30 percent of the aircraft are on the ground, bombed up, ready to go. We expect to have at least 2 hours' warning in the present threat from Russia, so why dissipate our forces and put them in the air and wear everybody out, including the airplane and the crew, and take a risk of flying these bombs all over the country?

I think the day may come, and not too far away, maybe—in the next few years—where we might want this airborne alert, so we are working on it. But as of today, no, there is no requirement for it, and the Air Force doesn't want to do it yet.

**Mr. WOLF.** You didn't have a chance to answer that in this article, sir, and I wanted you to have this chance.

They also have some statistical data, here, on comparisons between Russia and the United States. I don't want to go into this, but I noticed that Mr. Fulton and I, have different statistics. He said we have 443 submarines, this morning—the Russians have—excuse me. And we say—no—that is right, 200.

**Mr. FULTON.** Will you yield?

Who is "we"?

**Mr. WOLF.** The U.S.S.R. This article.

This article, adding up military power, says that the U.S.S.R. has 200 submarines, and you said they had 443. This is an interesting question.

Is this a new and later figure, the 443?

I see. It has been clarified for me. It is a total of two figures here. There are about 450 submarines in two classes.

**Secretary McELROY.** We don't want to be in the position of talking over this figure in open session in any case. I think any of you gentlemen who want to use a figure can use one, but we give out the figures which are the final intelligence estimate figures, and we can only give these figures in closed session, Mr. Chairman.

**Mr. McDONOUGH.** Will the gentleman yield?

**Mr. WOLF.** I yield for a question.

**Mr. McDONOUGH.** Mr. Secretary, in the transmission of information from the United States to Russia—and they evidently have a very broad and widespread spy system operating in this country—did the decision of the Supreme Court denying the Secretary of State the authority to screen passports hurt our situation to any extent and in your opinion should that be corrected by legislation?

**Secretary McELROY.** I am confident it didn't help us a bit.

Now, how badly it hurt, I don't think the Secretary of State would know, and I don't know, either. In my opinion there should be some right of restriction against those people whose records make it clear that they constitute a security threat against this country.

Mr. McDONOUGH. In other words, it is a one-way street?

Secretary McELROY. I don't see how we can be helped by this kind of situation.

Mr. McDONOUGH. We don't enjoy the same privilege in Russia that they have here.

Thank you.

The CHAIRMAN. Along that same line: Is our inability now to release known Communists in the executive branch of Government, due to the Supreme Court decisions, jeopardizing or hurting in any way our security? Is it making it more difficult to carry on a security system there, free of leaks?

Secretary McELROY. I would say again in this instance, Mr. Chairman—and this definitely can only be on the negative side of the ledger—we are working with the Department of Justice to see whether something can be done perhaps to repair this situation.

The CHAIRMAN. In other words, it is making it more difficult for us to carry on our defense because we can't discharge Communists under the Supreme Court decision?

Secretary McELROY. Inevitably, sir.

Mr. FULTON. Will the gentleman yield?

Mr. WOLF. One more question, but go ahead, Mr. Fulton.

Mr. FULTON. My figure is 500 Russian submarines. Taking off the obsolescence and adding on the new submarines gives me a figure of somewhere between 440 and 450.

That is my own figure.

Mr. WOLF. Thank you, Mr. Fulton.

The other question that I was interested in, Mr. Secretary: In most of the public data that we have, in the papers, we never read anything about how we equate what Great Britain, for example, Canada, the continental countries—how we fit this defense mechanism into our own. Can we do a little of that in open session?

Secretary McELROY. I don't think we can, as much as we would like to, Mr. Wolf.

But in the posture briefings on which General Twining spent a great deal of time in the early part of this session of Congress, he gave this presentation on six different occasions to committees of Congress. He made very clear that we were comparing the capabilities of the United States and its major allies, rather than the United States by itself, because our strength is a strength not only of ourselves but of ourselves and our allies around the world. And this is also true to a considerable extent of Russia. Russia's strength is a combined strength of Russia, China and its European satellites. Whatever the loyalty of those forces are, you have to judge for yourself, and we apply some discounting against them, as I am sure you would do. Certainly, the satellite countries have less dependability for Russian purposes than the Russian forces themselves.

But in our posture briefings, which are the considerations of the relative strength of the two worlds, we certainly consider not only our own strength but the composite strength of the United States and its allies.



Mr. WOLF. And along this line, do we work with any of these countries on some of this basic research? Do we work back and forth? Do we let them take a field and develop it and coordinate our activities?

Secretary McELROY. We work very closely with certain of them, and very effectively.

As I indicated somewhat this morning, in response to a question of I believe Mr. Osmer, the British have made remarkable advances in certain types of things like radar, like aircraft gas turbines, like the canted deck on an aircraft carrier, and things of that sort, which we ourselves have been very pleased to adapt to our own purposes, and I hope they have gotten some things from us.

Mr. WOLF. I think there are others who have some questions, so I will quit.

Thank you, Mr. Chairman.

The CHAIRMAN. Mr. Karth.

Mr. KARTH. Many of our top scientists and some of our celebrated rocketeers have felt and openly expressed their opinion that the Russian missiles are superior to ours not only in the field of propulsion but they are also superior to ours in the matter of accuracy.

