

REVIEW OF THE SPACE PROGRAM

MONDAY, MARCH 7, 1960

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE AND ASTRONAUTICS,
Washington, D.C.

The committee met at 10 a.m., Hon. Overton Brooks (chairman) presiding.

The CHAIRMAN. The committee will come to order now.

We have this morning as our first witness, in fact, our only witness, Mr. Thomas G. Lanphier, Jr., formerly with Convair.

Now, Mr. Lanphier, under the procedure of these posture hearings, all of the witnesses are sworn. I will ask if you will rise and take the oath: Do you solemnly swear that the testimony you are to give before this committee in matters under consideration will be the truth, the whole truth and nothing but the truth, so help you God?

Mr. LANPHIER. I do, sir.

The CHAIRMAN. Have a seat.

Gentlemen of the committee, Mr. Thomas G. Lanphier, Jr., formerly with Convair, has a most distinguished record, had a very fine fighting record. I think a copy of it is before the members of the committee and I ask that, there being no objection, we place his background and his record in the hearings.

Mr. FULTON. If it is a qualification for appearing as a witness before this committee, I agree.

The CHAIRMAN. You mean the oath?

Mr. FULTON. No; the fighting record.

The CHAIRMAN. Well, he is a fighter.

(The biography of Mr. Lanphier is as follows:)

Lanphier, Thomas G., Jr., aircraft exec.; b. Panama Canal Zone (parents U.S. citizens), Nov. 27, 1915; s. Thomas George and Janet Irma (Cobb) L.; A. B., Leland Stanford U., 1941; m. Phyllis Johnson Fraser, June 6, 1943; children—Patricia Cobb, Judith Fraser, Janet Oliva, Kathleen Charles, Phyllis Ada. Editor for the Idaho Daily Statesman, 1945–49; special assistant to Secretary of Air Force, 1949–50; spl. asst. to chmc. Nat. Security Resources Bd., 1950–51; v.p. Consol. Vultee Aircraft Corp. since 1951. (1951–60). Mem. air staff com. N.G. Policy, 1948–49; mem. sci. adv. bd. to Chief Staff U.S.A.A.F., 1950–51; served as fighter pilot, U.S.A.A.F. South Pacific, 1942–43; dir. fighter operations and tng., 72d Fighter Wing, 1943–45; now col., Res.; comdg. officer, 190th Fighter Squadron, Ida. Air N.G., 1946–49. Decorated Navy Cross; Silver Star with oak leaf cluster, Distinguished Flying Cross with oak leaf cluster, Air Medal, Recipient Air Force award for exceptional civilian service, 1948. Mem. Nat. Aero. Assn. (pres. chmn. bd. 1955), Air Force Assn. (pres. 1947–48, chmn. bd. 1951–52), Kappa Sigma, Sigma Delta Chi. Clubs: Circumnavigators (N.Y.C.) La Jolla Country, Cotton Bay, Winged Foot Country. Howe: 203 Via del Norte, La Jolla, Cal.

The CHAIRMAN. Now, I understand, Mr. Lanphier, that you have a prepared statement and we will be very happy if you will proceed

with the prepared statement as you have it, following which we wish to ask you some questions.

STATEMENT OF THOMAS G. LANPHIER, JR.

Mr. LANPHIER. Thank you, Mr. Chairman, and my apologies for the fact that copies of this statement have not yet arrived. They are somewhere en route through the halls.

The CHAIRMAN. When they come we will distribute them.

Mr. LANPHIER. All right, sir. I would like to thank the chairman and the committee for the honor and the invitation to present my views as an American citizen on the national space program and what I consider to be the perilous state of our national defenses over the next 3 years.

As background for my remarks, I would observe that for the past 20 years, I have, like many others, been associated in one way or another with the defense effort of the United States.

For more than the past decade, I have been directly associated, in the Pentagon, in the White House, and in industry, with the development of weapon systems of the hydrogen bomb and ballistic missile era. Throughout this period, I have held a top secret clearance with the Pentagon and a "Q" clearance with the Atomic Energy Commission.

For the past 9 years, I have worked with Convair, one of the Nation's largest and most versatile defense contractors. Convair is a division of General Dynamics Corp. which, in its Electric Boat Division, also builds nuclear submarines for the Polaris weapon system.

As Convair's long-range planner, I have, over the years, participated in the conception, development, and production of supersonic-manned interceptors and anti-aircraft missiles for our air and fleet defense, and have been similarly employed on our nuclear bomber, supersonic-manned bomber and Atlas ICBM programs for this country's retaliatory forces. Also, during the past several years, with the advent of the Atlas as the bulwark of the national space program, I have had considerable participation in the long-range planning for some systems in this field.

Throughout this past decade, and particularly over the past 5 years, I have watched with growing concern the perennial development of defense budgets more and more out of joint with the technological times and less and less sufficient to meet the growing threat in the significant areas of ICBM's, antisubmarine warfare, and limited war deterrent.

Three years ago, Gen. Curtis LeMay testified before Congress to the effect that unless our defense program changed from what was then planned, the winter of 1959-60 could find us inferior to Soviet Russia in modern military power.

In the intervening 3 years, the only changes in our own defense effort have been to diminish it from what it was then planned to be. The Soviets, meanwhile, have led mankind into space with their Sputniks.

Last spring, along with the rest of the world, I heard President Eisenhower admit by implication that we could not meet the Berlin crisis, if force were required, with any alternative but national suicide.

This winter, in the defense budget he has proposed to the Congress, I note with disappointment that the President has proposed no significant step toward arming us with a limited war deterrent for use in the continuing crisis over Berlin and other, as yet unforeseen, but certainly potential limited war situations.

I note he has again asked for insufficient ballistic missile and manned aircraft to close the growing deterrent gap relative to Soviet Russia in the area of massive weapon systems.

And he has once again read the United States out of the space race while failing to take the simple steps currently possible to better organize the space programs the United States does have underway.

Altogether, I believe my country's defense forces and policies have been allowed to drift to the paradoxical point in time when the President can rightly say the strength of our Armed Forces is incalculable and could destroy today any aggressor; and at the same time by this paradox, I can validly say my country may this winter be in the process of losing world war III.

I believe we are losing world war III for, among other reasons, lack of a sufficient and timely ICBM program, lack of a defense against a submarine attack, lack of an adequate civil defense program, lack of a weapons program and policy to deter limited aggression, lack of a sufficient and timely space program and, above all, lack of recognition that we are and have been for a long time, actually been engaged in world war III.

We are engaged, in fact, in the only military phase of world war III we have a chance to win: the deterrent phase. And we are losing it. Losing it to the extent that I believe we could now logically assume ourselves to be in jeopardy of physical destruction and likely to remain so for the next 3 years.

This because modern weaponry, in the hands of the Soviet Union, can be assumed to have reached a qualitative and quantitative point at which our "incalculable power" to destroy an aggressor can now be itself destroyed, in the main, in a matter of moments.

A revolution in arms has occurred on both sides of the Iron Curtain over this past decade. A revolution not yet thoroughly recognized or acknowledged at the policy levels of the executive branch of our own Government but disturbingly recognized and exercised in the Kremlin.

In the course of this technological revolution in arms, it is worth noting that the scientists, the engineers, and the producers of ICBM's and other ultramodern weapons have moved up alongside the uniformed men of the armed services as combatants in the conflict against communism.

Those in science and industry who are responsible for the continuing invention of weapon and space systems timely enough and effective enough to add to the deterrent, can and do take pride in their contribution to the defense effort.

Men of science and industry deserve better recognition than they generally get for the major role they play in maintaining the quality of the deterrent force in being. They also should be afforded readier access to such information as our intelligence sources may have developed regarding experience in similar technological fields on the other side of the Iron Curtain.

In regard to the momentary effect of the arms revolution which is occurring, General Power, commander of the strategic air arm, has recently said :

According to released data on nuclear effects, it would take an average of three missiles, in their current state of development, to give an aggressor a mathematical probability of 95 percent that he can destroy one given soft target some 5,000 miles away. This means that, with only some 300 ballistic missiles, the Soviets could virtually wipe out our entire nuclear strike capability within a span of 30 minutes. To further heighten this threat, only about half of these missiles would have to be ICBM's. The rest could be the smaller IRBM's which are considerably less expensive and easier to produce.

There are those, including myself, who believe General Power is conservative when he estimates it would take as many as three ICBM's to destroy a soft SAC base and all the retaliatory bombers on it. There are others who argue it would take more. But it is difficult to understand how anyone can argue when he says :

We must anticipate that the Soviets may have accumulated a sufficient number of operational ICBM's and IRBM's for an allout missile attack before we have in operation warning systems which could provide reliable and adequate warning of such an attack. We have such systems now under development designed to give some 15 minutes warning, which would suffice to get most or all of SAC's ground-alert forces airborne. But until our ballistic missile warning system becomes fully operational, SAC's capability to survive a missile attack with little or no warning will be the crux of the free world's deterrent posture.

Yet this winter's budget for our defense does not ask for enough money to keep a significant number of SAC bombers and bombs off the ground and out of the pouncing reach of Soviet ICBM's. An ICBM force which could well be, by this time, more than the 150 Soviet ICBM's General Power opines would be required to wipe out our retaliatory force.

There is no great mystery about the point General Power is trying to make. Including our carriers at sea and our advanced SAC bases overseas, there are less than 100 points—most, in fact all of them, outlined in this published manual.

The CHAIRMAN. What is the manual you refer to?

Mr. LANPHIER. It is called Air Force bases. It describes—I won't add up the total, I understand that is a classified number—but it describes in detail where these bases are, what facilities are on them—I am not being facetious.

The CHAIRMAN. Who wrote the book?

Mr. LANPHIER. The Military Service Publishing Co.

The CHAIRMAN. It is a current publication?

Mr. LANPHIER. Yes, sir; it has a valid purpose. It is to inform troops or whoever are moving to some of these places how far they have to travel, and so on, but you just look at the other side of the coin and all I am saying is it outlines, as of late 1958, with the exception of what new military bases there are, where SAC is deployed.

Mr. McCORMACK. In order to clear the record you are not criticizing that publication?

Mr. LANPHIER. No, not at all. The only point I am making is there is no mystery about how many of these aiming points there are, certainly not to the Soviets.

The CHAIRMAN. Your idea is that that gives the Soviets the information?

Mr. LANPHIER. No, what I am saying is there are less than 100 bases that they have to shoot at, upon which our retaliatory forces are established, that they have to shoot at as their problem in destroying our retaliatory force. I am simply taking this as my source that there are less than 100, this book, that is all.

The CHAIRMAN. Just proceed.

Mr. LANPHIER. There are less than 100 points at which the Soviets must aim their ICBM's or submarines in order to destroy our retaliatory power. And in a technological era when we ourselves have nuclear submarines which can outrun our current carriers and have an ICBM which can be delivered half-way across the world and by the President's own admission, strike within 2 miles of its target, it is certainly within the realm of logic to assume the Soviets may have submarines and ballistic missile forces of equal quality and considerably greater quantity than do we.

Any less assumption as the basis of our defense planning in this age of final weapons is unwarranted.

In World War II, Pearl Harbor came upon us at a speed of about 200 miles an hour from an altitude of about 10,000 feet, and we had, in effect, 2 to 3 years' warning time with which to retaliate. This time it might come at thousands of miles an hour, fired from out of the atmosphere, but more likely the Pearl Harbor of world war III may well be quietly occurring this winter as we drift past that moment in our national planning when we could have maintained a defense force impressive enough to continue to deter the Kremlin from overt physical aggression or unanswerable political ultimatums.

Again, borrowing from General Power, about 30 years ago at the Lenin School of Political Warfare, a member of the committee of the Communist Party told the students:

War to the hilt between communism and capitalism is inevitable. Today, of course (that is, in 1931), we are not strong enough to attack. Our time will come in 20 or 30 years. To win, we shall need the element of surprise. The bourgeoisie will have to be put to sleep. So we shall begin by launching the most spectacular peace movement on record. There will be electrifying overtures and unheard-of concessions. The capitalist countries, stupid and decadent, will rejoice to cooperate in their own destruction. They will leap at another chance to be friends. As soon as their guard is down, we shall smash them with our clenched fist.

All things concerned, our guard is now down. We are, as predicted, cooperating in our own destruction. We are being put to sleep.

To the extent I can cry alarm, with my own individual voice, I propose to do so. And in order to unclutter my opinion from charges of bias, I am regretfully leaving the great company of which I have been a part for almost a decade. This in order that its important programs and my own opinions not encumber one another.

Thank you again for your gracious invitation to hear my point of view.

The CHAIRMAN. Mr. Lanphier, that is a very, very strong statement, and I notice that you follow the views of the head of our SAC Air Force in quoting him in a number of occasions with favor. I want to say first to the members of the committee that we are proceeding this morning under the 5-minute rule that we adopted some time ago.

Mr. FULTON. Mr. Chairman, can I comment?

The CHAIRMAN. Yes.

Mr. FULTON. Just a minute, Mr. Riehlman.

When there are this number of charges of very grave nature on everything from ICBM's to submarines to defense posture to criticism of the Executive, it will be impossible for me to uphold the negative in 5 minutes. Mr. Riehlman has another meeting he must go to.

The CHAIRMAN. Mr. Riehlman will be back though, and Mr. Van Pelt is going to be here.

Mr. FULTON. It will be impossible to meet these things in that period of time. I will be very willing to step aside so that originally the 5-minute rules shall go down the committee. But then I will need more time than 5 minutes obviously to meet such exaggerated charges as this, because this looks to me like one of the best prophets of doom and disaster in the last 10 years, and I would love to have just a little more than 5 minutes with him.