For example, General Phillips was recently quoted as having said that one of their missiles is worth two of ours.

Do you concur in this thinking of his and that expressed by some of our other scientists or what is your position?

Secretary McELROY. We think that the best that we can give to the Russian is equivalency with ours. Whether that is too generous, we don't know. We have no evidence that there would be any superiority of his missiles to our own.

General Twining may want to comment on that.

General TWINING. No.

I agree with what the Secretary said. We give them the capability that we have, and we have no information to indicate they have any better capability.

Our intelligence doesn't give us that.

Mr. KARTH. Give me some idea then of how accurate and how reliable our missiles really are by answering this question. If you feel you shouldn't answer in open session, it is all right with me.

If all of our Thors and all of our Jupiters had been aimed at a target, how many of these Thors and Jupiters would have hit the target?

General TWINING. That gets into a pretty secure area. I would rather not answer that. I would be glad to give it off the record to you at any time.

Mr. KARTH. All right, sir.

Could I see you after the public session? I would like to ask you that.

General TWINING. Be glad to; yes.

Mr. KARTH. I am one of those who feels very strongly about psychological warfare in addition to feeling very strongly about a shooting war. It is apparently the consensus that we don't have a great deal to worry about insofar as a shooting war is concerned for the next few years or so, but at least sentiment has been expressed that Russia is not in a position to give us push-button extermination—let

me use that phrase, if I may—and as a result of that we don't have too much to worry about insofar as a shooting war is concerned. But as I said, I am interested in psychological warfare, too.

The war, for example, some people believe could be won without a shot being fired. The Russians have been first on several occasions now, and as a result of that we have gone down the scale in public opinion insofar as psychological warfare is concerned.

Now, the question I have in mind is—because public opinion all around the world has a great deal of influence on the standing a nation has insofar as their potential military ability or world leadership ability is concerned: Do you feel that if the Russians are the first, for example, on the moon, that this will have a tremendous adverse effect on the whole world situation, and if they are, that we may easily slip down another notch or two in the eyes of the freedom-loving countries of the world?

Secretary McELROY. I think it would be an advantage to Russia in this whole war. I personally feel we have gone past the point where we get quite so hysterical about the things as we did as a country last fall, or a year ago last fall. In fact, the President has frequently said that when you have in the world several nations with substantial scientific capabilities, it will not be possible for any one of those countries to make all of the initial discoveries. And what you find is probably what you have found in the last year or two. Many of the discoveries in various types of science are firsts for this country.

You will find from time to time that there will be some on the part of other countries among our free world allies, and you will find some that are made in the Communist countries.

Now, of course, I don't like this any more than you do, but it is a fact of life, I am afraid, that we can't keep knowledge from being developed by countries that are willing to put their minds to it the way the Russians have been willing to put their minds to teaching themselves and learning in every way they know how.

I think that is one of the facts of life we will be up against for some time to come.

Mr. KARTH. Mr. Chairman, if I could try to get a little more specific answer here—I don't know if I follow you all the way through—your elaboration on the answer, that is. Do you think we will lose considerable prestige in the eyes of the freedom-loving countries and in the eyes of the world if we are not first on the moon, or let me rephrase it, if we followed Russia on the moon?

Secretary McELROY. I think it would be negative, but if we were first on the moon and the week after that they were first on Venus, I don't know how it would balance off. This is the kind of thing I am trying to say may go on. Maybe they would be the first on the moon and we would be the first on Venus. If this took place in a period of about 7 days I don't know who would gain by it.

Mr. KARTH. Well, some of our scientists are saying if we don't make considerable progress—and many have said if we don't surpass—let's take the form: "If we don't make considerable progress in this field in the next 12 months, we have lost this battle."

Does this express your sentiments?

Secretary McELROY. No, it doesn't express my sentiments. I think that is an extreme statement.

Mr. KARTH. Do you concur in that?

Secretary McELROY. No. I would like very much to get to a place where we could be first with all the space enterprises. This is certainly the thing that I would find desirable.

Mr. KARTH. On the basis of how we are progressing today, do you think that we are quite substantially catching up to Russia in this whole field of missiles and space?

Secretary McELROY. I think, as far as missiles are concerned, at the present time we have as sophisticated a missile as Russia does. In outer space, I believe he has a better run on outer space than we do, because he has a bigger booster and he can put a bigger load up in the air.

To the extent that the big load permits a greater amount of equipment, I think he will have superiority until we are successful in creating a very large booster of our own.

Mr. KARTH. Do you feel that a great deal of scientific advancement comes about as a result of basic and advanced research?

Secretary McELROY. That is very much my belief.

Mr. KARTH. Is this the area where we have fallen behind Russia and the result has caused us to be second?

Secretary McELROY. I think the place where we fell behind was in the size of the booster.

Mr. KARTH. This was brought about by lagging in basic and advanced research, wasn't it, sir?