The CHAIRMAN. The gentleman, I think, was the one who made the motion to adopt the 5-minute rule. I am merely carrying out the mandates of the committee. This morning it so happens we have this witness here, and at noon we have a bill on the floor of the House of Representatives. So far as the chairman is concerned, he would be very glad to extend this, but with the members present I don't think it would be fair to deny some of the members sitting further down the ladder an opportunity to question. We can run until noon, and after 5 minutes by each member is completed, and if there is any time left, we will go around again until noon is here.

Mr. FULTON. That is what I meant; after the other members are completed, I meant to take some time.

Mr. MILLER. How are you going to divide that extra time?

The CHAIRMAN. The extra time—

Mr. FULTON. I move, then that the time be divided 50 percent on each side of the House this morning, as it will be impossible for one member sitting here on the Republican side to answer all these charges in 5 minutes. I am sure there is no intent to shut the Republican side off.

The CHAIRMAN. I don't think it is our purpose to answer charges here this morning. We are here to hear the witness now. If he wants to make charges, we can answer the charges on the floor there.

Mr. FULTON. I think he has already made very serious charges.

Mr. WOLF. Perhaps we could have some phone calls made to the Republican members of the committee and they could come down.

Mr. FULTON. I think you will find I can use enough time.

The CHAIRMAN. What the Chair proposes to do is this: We are going to proceed under the 5-minute rule. We have lost nearly 5 minutes already. When we go around if there is any time left we will proceed again under the 5-minute rule for a second time. I will recognize members alternatively on each side. Mr. Fulton can get the other members, if he wishes to, on his side to be in attendance here. That is their responsibility.

Mr. FULTON. May I make this suggestion, that when we come to the second time around, that in accordance with my request that I be given more time?

Mr. MILLER. No; I don't approve of that. We have the rule.

The CHAIRMAN. You have heard the motion; Mr. Fulton wants more time.

Mr. McCORMACK. Have you made a motion?

Mr. FULTON. I requested that of the chairman.

The CHAIRMAN. You haven't made a motion. I was going to have it voted on. If there is no motion before the Chair—

Mr. MILLER. I think the point of order is out of order.

Mr. FULTON. I just requested the chairman.

The CHAIRMAN. We will proceed as indicated.

Mr. Lanphier, coming back to your statement, will you give us more specifically something that you have in mind?

Now, wherein can we move to improve this situation according to your ideas and be specific? Is it in improving our airplanes, is it in producing better missiles, is it in keeping them alert in the air constantly as General Power says or what is it?

Mr. LANPHIER. It is a combination of these, sir. I would say that about three—

The CHAIRMAN. Name them—1, 2, 3.

Mr. LANPHIER. Right. The first thing I would say that is most essential is a reorientation of the national attitude about the fact that we are being warred upon, and a candid assessment of that fact by the President, and a candid assessment by him of the relative values of our deterrent versus theirs.

Our deterrent is certainly not effective in terms of what we think it is but, more importantly, what Mr. Khrushchev and his people understand it to be. So I don't really see too many reservations about talking about the power that we do have in more practical and specific terms than has been practiced so far at least.

No. 1, a change in the national attitude, hopefully engendered by the President.

No. 2, a rearrangement of this budget and all future budgets oriented toward and related to the threat and begun, say, in the summer, for future budgets with an establishment of what the estimate throughout the administration is of the threat in its several forms, both in the minds of the people who are compiling the budget in the Defense Department and then the Congress, which is going to have to review it later in the winter.

In terms of immediate action in this budget, I would suggest that whatever funding is required, to get a significant element of SAC in the air as soon as possible, be allocated.

That more tankers, KC-135's, both for the current and for the next 2 or 3 years—rather for the next 2 or 3 years; you can't do anything about the current one—be procured both for the airborne alert and for possible retaliation.

By all means accelerate both the Atlas and the Titan programs, each of which can be accelerated. I know more about the Atlas program and I know that one can be accelerated to a significant degree by the end of 1962 and into 1963. At the moment there is no acceleration planned for it and it is planned to terminate in 1962.

Accelerate both the Polaris and Minuteman mobile systems. There is a tendency on the part of the people bespeaking the administration's point of view to imply or rather you can infer from their conversation about the Polaris and Minuteman that they are much sooner

available in a reliable and operable form than they are actually scheduled to be.

And again, anybody in this business has got to factor the stated schedules for these two mobile systems as against the experience that we have had in the industry over the past 10 to 20 years.

For instance, the Atlas, leaving apart the first 7 years when it was in a fairly reduced state of activity, but beginning about 1954, when it was accelerated, to this moment is 6 years. At one time it enjoyed sole priority and the maximum priority given a weapons system in peacetime in this country. Even with that, in this the sixth year, it is just becoming qualitatively operational and is still some time away from being quantitatively operational.

When you relate the schedule on the Polaris which began on a relative point about 3 years ago, to be operational as a system this year or next year, this stretches the credulity of professional people in the business and doesn't seem to me the basis for a valid defense plan by the administration unless there is a considerable around-the-clock acceleration of both these programs, which there could be if the attitude were changed.

I would suggest by all means accelerating the two space programs with which we aspire to warn ourselves, Midas and Samos.

I would suggest the procurement of more B-52's and B-58's since they are going to begin to wear out after a couple of years of airborne alert, since we have in the B-52 a known instrument and in the B-58 an easily dispersed quick-reacting supersonic bomber.

I would begin to buy airlift for the Army and Marines, something which we haven't done in any budget in the last 5 years to any noticeable degree.

I would go ahead with the B-70 as a development program and a version of the B-58 currently being discussed in the Pentagon, each as entries, one before the other, in the manned retaliatory system field. And by all means, I would engender a sensible civil defense shelter program as a very significant element of the deterrent. Something we don't now have. Something the Soviets most certainly do have.

On the long-term basis, I would make quite certain that the space program which, at the moment, at least to the extent of the opinion of the people throughout the organization with which I work, which is fundamentally involved in the space program with the Atlas and others, is a well-considered program. But I would make most certain with dollars that the program is adhered to and that it is by far better managed than it currently is in its several forms.

By this I mean that in each instance it is being well enough managed to the extent it can be in the Defense Department and the civilian agency, but the integration of the efforts on the part of people who invent things and try to find a place to submit them and have them accepted in time to be useful is still a complicated thing. There is no—

The CHAIRMAN. Mr. Lanphier, I am a victim of my own rule. My 5 minutes are just about up.

Mr. LANPHIER. I have about finished mine, sir.

The CHAIRMAN. Summarizing what you have to say, and you can answer this "Yes" or "No," the burden of what you have to say is

that we give all of these things that you referred to the highest national priority, that you add more funds to them and step up our defense program in the points that you have indicated?

Mr. LANPHIER. Yes, sir.

The CHAIRMAN. Isn't that it?