Secretary McELROY. I don't think so, no. You could have had a big booster if you decided you wanted to go the direction of earth satellites. We don't know that this is true, but we think it is quite likely that the Russian got into the very large booster more or less as a byproduct of his having decided to go down the missile road much earlier than this country did. His initiation of his effort was way ahead of ours, as I suppose you know. At the time that he was initiating his effort, the warhead that he would have had to lift the 5,500-mile distance was so heavy that he had to produce a very large booster in order to get it that far. By the time we got underway with our effort on a long-range missile we had determined that we would make a warhead of ample destructive power with so much less weight that we did not need the big booster in order to boost our ICBM the full range into enemy territory, so we produced a booster which was of adequate size to lift the lighter warhead the distance that was required.

We don't know this, but we think it is not unlikely that the creation of a large booster, which later gave him this special capability in the field of outer space, was somewhat of a byproduct of the timing of his initiation of his ICBM development.

Mr. KARTH. I think the concern of this committee, Mr. Secretary, is that we catch up. That is one of the primary concerns of this committee, for the security of the United States. I certainly know that you appreciate that, and we know you are very aware of it, and we appreciate the position that you are in, too. We know that you are doing everything that you think is best for the security of the United States.

There are, however, a great many scientists who believe that we are not spending enough money in basic and advanced research, and

I am kind of inclined to go along, because you can't start at the second stage of a rocket; you've got to start at the first stage, and I think this is true in the whole scientific field. You've got to have good, basic and advanced research, and if you don't get the money to do it, you are never going to get to the second stage.

In your opinion, sir, do you feel that there has been a sufficient amount of funds in the basic and advanced research fields to cause this necessary knowledge to come to our scientists?

Secretary McELROY. I was replying to a somewhat similar question this morning by saying that I would go along with a man whom I respect very highly in this field, who is Dr. Killian, who recently has made a talk in which he deplored the insufficiency of basic research expenditures in this country. I agree with him.

In fact, one of the things that I have done here in the Department of Defense budget was to make certain that in the course of any searching that go on for ways in which money might be discovered for favored programs there be no impingement on the basic research program. I can assure you that that has taken place.

Mr. KARTH. How much more money, sir, do you think should be spent on basic and applied research; do you have any idea?

Secretary McELROY. I have asked this question of some of my friends, like Dr. Killian. I don't want to quote him, so I will simply give it as my own opinion. This is one which is more dependent on the number of qualified scientists in this very high level of imaginative scientific work than any other thing, because it isn't money for buying equipment, it is money for financing people, and there is a strictly limited number of people who have minds that are good enough to contribute to the advancement of basic research knowledge. I don't know how much, but I don't think it would be a very large sum of money in the terms in which most of us think as we consider such things as space or military effort.

The CHAIRMAN. Any further questions?

Mr. KARTH. You think it would be in millions of dollars?

Secretary McELROY. It would be in millions of dollars and I don't think very many tens of millions of dollars. Of course, I don't want to discount the importance of \$10 million, it is very important.

But nevertheless in these days we talk about \$10 million not infrequently.

Mr. KARTH. Are we putting sufficient funds in engineering research on the Juno V to insure its success?

Secretary McELROY. On that one specifically I wouldn't be able to answer you, I am sorry to say, but I will be glad to look up that point and report back to you, if you would like.

(The requested information is as follows:)

In response to a question respecting the adequacy of funding for the Juno or Saturn 1½-million-pound-thrust engine, contained on page 128-A, the following information is provided:

The Director, ARPA, previously testified before the committee on this subject. He has indicated that research funds for the Juno project are adequate and that the Director, Army Ballistic Missiles Agency, has no further request pending for additional research funds. With respect to the development program, ABMA will submit a proposal for an increase in production of vehicles from the presently approved 4 to a total of 16.

The Director, ARPA, has previously testified that upon receipt of this technical proposal and subsequent to the determination of appropriate missions as

between the Department of Defense and NASA for additional vehicles, decision as to further action will be made with these decisions to be reported to the House Committee on Science and Astronautics.

The Director, ARPA, has also indicated that insofar as DOD is concerned, an increase in vehicle procurement from four to eight may be feasible; however, missions for the subsequent eight proposed for production by General Medaris have not yet been identified. Such decisions cannot be made prior to the completion of joint discussions between NASA and ARPA. Such discussions cannot occur until receipt of the technical program proposal from ABMA. This proposal is due to be received by DOD on or after March 16.

Mr. KARTH. Fine.

Thank you, Mr. Chairman.

The CHAIRMAN. Dr. Hechler.

Mr. HECHLER. Thank you, Mr. Chairman.

I think I have a clearer understanding of the nature of the reasons for the administrative structure aspects of the missile and space program. Yet what deeply concerns me is that the American people are still engaging in a hue and cry for a single space agency and for an elimination of competition and duplication in the whole missile and space program.

Now, obviously, the system which you have, which has satisfied you, I presume you wouldn't want to change. Now, sir, you have had considerable experience in private industry in persuading people to do certain things. I wonder, sir, if you have any ideas as to how we could clarify this whole question for the American public. I do believe they are deeply disturbed and deeply concerned. This is the first question asked me when it is learned I am on the Space Committee: Why do we have so much duplication?

Secretary McELROY. I don't believe I know any better way for the public to obtain information than from people like yourselves and myself. We are governmental people, and the people to whom the voters look for enlightenment. I appear once in a while. Like Sunday, I am committed to appear on a program, and I presume you gentlemen appear there from time to time. You don't always get the questions that you would like because the questions that you get are not only your judgment of what are good questions, but also the judgment of your inquisitors. I am talking now of the kind of program where you answer questions someone puts to you.

The other way to do has been mentioned here this morning. In the U.S. News & World Report there is a reprinting of certain of the endeavors that some of us make to answer questions of the American people. News Week carries some, and so on.

Mr. HECHLER. Are you disturbed by this reaction? Are you concerned about it?

Secretary McELROY. Well, I am concerned to have a misunderstanding of what seems to me to be a good public program.

Mr. HECHLER. You do not believe, however, that the concern of the people is sufficient to cause you to alter in any respect your administrative organization in order to make it more simple, clear and direct, and understandable to the American people?

Secretary McELROY. Well, I wasn't aware of the depth of concern that you have felt, I take it, from your constituents. I do think this, that any relatively new agency of Government does have a certain amount of time that it needs to shake down with the public, as well as with its own operations. I would hope there would be no precipitant action to do anything except to try to encourage better public understanding of just what is going on.

Mr. HECHLER. Let me ask one final question. Quoting Admiral Hayward, in his appearance before this committee: "After a year of furious U.S. activity, I sincerely conclude that U.S. supremacy in space science is threatened, not by the lack of talent, but by our skill in bureaucracy."

"Personally, I feel we should have one U.S. space program."

He went on to describe the analogy of the work of the Atomic Energy Commission to advocate such a single program.

Secretary McELROY. I disagree with Admiral Hayward.

The CHAIRMAN. Mr. Daddario.

Mr. DADDARIO. Thank you, Mr. Chairman.

Mr. Secretary, this morning you referred to the Russian guided-missile range and said it was limited to something in the vicinity of 3,500 nautical miles, and that they had shown a capacity to hit targets within a good area in that missile range restriction, but that they would need something in the vicinity of 5,500 nautical miles to attack this country.

Now, if we are to take the Chukotsk Peninsula and draw an arc of 3,000 nautical miles, we will include all of Alaska, and a line of the arc would include San Diego, Denver, and Milwaukee. Isn't that the geographical situation?

Secretary McELROY. Your arithmetic is exact, I believe.

Mr. DADDARIO. Just to get the record straight, to follow your testimony, you would say that they have developed in their guided-missile range a missile which has good target capacity and, therefore, if we take this arithmetic, they do have a capacity to hit within this arc that I have described?

Secretary McELROY. If you take that arithmetic, that is an area in which it is assumed they might place a certain number of their missiles, but it would not be expected they would put 500 missiles in that area.

Mr. DADDARIO. I understand that, but they do have the capacity from there at least to launch missiles which could hit a vital portion of the United States?

Secretary McELROY. Oh, yes. It is not that they must have 5,500 miles for any attack upon important parts of the United States. It is that they have obtained 5,500 in the opinion of the strategists in order to have a distribution of missiles which would reach the essential targets.

Mr. DADDARIO. Now, Mr. Secretary, I am interested in the Nike-Zeus, and this morning you said that you felt they should not go into production. I am concerned if we are doing everything we should with the scientists in Europe in the research and development features of the Nike-Zeus.

Secretary McELROY. I think we are, and I would assume that you were given a much more specific answer on that point by Dr. York, because he would have much more specific information to give.

Mr. DADDARIO. From the standpoint of just the overall administrative end of it, who does the research and development for Nike-Zeus—what company? It is Western Electric, isn't it?

Secretary McELROY. We will answer you in a little bit. This is a fine demonstration by the Secretary of Defense of the fact that he does not influence the placing of contracts.

The CHAIRMAN. Do you want to proceed, Mr. Secretary, while your aide tries to find that?

Secretary McELROY. We can provide this for the record, but this is one of the things I really don't know about.

(The information requested is as follows:)

Western Electric is the company doing the research and development for Nike-Zeus.

Mr. DADDARIO. This is not so important. The thing that involves me is the system involved.

If we have company X, for example, which is in charge of this research and development for Nike-Zeus, are they being carefully monitored to see how they pass their moneys through to their subcontractors so that research and development in all of the phases of Nike-Zeus are being properly developed?

Secretary McELROY. Well, I can answer you only in general terms to assure you that that is true. But again, Mr. Daddario, the best place to get information on this is from the people who carry it on. I don't know whether you expect to have them up again or not.

Do you expect to have Dr. York?

The CHAIRMAN. We presently don't have such plans. We only have our schedule set up through Easter.

Secretary McELROY. I can only assure you that it is monitored and monitored on through the principal contractors themselves.

Mr. DARRARIO. It is your contention, if we phrase it merely as a formula rather than getting into the specifics, that we should push the research and development phases of Nike-Zeus as completely as possible?

Secretary McELROY. There isn't the slightest doubt about it, Mr. Daddario.

It has No. 1 priority, a national priority, and there are only five or six programs having such priority. The fact that they have the priority means that they will be given absolutely a clear track.

The only question then is whether they are adequately funded, and I don't believe the Army disagrees, and certainly we don't in the Department of Defense have any doubt that the amounts of money assigned to this program for research and development are adequate for research and development on the program.