Mr. LANPHIER. Yes, sir.

The CHAIRMAN. Mr. McCormack?

Mr. McCORMACK. Mr. Lanphier, fortunately we are living in America which is a land of free speech. Of course, you are appearing here, you are presenting testimony for our consideration and for other committees you may appear before. I appreciate your courage and all and I make a general observation to you as well as any other American, that if your conscience and your judgment tells you that our country should be better prepared, no matter what is said about you, I hope you will carry on.

Mr. LANPHIER. Thank you, sir.

Mr. McCORMACK. Now, as I remember the first Sputnik was launched about 2½ years ago, is that correct?

Mr. LANPHIER. The first and second one within a month of each other, yes, sir.

Mr. McCORMACK. You are acquainted with the Atlas?

Mr. LANPHIER. Yes, sir.

Mr. McCORMACK. Confining my remarks to that and not leaving out the Titan or any other long-range ballistic missile, can the Atlas, the long-range ballistic missile now in production put up a payload today as big as the Sputnik did then?

Mr. LANPHIER. The first Sputnik was about 180 to 200 pounds, I believe, the payload. The Atlas could have done that beginning about last May, a year and a half later than the first Sputnik.

The second one, however, the big one about 3 weeks later, something about 1,200 pounds payload, we cannot today put up an equivalent payload unless we are allowed to go ahead with the advanced version which we are discussing with the Pentagon at the moment.

Mr. McCORMACK. If the United States had launched an Atlas—I am confining it to the Atlas—the size of the first Sputnik of 2½ years ago, would that have satisfied you as a missile maker, that the United States could proceed with the production of an intercontinental ballistic missile?

Mr. LANPHIER. Yes, after those two shots, yes.

Mr. McCORMACK. Say in those 2 years since then, how many ICBM's could have been produced?

Mr. LANPHIER. In our plant, the one plant?

Mr. McCORMACK. Yes, or in all plants, say on a full-week basis.

Mr. LANPHIER. Had we launched those two Sputniks and been in that position 2½ years ago with our one facility we could have by now, working a 6-day week, the way the Russians do, we could have 250 missiles. And we could have 150 more through the past year in any one of several other plants, two or three I can think of, had we been commissioned to subcontract to them.

Mr. McCORMACK. With that development, is it easier to produce the missile?

Mr. LANPHIER. Yes, sir, interestingly enough. It takes less people once the missile is developed, yes, it takes less people and space to

manufacture it than it does to make a supersonic fighter, for instance, right alongside it in San Diego.

Mr. McCORMACK. Based on the missile production experience you and your company have had with the Atlas, do you believe that the Soviets, starting from the Sputnik experience of some 2½ years ago, could have produced several times the number of intercontinental ballistic missiles—I think General Power said 150 January 19 or thereabouts, as I remember—

Mr. LANPHIER. He said 150 ICBM's.

Mr. McCORMACK. Necessary to destroy our retaliatory force in case we were attacked.

Mr. LANPHIER. Yes, sir; if we had started when they did and had the experience that they had evidenced by the Sputniks in development to that point, we could have, yes, three times 150, we could have somewhere between 400 and 450, working a 6-day week—with another attitude about it, though.

Mr. McCORMACK. Our next generation is the Minuteman, isn't it?

Mr. LANPHIER. The next ground based; yes, sir. The mobile systems come along sometime in the next 2, 3, 4 years, the underwater Polaris and the above-ground Minuteman. When they arrive, then they do become—this is the reason for the concern about the next 2 or 3 years until they do arrive—when they arrive and are mobile, therefore, harder to find and requiring that many more missiles in the enemy's inventory before he is sure he can successfully attack or destroy us.

Mr. McCORMACK. What you seem to be concerned about is that gap of the next 2 or 3 years?

Mr. LANPHIER. Yes, sir; before those things arrive and while the Soviets still have this outlandish superiority in numbers of these missiles over our combination of missiles and bombers on the ground. And in that interim the only alternative I can see is to get the bombers off the ground so they cannot be pinned down. That means they have to have more numbers, force them to build more missiles.

Mr. McCORMACK. That is all.

The CHAIRMAN. Mr. Fulton.

Mr. FULTON. Will somebody tell me when that clock up there hits 17 of?

The CHAIRMAN. Mr. Miller will keep us informed. He is time-keeper.

Mr. FULTON. All right.

Mr. Lanphier, I have read your statement. Do you have any engineering or technical degree? I see none.

Mr. LANPHIER. No, sir.

Mr. FULTON. So you are really a newspaperman because you were in the newspaper business in Boise, Idaho, aren't you, basically?

Mr. LANPHIER. I was there for 4 years; yes, sir.

Mr. FULTON. Yes. Then you went in as consultant to Senator Symington in 1949 and 1950?

Mr. LANPHIER. That is right.

Mr. FULTON. The question then comes, Were you a 48-group Air Force man or the 70-group? Were you against Harry Truman and against Symington and were you out on your own then screaming we were going to be in a war very quickly in 1950, or were you one of the silent ones who had his eyes shut and did your duty?

Mr. LANPHIER. Do I answer all these questions in sequence?

Mr. FULTON. You say which one of those you were, a 48- or 70-group man.

Mr. LANPHIER. I was for the maximum that could be achieved at the time.

Mr. FULTON. You didn't say it, but you were loyal to Symington and Truman on the doctrine then, weren't you?

Mr. LANPHIER. Mr. Fulton—

Mr. FULTON. Just say yes or no.

Mr. LANPHIER. I beg your pardon—

Mr. FULTON. Then explain, then explain—

The CHAIRMAN. The witness is going to have to answer the question as he sees it.

Mr. FULTON. I am asking the witness the question. Nobody else in the room is, up until this point, and the fact he wasn't buying enough airpower. The question is, Did you disagree with Symington on the 48- to 70-group Air Force when he said a 48-group Air Force was all right?

Mr. LANPHIER. I don't recall his saying that. You have the advantage of me citing history.

Mr. FULTON. Did you know Mr. Symington resigned because he couldn't say it publicly but he felt a 48-group Air Force was not enough to protect this country?

Mr. LANPHIER. This was my impression.

Mr. FULTON. Which side were you on on that?

Mr. LANPHIER. The same side.

Mr. FULTON. Thank you very much. The next thing in 1949 and 1950 we really had no missile program. If that is the case, you say right today if we had started when the Russians did, we would be right up to them and there would be no gap.

Why didn't we have a missile program? Why did you people shut it off in 1949 and 1950, because if we had started when the Russians did we wouldn't have this prospective gap. Aren't you a little to blame, too?

Mr. LANPHIER. The missile gap, the cessation of ballistic missile activity occurred before 1949 or 1950, it was 1947 or 1948.

Mr. FULTON. In 1949 or 1950 the program—

Mr. LANPHIER. At the time I arrived in the Pentagon the concern was they had so many dollars for missiles. They decided to go ahead with the Navaho. They decided to go ahead with the air-breathing Navaho which, thank God, they did because from that source came the engines for the Atlas and Jupiter and Thor.

Mr. FULTON. We have three Air Force Atlas missiles in operation?

Mr. LANPHIER. Two.

Mr. FULTON. We have Cape Canaveral, we have Vandenberg for ICBM's, so we have two launching bases. Russia has one, don't they? So we have twice as many as Russia?

Mr. LANPHIER. In the first place we have one operational launching base, Vandenberg. I won't conjecture on the Russian side of it.

Mr. FULTON. With Russia only having one—

Mr. LANPHIER. You can hardly call Canaveral an operational site.

Mr. FULTON. It could be.

Mr. LANPHIER. Not in modern terms when the only thing you can consider is a 15-minute reaction. The answer is, therefore, "No."

Mr. FULTON. We are getting short on time. On the book "Air Force Bases" that was published in July 1958 the copyright was taken out. It evidently, according to your statement, says there are 100 bases.

Mr. LANPHIER. No, sir; I say there are less than 100.

Mr. FULTON. Have you read any Foreign Affairs Committee reports or any testimony we have put out showing there are 250 bases that the United States has abroad for our defense?

Mr. LANPHIER. No, sir.

Mr. FULTON. Have you read any of those?

Mr. LANPHIER. No, sir; I am talking about the bases from which retaliation can be visited upon the Soviet Union. There are less than 100 of them.

Mr. FULTON. You don't think 250 bases we have abroad together with our allies are to be taken into consideration because if you don't—

Mr. LANPHIER. Not significantly.

Mr. FULTON. Why then you are already off base by 150?

Mr. LANPHIER. No, sir.

Mr. FULTON. You were over 50 percent in error to begin with in our defense capability?

Mr. LANPHIER. One of us is.

Mr. FULTON. That is all.

Mr. LANPHIER. One of us is mistaken.

Mr. FULTON. I suggest it is you because, if you have read no Foreign Affairs Committee reports on it, I think you are really ill-informed to come before us without an engineering degree and try to tell us what to do.

The CHAIRMAN. That doesn't require an answer. It is a voluntary observation.

Mr. FULTON. Is it 17 of yet?

The CHAIRMAN. Mr. Miller?

Mr. MILLER. I have an engineering degree, Mr. Fulton, but I haven't used it and I hate to put my knowledge of engineering that I haven't used since World War I up against Mr. Lanphier. So I want you to know, Mr. Lanphier, I do have a degree.

Mr. WOLF. The press can't hear the comments of our distinguished colleague from California.

Mr. MILLER. That is all right. That is immaterial to me and I am not making it for the benefit of the press. [Laughter.]

Mr. Lanphier, you speak of needing an airlift, and a number of other things. Would you include in the all-out preparation that this country must have also an adequate merchant marine to serve our troops and to service our people if we have to fight abroad?

Mr. LANPHIER. Not in the immediate sense, no sir, not in this kind of a war, I don't believe so. We certainly can use that in support of a limited war deterrent to some degree.

Mr. MILLER. Why do we need an airlift then if we can't supply them?

Mr. LANPHIER. The airlift does the supplying, sir.

Mr. MILLER. From what I understand, it will be almost impossible to supply.

Mr. LANPHIER. No, sir, we have run exercises for the Marines in years gone by.

Mr. MILLER. You can do it?

Mr. LANPHIER. Yes, it can be done, it can be done more economically than with surface ships.

Mr. MILLER. I question that.

Mr. LANPHIER. This was our conclusion.

Mr. MILLER. Yes. The thing I want to get to is we have talked about Polaris. Isn't Polaris the missile that is furthest along right now?

Mr. LANPHIER. You mean it is the most advanced in concept?

Mr. MILLER. Most advanced.

Mr. LANPHIER. I would say of the four missiles, Atlas, Titan, Minuteman, and Polaris, it is a different version of the Minuteman, but it is certainly one of the two most advanced.

Mr. MILLER. After all, if you are going to drop an atomic warhead, the vehicle that carries the atomic warhead is incidental, isn't it, it is a question of getting the warhead where you want it?

Mr. LANPHIER. Yes, sir, but the vehicle is most pertinent.

Mr. MILLER. Very important, but it is incidental if it can get the warhead there?

Mr. LANPHIER. Yes, sir.

Mr. MILLER. Isn't it our most advanced means? The things—

Mr. LANPHIER. It will be one day. That is my point. It is still sometime down the road.

Mr. MILLER. Isn't it much closer than anything else we have?

Mr. LANPHIER. Not closer than the more definitely established Atlas and Titan. My point is we could use a considerable number of those in the next 2 or 3 years while these other systems are coming on.

Mr. MILLER. I agree with you. But I was also looking through General Medaris' statement here where he suggested that we could perhaps get away with a few of these and he pointed out we did have Polaris and Polaris was much further along than some of the others and perhaps some concentration—at least we fired the last 21 Polaris very successfully.

Mr. LANPHIER. Yes, sir, it is moving along beautifully in this development program. My point is on the basis of hard-boiled experience, you have got to assume as complicated a system as this isn't going to be qualitatively reliable for a considerable period further down the road than seems to be the impression, something you can rely on for your country's defense.

Mr. MILLER. I think we can be lulled into a false sense of security, we haven't—

Mr. LANPHIER. When we have it, it is going to be a most useful system, but it, like other systems we are talking about, is not going to be the complete answer.

Mr. MILLER. I am talking about missiles generally, not limited to Polaris.

I mean you have got to have this as the gun that you can most rely on perhaps a little quicker than anything else and perhaps it should be developed. How do you feel about the defensive system, Nike-Zeus, do you think we should go into that?

Mr. LANPHIER. Defense against attacking forces at any given moment is the toughest job of all weaponry. Even today our chances of defending against a manned air raid, I mean a manned bomber

raid, are not considerably greater than they were in World War II, when the Germans averaged 4 or 5 percent.

The Nike-Zeus, I don't think is pertinent to the problem at all, no, sir.

Mr. MILLER. Do you think we should spend time and money and effort on defense system?

Mr. LANPHIER. Yes, as an element of deterrence, not to completely defend us. The Nike-Zeus just doesn't happen to be one I technically agree with, however. The approach should be maintained toward defending against ballistic missiles.

The CHAIRMAN. The gentleman's time has expired. Mr. Osmers, do you want me to call on you now or would you rather for me to pass—

Mr. OSMERS. I would like to yield to Mr. Fulton for a question.

The CHAIRMAN. I will recognize Mr. Osmers at this time.

Mr. OSMERS. All right, I yield to Mr. Fulton.

Mr. FULTON. The National Rocket Club had been before us and their representative had said it would take \$4 billion more a year in the Federal budget for space. You have many more things to add to your proposal so yours would obviously cost much more than the \$4 billion simply for space than the National Rocket Club recommends.