Mr. DADDARIO. We are all concerned about that because of the fact that there is no other anti-missile-missile system available to us beyond the Nike-Zeus, as I understand it.

If we don't have proper monitoring, there can be a failure of certain aspects of the Nike-Zeus. For example, the things that come to my mind are the maneuverability functions of the Nike-Zeus, once it gets into the target vicinity. If the enemy sends in a nose cone which has maneuverability of its own, you would have to have the ability to chase after it in order to destroy it.

Are those phases being properly conducted under research and development, or are we taking all of the money and putting it into radar screen development, not leaving enough open?

Secretary McELROY. We are taking all of the uncertain aspects of the program—I don't know whether this will explain it to you, but in addition to the \$300 million that has been assigned to the Army for research and development, there is in excess of \$100 million in the 1960 budget for Advanced Research Project Agency effort which in-

cludes the kind of thing that you are talking about, with improved techniques for discrimination between the targets, so that you can identify the true target, and various of the highly sophisticated additional kinds of techniques that need to be worked on. So that it is the belief of the project managers of the program that we are working on all of the important gaps in information simultaneously.

Mr. DADDARIO. Could you do this for me, Mr. Secretary: Could you get a list of the companies which are involved in the Nike-Zeus program so that we can then check—not now, but at a later date—check and see whether or not the program is properly being conducted all the way to the bottom from the top, so all of the companies are properly participating in all of the phases, because I would like to see that while we are working on the radar we are also developing the propulsion and maneuverability techniques?

Secretary McELROY. We will be glad to do that and we will file it for the record.

(The requested information is as follows:)

The following lists show the location and function of the various subcontractors who are working on the NIKE-ZEUS program. The first list, entitled "Major subcontractors", is the list of subcontractors of Bell Telephone Laboratory (BTL), who will spend over \$500,000 in the fiscal year of 1959. The second list, "Other subcontractors", is divided into the major areas of the Nike-Zeus program. It includes subcontractors of BTL and its major subcontractors. There are, in addition, many suppliers throughout the country who will supply standard components and hardware.

A. MAJOR SUBCONTRACTORS	
<i>Contractor</i>	<i>Location</i>
Douglas Aircraft Co.....	Santa Monica, Calif.
Burns and Roe, Inc.....	New York, N.Y.
Continental Can Co.....	Chicago, Ill.
	Coffeyville, Kans.
Goodyear Aircraft Corp.....	Akron, Ohio
Lear, Inc.....	Grand Rapids, Mich.
Radio Corporation of American.....	Moorestown, N.J.
Remington Rand; Univac Division of Sperry Corp.	St. Paul, Minn.
Sperry Gyroscope Co.....	Great Neck, N.Y.
Western Electric Co.....	North Carolina Works, Laur- eldale, Pa.
B. OTHER SUBCONTRACTORS	
Burndy Corp.....	Mount Vernon, N.Y.
Electronics Associates, Inc.....	Long Branch, N.J.
Reese Engineering.....	Philadelphia, Pa.
Allis-Chalmers Manufacturing Co.....	Milwaukee, Wis.
American Machine & Foundry Co.....	Greenwich, Conn.
F-R Machine Works, Inc.....	Woodside, N.Y.
Airtron, Inc.....	Linden, N.J.
Arthur D. Little, Inc.....	Cambridge, Mass.
Microwave Associates, Inc.....	Burlington, Mass.
Narmco Manufacturing Co.....	La Mesa, Calif.
Norden-Ketay.....	Comack, N.Y.
Vickers, Inc.....	Detroit, Mich.
Wheeler Laboratories.....	Great Neck, N.Y.
Precise Metal.....	Stoneham, Mass.
Consultants & Designers.....	New York, N.Y.
TAAG.....	Brooklyn, N.Y.
Western Gear Corp.....	Lynwood, Calif.
Kaydon Engr. Corp.....	Muskegon, Mich.
Joseph S. Ward.....	Caldwell, N.J.
Tulsa Testing Lab.....	Tulsa, Okla.