How much would your proposals cost in the budget, \$5 billion, \$10 billion, or do you think the National Rocket Club is too high on \$4 billion for space?

Mr. LANPHIER. I have proposed no new programs here, I have proposed accelerating a number of them.

Mr. FULTON. How much would it cost?

Mr. LANPHIER. In that respect, I would say it would cost somewhere in the order—to do the various things I am talking about—in this next fiscal budget, \$4 or \$5 billion.

Mr. FULTON. And it would continue at that rate for the next 4 or 5 years?

Mr. LANPHIER. Oh, yes.

Mr. FULTON. Do you have any idea as to your future, because some of us would like to make sure that yours is not the first shot heard around the world in a third world war preventive campaign but possibly a political campaign for a man named Symington, I would—

Mr. ROUSH. A point of order. I had understood the 5-minute rule to prohibit us yielding time to another member. And the gentleman behind me yielded for the purpose of a question.

The CHAIRMAN. The gentleman is correct.

Mr. FULTON. Do you yield further?

The CHAIRMAN. The rule permits yielding for one question and not the entire time.

Mr. ROUSH. A question to the witness or to the member?

Mr. FULTON. It is up to the member. Do you yield further to me?

Mr. OSMERS. I yield to you to complete your question.

Mr. FULTON. All right. Would you answer that, please?

Mr. LANPHIER. You asked two questions—

Mr. ROUSH. Point of order, the question has been asked and answered.

The CHAIRMAN. The gentleman is correct about it. The rule, if the committee wants to stick to it, the rule is that the time as a block

shall not be yielded from one member to another, but that you can yield for an individual question. Now, when the gentleman yields consecutively for one question after another, he is doing what the rule prohibits him from doing.

Mr. FULTON. Do you adopt that question for me and have it read in your name, please?

Mr. OSMERS. Mr. Chairman, on my own time and my own question, I might say that in common with the gentleman from Pennsylvania, I, too, have some curiosity about the witness' plans and motives and objectives and if the witness cares to tell the committee, we would be enlightened by the answer, and if he doesn't care to answer the question, we will be enlightened by his failure to answer it.

Mr. LANPHIER. There were two questions, I believe, implied or asked. The first question, what am I going to do, myself?

I have not yet decided except that for the next 2 or 3 months as long as my dough holds out, I am going to write and talk about this subject to the extent that people allow me their ear. I will then go to work—I have five children and a wife—at whatever job looks best to me—outside the defense business—looks best to me at the time.

As to Senator Symington, I have known him for about 15 years, I admire him second to no other in terms of his prosecution of the Nation's interest in the defense area. I have worked with him in years gone by and been proud to do so. His views and mine coincide. Neither one of us thinks for the other if that is your implication.

I most certainly am not going to work with Mr. Symington on his staff or whatever—if this is what the implication is. I want to continue to disassociate myself from both Convair, from Stuart Symington, and from anybody else as to what I believe or say on this subject which I think is so critical.

Mr. OSMERS. You have gone into the subject in some detail. I suppose it would become fair to ask you whether you support Mr. Symington for President?

Mr. LANPHIER. He hasn't been nominated yet.

Mr. OSMERS. I didn't ask you that.

Mr. LANPHIER. If he is nominated, I most certainly will.

The CHAIRMAN. The gentleman's time has expired. Mr. Sisk.

Mr. FULTON. Very good. Touché.

Mr. SISK. Getting down to specifics that this committee might be able to act on, do you have any suggestions to make to this committee in connection with our space program, and I would like for you to confine this to the space program as such?

Mr. LANPHIER. Yes, sir, and here my views, as ones I have expressed previously, are a compendium of the ideas of a lot of talented men with whom I have worked for 9 or 10 years in these various fields of supersonic aircraft, ballistic missiles, and space systems. If I may, I will actually read the general position I hold, after sitting and watching these men and working with them as the planning guy for the company for the last 3 or 4 years, in two respects.

In the first place, I would say that the space program as it is outlined for the next decade makes good sense for the United States, if it can be adhered to, if it isn't chipped away at budget after budget as has been the case in the last 2 or 3 years.

As I observed a little earlier, the organization of the moment doesn't encourage getting the job done in space. There is a nonmilitary requirement in space and a concurrent definite requirement for military space systems, each of which is equally important, neither of which should necessarily contradict the other, but at the moment they are not coordinated by any individual in the Government, and they should be.

This would be the No. 1 suggestion I have, that someone at the National Security Council level, an individual with a small staff and the power of decision, be responsible for the coordination and continuation of efforts of NASA and military requirements of the Nation.

In terms of specific programs, the only program that I would suggest be considered over and above what is currently being considered is one called Centaur, which we already have a contract for, that is, Convair does, with NASA, as compared with the effort that is going into Saturn.

Saturn is a requirement for monstrous effort in space, big packages down into the future. However, there is a definite requirement, and it can be met in the next 3 to 4 years, for somewhat smaller packages within the area of the Earth's orbit area by the Centaur program which at the moment isn't being considered for that purpose.

Other than this, I have no suggestions other than the basic one; that is, that the program as it is bespoke at the moment be adhered to, be underwritten by the money it is going to cost, and it is going to cost more money than we are talking about in this budget.

Mr. SISK. Thank you. The next subject is a little different. I am very definitely in agreement with some statements you make in here with reference to this attitude of complacency that has been created in America today. I am quite concerned about the fact that I do not think that the people understand the necessity of putting their shoulder to the wheel. I want to read just an excerpt from an actual letter here which happened to fall into my hands, and ask you to comment on whether or not this is an attitude in the plant in which you were previously employed. This happens to be an atmosphere in a plant within the same general area, and I might say I am happy to see people well treated, of course. But just to quickly quote from this letter before my time runs out:

Just thought you might be interested to hear about the "country club" I stumbled upon to work in. It is quite fantastic. I still can't quite believe it all. Everyone here is on a first name basis, according to company policy, no matter if it is the corporation president or a Ph. D. talking to the janitor. There are tremendous jugs of free coffee stationed at intervals in all buildings, made fresh twice a day. The hours are 8 to 5, but it is perfectly all right to come in at 8:30 and leave at 4:30 and still get paid for a full day. It is OK to call nearby toll areas and talk unlimited time, which would run up a huge phone bill on a private phone, but there is no personal expense. Almost all the typewriters are electric and they even have electric staplers. The company cars have radios and four safety belts. The lunchroom operates at cost, so it is very pleasant to load up a plate with goodies which should be way over \$1 and have the girl ask for 40 cents. They apparently have nurses who dispense all types of free pills. And you can join anything from chess clubs to volley ball on the beach groups. There is a \$10,000 life insurance policy paid by the company, and they offer dozens of staff training courses plus pay for any university courses you take on your own. I am in a group of new trainees who are all in a daze over the kid glove treatment here. This employee procedure is handled by a

group of psychologists who have produced a very satisfied and cheerful group of workers. Until our security clearances come through, we attend classes on company policy and also other classes on more specific work done here at (blank).