## B. OTHER SUBCONTRACTORS—continued

<i>Contractor</i>	<i>Location</i>
F-R Machine Works.....	Woodside, N.Y.
Hewlett-Packard Co.....	Palo Alto, Calif.
Kearfott Company, Inc.....	Clifton, N.J.
Steel Products Engineering.....	Springfield, Ohio
Stromberg-Carlson Co.....	Rochester, N.Y.
Vickers, Inc.....	Detroit, Mich.
Airborne Instruments Lab.....	Mineola, N.Y.
Dow Chemical Co.....	Midland, Mich.
Armstrong Cork Co.....	Lancaster, Pa.
ITE Circuit Breaker Co.....	Philadelphia, Pa.
Polarad Electronics Corps.....	Long Island City, N.Y.
Wheeler Labs.....	Great Neck, N.Y.
Babcock & Wilson.....	Milwaukee, Wis.
Plastic Film Co.....	Akron, Ohio
S. Morgan Smith Co.....	York, Pa.
Goodyear Tire & Rubber Co.....	Akron, Ohio
Kaydon Mfg.....	Muskegon, Mich.
York Research Corp.....	York, Pa.
Univ. of Minnesota.....	Minneapolis, Minn.
Adamson United.....	Akron, Ohio
Wayne Pump Co.....	Fort Wayne, Ind.
Consultant & Designers, Inc.....	New York City
Detroit Controls Co.....	Detroit, Mich.
Dow Chemical Co.....	Midland, Mich.
Electro-Pulse, Inc.....	Culver City, Calif.
Litton Industries.....	San Carlos, Calif.
Ryan Aeronautical Co.....	San Diego, Calif.
Stromberg-Carlson Co.....	Rochester, N.Y.
U.S. Time Corp.....	Waterbury, Conn.
Coors Porcelain Co.....	Golden, Colo.
Cornell Aeronautical Lab.....	Buffalo, N.Y.
California Institute of Technology.....	Pasadena, Calif.
National Research Corp.....	
Ohio State University Research Foundation.....	Columbus, Ohio
Stanford Research Institute.....	Stanford, Calif.
University of California, Los Angeles.....	Los Angeles, Calif.
Firestone Tire & Rubber Co.....	Los Angeles, Calif.
Glidden Products.....	Glendale, Calif.
Era Engineering, Inc.....	Los Angeles, Calif.
Special Effects Manufacturing Co.....	Los Angeles, Calif.
Batelle Memorial Institute.....	Columbus, Ohio
Grand Central Rocket Co.....	Redlands, Calif.
Thickol Chemical.....	Huntsville, Ala.
AiResearch Co.....	Los Angeles, Calif.
Pacific Alloy Engineer Co.....	Los Angeles, Calif.
American Brake Shoe Co.....	New York, N.Y.
Barden Corp.....	Danbury, Conn.
Pratt & Whitney.....	Hartford, Conn.
Paul Hance Productions, Inc.....	New York, N.Y.
New Mexico A. & M.....	Las Cruces, N. Mex.
Sanders Associates, Inc.....	Nashua, N.H.
W. F. Turney and Associates.....	Santa Fe, N. Mex.
Dames & More.....	New York, N.Y.
Stavid Engineering Inc.....	Plainfield, N.J.

Secretary McELROY. I would suggest, Mr. Daddario, if you would like to do it, that we ask one of the people who carries the immediate responsibility in this area to come up sometime at your convenience and discuss this with you, so that you not only have the list but also have it from him directly, just what is done.

Mr. DADDARIO. One last question, Mr. Secretary.

Are you satisfied that in the field of production research concerning the Nike-Zeus program, we are doing enough, so in the event we do

develop a system, that we are then able to produce it with the highest efficiency, with the least cost and in the shortest period of time?

Secretary McELROY. This is the kind of thing, again, which I referred to this morning. It is production planning which is under study, and the objective of that preproduction planning is to do exactly the sort of thing that you are talking about.

I don't think we are ready to do what you have requested, at this stage, but we should be ready to do so in plenty of time so that we lose no time or a minimum amount of time in getting from the design stage to the production.

Mr. DADDARIO. And this is one of your objectives?

Secretary McELROY. Yes, sir.

The CHAIRMAN. Mr. Moeller.

Mr. MOELLER. Mr. Chairman, I will be very brief.

You have very skillfully handled yourself here in the presence of some very skilled interrogators, so I will not ask you many questions.

One thing concerns me very much, and I wish you would make a statement on it. I think there is entirely too much talk in open meetings, even as we have here this morning or this afternoon, about things that are of such prime importance for our security.

Would you not feel that there ought to be a ruling that any information released by our committee on the security program—I am thinking, for example, of an article which appeared in one of the papers yesterday, talking about our missile program and just exactly how we will place these various missiles X miles apart, et cetera.

I am sure that information must be on the way already to the Kremlin. If that kind of thing could be prevented, we could advance ourselves materially in our own defense program, do you agree?

Secretary McELROY. I think that we go much too far in telling our opponent how we are giving priority to different kinds of programs.

I would like to say, however, sir, that there is one thing to be said about letting our opponent know of certain of our strengths. I am not in favor of letting him know to the extent that we do, what may be our weaknesses. If we let him know what our strengths are, then it becomes of some importance as a deterrent to him through miscalculations. But if we talk a great deal about our weaknesses then it seems to me we may encourage an adventure by him because he believes in what we say are our weaknesses. This is a kind of a tendency of us in this country which in his kind of society, he would find difficult to understand.

Mr. MOELLER. It would certainly remove a lot of confusion in the minds of our people.

Secretary McELROY. It would indeed.

Mr. MOELLER. You have indicated, and others too who have appeared here, that the whole world is in a position today to literally destroy itself. A world holocaust without question is facing us unless something can be done about it.

I know this is not in your defense domain, but would it not seem reasonable that we ought to explore more of the area where we could sit down with the enemy and reckon on this situation, before we destroy ourselves? In other words, possibly we could start a disarmament race to save civilization.

Secretary McELROY. Certainly if there were any means by which you could have a respectable disarmament program it would be something devoutly to be desired. The problem as we all know is that we are dealing with an opponent who feels no responsibility to make good on commitments made.

This country on the other hand feels an absolute obligation to make good on commitments. It is therefore very difficult to work out any kind of a deal between people who feel as they do and as we do, on the same matter.

Surely you are aware of this problem.