And this goes on at——

Mr. LANPHIER. Does this outfit do much business with the Pentagon?

Mr. SISK. This outfit is exclusively financed so far as I know, by the Federal Government.

Mr. LANPHIER. Each of us who works for the Pentagon usually has a pretty tough Navy or Air Force officer and staff overseeing our contracts. To the extent people are happy I don't object to this. I trust that is not Convair you are talking about.

The CHAIRMAN. The gentleman's time has expired.

Mr. FULTON. Do you have——

Mr. MITCHELL. I would like to say to my good friend from California that I am going to be looking for a job after the first of the year and I want him to pass on the name of that company to me.

Mr. LANPHIER. I am afraid we don't have those benefits at our place, all of them.

Mr. SISK. Would the gentleman yield?

Mr. MITCHELL. Yes.

Mr. SISK. I just want to state this was not Convair, but it was a southern California plant, I will say.

Mr. MITCHELL. Mr. Lanphier, do you think that the administration with its policy of defense, the overall policy is jeopardizing the national security?

Mr. LANPHIER. Yes, sir, I do.

Mr. MITCHELL. Do you think that President Eisenhower knows as much about defense as he says he does?

Mr. LANPHIER. No, sir, I do not.

Mr. MITCHELL. Would you amplify that statement?

Mr. LANPHIER. Well, he makes statements from time to time that disturb me and other professionals.

Mr. MITCHELL. Do you think he is ill advised in the field of national defense?

Mr. LANPHIER. I think sometimes he is not completely advised. For instance, he and some of his advisers have said several times that it isn't necessary that we match the Soviets in rocket thrust in the military area, that as long as we have enough to reach the target, it is sufficient.

He does acknowledge it is significant in space—extra thrust—but that here, of course, we are not in a race, according to him and therefore, there is not the extraordinary urgency to get this thrust any sooner.

I would argue with the statement that thrust isn't—the implication that thrust is relatively unimportant once you have enough to reach a target on the other side of the world on the military side. Thrust, in all weapons systems, is an absolutely important element. The more thrust you have, for instance, on a rocket like the Atlas, the bigger the warhead you can push over there. Therefore, the bigger the bang you have, therefore the less requirement for guidance. Or vice versa, from there to here.

Mr. MITCHELL. Do you believe there is a military application in space?

Mr. LANPHIER. Most certainly, sir. We, a number of companies have been for several years now thinking in these terms and until the Sputniks went up, getting very little reaction from the Government—the Pentagon was the only poker game in town in those days for ideas for space. Now there are two. As I say, several companies, including ours, have been thinking 10 to 15 years out in the future and the space program on the military side can be, if appropriately prosecuted—well, has to be, if we are going to maintain our relative standing with the Soviets, we are going to have first of all, satellites that warn us that their missiles are coming, then satellites that help destroy the missile—from which you can destroy the missiles, these things are feasible. We are going to have satellites that intercept each other, all because these people are putting pressure on us. I would like to see them matched in time and be out there before they are.

Mr. MITCHELL. It is your feeling that what we are doing today, what the administration is doing, constitutes a gamble with the lives of your five children?

Mr. LANPHIER. Yes, sir; I have said so and I believe it.

Mr. MITCHELL. You think the President is taking a gamble?

Mr. LANPHIER. Yes, sir; I think the President is taking an unwarranted risk.

Mr. MITCHELL. I must say, Mr. Lanphier, you have no ax to grind except that of trying to alert America to this danger and draw us out of this state of complacency; isn't that true?

Mr. LANPHIER. This happens to be my motive. I could be mistaken. I hope to God I am.

Mr. FULTON. Was or was not? I didn't hear that.

Mr. MITCHELL. I hope you are mistaken, but I am inclined to agree wholeheartedly with you that we cannot afford to risk what we are doing in defense at this time.

Mr. LANPHIER. May I make one other additional statement on the subject of the military—

Mr. McCORMACK. Will the gentleman yield to me for an observation?

Mr. MITCHELL. Yes.

Mr. McCORMACK. The question of whom Mr. Lanphier prefers nominated for President has been injected. I might say I suppose every American is going to pass on that question sometime.

Mr. LANPHIER. Yes, sir.

Mr. McCORMACK. And our Republican friends are going to support Vice President Nixon after he is nominated. So if that is asked for the purpose of impugning motives, it applies all along the line, not only to every Member of Congress, but to every American throughout the country, because sooner or later, everyone who votes is going to pass upon that question.

The CHAIRMAN. The gentleman's time has expired.

Mr. MITCHELL. May I say I am for the distinguished majority leader for President.

Mr. LANPHIER. I would like to add I will also vote for him if he is nominated.

Mr. FULTON. May we just have a comment over here on that?

The CHAIRMAN. Mr. Wolf?

Mr. FULTON. Would you yield for a comment on that?

Mr. WOLF. If it is coming out of my time, I can't, I am awfully sorry.

The CHAIRMAN. Mr. Wolf is recognized.

Mr. WOLF. Thank you, Mr. Chairman. I am a Democrat, too, and I am very happy to state this.

I would like to state, sir, that I admire your courage.

Mr. LANPHIER. Thank you, sir.

Mr. WOLF. To come before this committee, of all committees, and all of this group of nonengineers, without a legal counsel and state flat-footed exactly where you stand is to be admired.

Mr. LANPHIER. Thank you. I hadn't thought of it like that. Thank you very much. I am trying to practice the democratic system and I believe I am being very graciously treated in this respect.

Mr. OSMERS. Is that a small "d" or a large "D"?

Mr. LANPHIER. A small one. The republican system of government, if you prefer, which is also democratic.

Mr. WOLF. I am not sure that the committee knows the great amount of courage that this man has or further knows exactly what is involved in the man that sits before us. According to this brochure that I have here, he was decorated with the Navy Cross, Silver Star with the oak leaf cluster, Distinguished Flying Cross with the oak leaf cluster, Air Medal, recipient of the Air Force Award for Exceptional Civilian Service in 1958. Aside from having five kids, it looks to me like you have done something for your country.

Mr. LANPHIER. Thank you.

Mr. WOLF. So I think your motives can be of the highest even if they don't agree with the status quo. You have two areas I was concerned in. You say this modern weaponry in the hands of the Soviet Union, can be assumed to have reached a qualitative and quantitative point at which our incalculable power to destroy an aggressor can now be itself destroyed, in the main, in a matter of moments.

Now this relates to the next part of the question. You say:

Men of science and industry deserve better recognition than they generally get for the major role they play in maintaining the quality of the deterrent force in being. They also should be afforded readier access to such information as our intelligence sources may have developed regarding experience in similar technological fields on the other side of the Iron Curtain.

Mr. LANPHIER. Yes, sir.