The CHAIRMAN. Mr. Roush—

Mr. ROUSH. I have one comment on one question. My comment concerns Mr. Fulton's statement this morning that possibly we could devise a way of deflecting these missiles. I do not believe he was being facetious. I do not believe he was and my comment is that I am convinced that anything that man can imagine in the field of science these days, America can accomplish. I really believe that. I further believe that is the attitude we are going to have to take if we are to stay ahead.

My question is a rather simple one. Other than in the field of scientific research and theorizing, have the other nations of the world contributed anything to this missile program? That is the free nations of the world? Have they contributed anything to the defense of the free nations of the world by way of missiles?

Secretary McELROY. I am not in a position to give you a specific answer to that. However, I would be prepared to believe that the contribution, particularly by British scientists in the field of radar, have been so significant that it would hardly be possible for us to be moving up in the missile field as we are without drawing on much of the scientific contribution of the British in this area.

Would you agree with that, General Twining?

General TWINING. Yes.

Secretary McELROY. This would also be true, General Twining points out, about the French.

Mr. ROUSH. We are assuming the burden in the field of missiles, satellites and whatever, is that correct?

Secretary McELROY. The bulk of it is being done from here, that is correct. This is partly due to the fact that the long range missiles are needed only by this country. The long range missile requires somewhat more in the field of thrust, sophistication, guidance and the various things than the shorter range missile, so I think it is true that part of the reason we are doing somewhat more in this area is that our need is greater.

Mr. ROUSH. Thank you, sir.

I have no further questions.

The CHAIRMAN. Mr. Secretary, I have been asked to ask you one or two questions. I know the hour is getting late and you have been most patient. You have been an excellent witness and it indicates your prior experience and ability in managing a great industrial concern that you are able to put those same talents to work here in the Defense Department.

My colleague, Mr. Teague, suggested—and I think his suggestion is an excellent one—that I ask you if you would elaborate for the record:

how important you think the space program as a whole is to the national defense in the next 10 years in the course of development.

Secretary McELROY. Well, there is much that I would not know about how this would develop in any such a long period, Mr. Chairman. There are certain aspects of outer space which are important today for defense. We would like very much to have these available to us right now.

There are others where you have to do a certain amount of guessing. I do think that the potentialities of outer space for defense are sufficiently great that we cannot fail to search these out, prove them out through a substantial program of experimentation and I am sure that is what the budget program for 1960 is intended to do.

Now some of these military programs are urgent and we are treating them that way in their financing and in the way in which we are pursuing them through the Advanced Research Projects Agency.

Now further down the road I find it very difficult to speculate because I think the guide posts are too few. I think anybody who would estimate as to the way we would be looking at space and the military uses of space 10 years from now would be somebody who would have more temerity than I would have, sir.

The CHAIRMAN. In the course of these hearings, someone used the word "aero-space" indicating when you leave terra firma and you go into air and space. Is the development of space akin to the development of the air and would you say similar developments and achievements in space would be equally—certainly as important as the prior developments in the course of air?

Secretary McELROY. I would be prepared to believe that the developments in space would be far more significant because of the tremendous reaches of space.

I am not completely clear in my thinking, and neither are some of the more profound thinkers than I, in this area as to just what the military uses of space are going to be beyond those that we specifically see right now. At the same time, I have come to believe, simply because this seems to be the way progress in new fields of scientific exploration have gone over the years and centuries, that there will be additional new military uses for outer space and they will be in my opinion quite significant. Now exactly what they will be, somebody else will have to guess.

The CHAIRMAN. You would say right now that the use of missiles, guided missiles, and intercontinental ballistic missiles is extremely important to the defense; would you not? You would include the use of satellites for communications, the use of reconnaissance satellites, the use of weather satellites, and all of those things which have direct and immediate importance to the defense—in fact, they are the fiber of this country—in this group; would you not?

Secretary McELROY. Yes, sir.

The CHAIRMAN. I do not put that too strongly; do I?

Secretary McELROY. No; you do not. I agree with just what you have said.

Mr. TEAGUE. I would like to ask General Twining if he expects to ride in a manned satellite.

General TWINING. I hope to, but I doubt it.

The CHAIRMAN. He is a brave enough man. If it was necessary he would do it.

I have a couple more questions. We read in the morning paper that ARPA is embarking on a new and radical approach to the anti-missile-missile program.

These were suggested as an alternative to the Nike-Zeus program. The studies involve antigravity, antimatter, and death rays. Can you tell us about any of these proposals? They are not intended, are they, to camouflage the Nike-Zeus program?

General TWINING. Absolutely not. We are proceeding with Nike-Zeus in absolute top priority.

They do get into advanced thinking on projects assigned to them and one of those is the defense against missiles.

To be perfectly honest with you, I do not even know what some of those things are myself.

The CHAIRMAN. Well, we read it in the paper, and of course it is all right to mention it here.

Secretary McELROY. Oh, yes. I am not complaining about it being mentioned. I am only saying that there are quite a lot of things going on in the Department which I confess the Secretary doesn't know about in any detail.

The CHAIRMAN. I would like to add to that another question, which is about the same, with reference to the Wizard system of antimissile operation.

Perhaps General Twining might say something. We get that out of the press, too.

Secretary McELROY. The Wizard system is one that was being developed in parallel to the Nike-Zeus system by the Air Force, and something over a year ago, we asked that the work on that be discontinued.

The CHAIRMAN. So that is out?

Secretary McELROY. Yes, sir.

Mr. FULTON. January 1958.

General TWINING. I think the committee must realize that the services all have programs of their own, and they are working on them. They have not been put up to the Secretary of Defense's Office as yet, and these sometimes leak out through channels, and you hear about those. That will happen all the time. There is nothing wrong with that, but those things you must realize are not approved projects in any sense of the word. It is a service idea, and it may be a good one, and it may be approved later, but most of them aren't approved yet. Those are floating around in trade magazines, and you will see them everywhere. That is another one of the confusing things. They aren't approved projects yet. They may be.

The CHAIRMAN. In other words, we are getting down to the grass-roots, now.

General TWINING. That is right.

The CHAIRMAN. Mr. Fulton wanted to ask you one more question, Mr. Secretary.

Mr. FULTON. I hope that you will consider the so-called missile booster program, to give them a push or a shove instead of trying to destroy them or knock them down the way we have been talking about earlier. I think you should look into it.

Secretary McELROY. It is an interesting concept. And as was previously said here by Mr. Roush, there is no use any more saying

what can't be done. We have seen too many things that can't be done, done in our own lifetimes.

Mr. FULTON. And if you have been working on an ion engine which in outer space is to be propelled simply by the impact of ions on space, by submission from some sort of an sparking arrangement, we might by some sort of an arrangement induce ion emission or heat radiation at the rear of a missile when it is in outer space, where a very small amount of it would give it a totally different terminal point and a totally different trajectory, so I hope that you will consider that. While we are in the new idea department, may we have one more:

We are also talking about orbiting around the earth. Satellites continuing—and the amount rises from kilotons to megatons—hundreds of thousands of tons of TNT, and goes up to many megatons—millions and millions of tons of TNT.

Why is it when we have a heaven-made satellite, the moon, don't we plan on orbiting such deadly things around the moon. And if we are able to orbit them around the moon, we keep them as sort of a missile barn and then if Russia goes to hit us, by command decisions, which we know we can give now 78,000 miles out, we merely bring in the missiles?

We don't have them over this world of ours, and in this country, and we have them in the air all the time. And if they start something, then we are all ready to give them a crack from a base where we will know if they are going to try to get at us out there. Why don't we do that?

I put that to the general.

General TWINING. I would like to see them develop a missile that can hit a target, first, but your ideas are certainly good, but they are a way, way out in the future. They certainly have possibilities.

Mr. FULTON. It would give us a separate base where we would have 2 days' advanced warning. Where now we are talking merely about warnings that are 10 minutes, 15 minutes, or an hour, to evacuate a whole city of a million or 10 million people.

General TWINING. We have been talking about this satellite for many years that is parked up there ready to launch against an enemy.

Mr. FULTON. Don't tell me you have been talking about that sort of thing.

General TWINING. It is a long time off. We have to work on those things, I agree.

Mr. FULTON. Have you been considering using the moon as a missile park, or a missile range, where you just keep orbiting the missiles around?

General TWINING. That is right. We have talked about this for some time. And the Army will have troops up there floating around, too, and we can drop those.

Mr. FULTON. The Air Force will have the missiles going around the moon, not the Army.

General TWINING. Yes, sir.

The CHAIRMAN. One more question, Mr. Secretary, and this may be just a little off the subject that we have been discussing today—space—but it is on the ground anyway. This in my judgment is a very critical period of time through which we are passing.

The British now repealed their draft act and we, on the other hand, are cutting down the size and strength of the Army. What effect is that going to have on the Russian mind, if you wish to answer that at this time?

Secretary McELROY. I think the real influence on the Russian mind depends on his belief that this country would respond to an aggressive attack with a force that would destroy his country.

The Russian ground forces have been and probably always will be so much in excess of our own that when you reduce our ground forces 3 percent, which is what we have done in going from 900,000 down to 870,000, I don't think this is going to have a particular influence one way or the other on the Russian.

What we have to do is to maintain our ability to make a shambles out of the country if he takes a crack at us.

The CHAIRMAN. Are there any further questions?

(No response.)

The CHAIRMAN. If not, Mr. Secretary, and General Twining, you have been very patient and again I want to thank you on behalf of this committee. I think personally you are doing an excellent job with the Secretary down there in the Defense Department. Of course, I have known General Twining for many years, and I don't think you could have gotten a better man as Chairman of the Joint Chiefs of Staff had you even forgotten the national boundaries and looked abroad in any other country.

Secretary McELROY. Wonderful.

Mr. FULTON. May I join with the chairman in both of these statements.

We are glad to have you, and I think you are both doing a fine job.

Secretary McELROY. I would like to thank your committee on behalf of both General Twining and myself for a very courteous interrogation.

The CHAIRMAN. We have been happy to have you.

If there is nothing further, we will adjourn until tomorrow morning at 10 o'clock.

(Whereupon, at 4:25 p.m., the committee was recessed, to reconvene at 10 a.m., Tuesday, March 3, 1959, on another subject.)