Mr. WOLF. I wonder how you relate the two? The one says you have to assume without knowledge, apparently, and I am fascinated by this thing that the men who are trying to devise our weapons of war have no way of coordinating their activities with our secret service to know what the enemy actually has.

Mr. LANPHIER. Well, when I am making a public statement like this, unclassified, I try to make the statement in terms that will be popular—could be popularly understood and logically understood. This is why I was talking about assumptions.

In terms of intelligence it would be most useful for us to know whatever it is our Government has discovered about the successes and failures that the Soviets have been having in the same fields. It would

save us from running down blind alleys which cost us time and money.

Mr. WOLF. You mean even though you have been cleared—

I have held a top secret clearance with the Pentagon and a Q clearance with the Atomic Energy Commission—

you don't have access to all this material?

Mr. LANPHIER. No, sir, this is a different subject of information. Intelligence information is in a different arena or is a different fraternity from the kind of information that top secret clearances allow you to have.

Mr. WOLF. I see. Yet you are supposed to design weapons to defend against the enemy even without knowing what the enemy has got?

Mr. LANPHIER. That is right. We are told very little, the fact is we are told very little. What we do know we have to extrapolate pretty much. It is even difficult within our own country as between, say, the people doing business for the Army. There is no formal system, really accelerated formal system for us to convey to Redstone the mistakes we have made and so forth. There is, however, for the last 5 years an absolutely integrated informal arrangement between Von Braun's team on the one hand and Jim Dempsey, our guy who runs the Atlas program for us.

Mr. WOLF. God bless you and keep telling your story. I might not agree with what you are saying, but I will defend your right to say it.

(Aside)

Mr. LANPHIER. I have got enough to last until about July, if my wife doesn't overdo it.

The CHAIRMAN. Mr. Karth?

Mr. OSMERS. That is when they have the conventions?

Mr. LANPHIER. That is right, coincidentally.

The CHAIRMAN. If you will come to order, will the gentlemen keep their minds on space?

Mr. KARTH. If you can keep order from the kibitzers over there I am going to proceed.

The CHAIRMAN. The gentleman may proceed. We will try to maintain order.

Mr. KARTH. I would like to join my colleague from Iowa in saying that I should not attempt to impugn your motives.

Mr. LANPHIER. Thank you, sir.

Mr. KARTH. There are many people of the opposite political persuasion who appeared before this committee this year.

Mr. LANPHIER. I happen to be a Republican, myself.

Mr. KARTH. I see. Opposite from my own. And I disagreed with them quite vigorously, with some of the statements they made. But I never impugn their motives. I felt sure they were giving us the honest conviction that they had on the subject matter that we are discussing and I should not impugn your motives either.

Mr. LANPHIER. Thank you, sir.

Mr. KARTH. I appreciate your being a great American.

You made several references in your prepared statement to SAC. Whether or not you have this information I don't know, but I should like to ask you if all of the money necessary were appropriated for full

time SAC airborne alert how long would it take SAC to make the necessary arrangements so that they could be fully airborne?

Mr. LANPHIER. Well, I do not propose and I don't think anyone—

Mr. KARTH. If this is security, don't divulge it.

Mr. LANPHIER. I say a significant number of SAC planes should be airborne. General Power has testified to this I know in the Congress this year, as to whatever number he thinks is significant. It is not all of SAC, it is less than half of this, that need be airborne at any time.

The CHAIRMAN. Will the gentleman suspend for just a moment. I have been told that the reporter is not able to get down all the words that are being said. The witness talks rather rapidly, and some of the members are interjecting statements, too. So if you will proceed just a little slower we would appreciate it.

Mr. LANPHIER. Thank you, sir. I believe it has been a matter of public testimony this winter, this last month, by General Power that it would cost something on the order of \$800 million a year to do the maximum that he is talking about, beginning this year. I know that SAC has rehearsed this sort of thing last year, this is a matter of public knowledge, so I know that they are in a position to move into it fairly quickly with trained people who know how to do this. I could not say, and I don't think I should, how quickly they could do it if they were given a go ahead today.

Mr. KARTH. I have some information as to how long it would take to put an appreciable number of SAC planes into the air on an airborne, 24-hour airborne alert basis.

Mr. LANPHIER. I have an idea, too.

Mr. KARTH. And this is quite a considerable length of time. The only question that this leads me to is because we have gone so long before we have apparently made the decision to do anything about it, I merely ask whether or not you think this is a very late stage of the game to be deciding the question at the moment.

Mr. LANPHIER. Very. The period of time you are talking about is considerable, but it certainly doesn't extend through the next 3 years when this is going to be required and also it can be done on an incremental basis, I would suspect. I don't know this for sure.

Mr. KARTH. But it would be your opinion because of this so-called time lag which comes about?

Mr. LANPHIER. Yes.

Mr. KARTH. Before the decision is made and the act is finally completed?

Mr. LANPHIER. Yes, sir.

Mr. KARTH. The decision actually to put SAC on a 24-hour alert should have been made about a year ago or so.

Mr. LANPHIER. I think so. I think we are perfectly warranted in having them up there right now and the enemy knowing they are there. Certainly the possibility exists that they have enough to attack us even at this moment, the possibility exists. Under these circumstances with these completely final awful weapons we should not be underestimating the other guy.

Mr. KARTH. Mr. Chairman, I surely appreciate his comments, as a good Republican, here today. [Laughter.]

The CHAIRMAN. Mr. Hechler?

Mr. HECHLER. Mr. Lanphier, I would like to ask you about some of the remarks you made in response to questions by Mr. Miller on

the Polaris submarine. You say on page 3 that one of the things we lack is a defense against submarine attack.

Now, I gather you think that submarine defense is more important than the development of Polaris itself as an offensive weapon?

Mr. LANPHIER. No, sir. They have a different mission, of course. I think there is—the problem of attack against this country from submarine-launched missiles, either surfaced or from under the sea eventually à la Polaris, is equal to the problem of missile attack. But far, far, far less is done about it than is done about the missile attack, because we are building retaliatory missiles to counteract the missiles in that respect, but they are equally important.

Mr. HECHLER. What I am trying to assess is where you would place Polaris in the perspective of what you think this country needs in the future?

Mr. LANPHIER. My problem, apparently, is that I can't see why we should have priorities for five or six things each of which is absolutely essential. So I think we ought to do them all concurrently. That is my problem; that is why I can't give it a priority.

Mr. HECHLER. In answer to questions by the chairman, you feel then that really many of these things would fall into place if we had what you call a reorientation of national attitude? This is really the core of the whole problem?

Mr. LANPHIER. Yes, sir. If the threat were clearly understood and clearly outlined, they would fall in place—that is, things would balance against them. As they come over here before your committees they would have to justify what they were asking for in relation to a known threat, everything would fall in line, it makes it much simpler.

Mr. HECHLER. I would just like to observe that I am always very, very proud to see my Republican colleagues rise to the defense of what is today America's greatest minority group. That is all.

The CHAIRMAN. Southerners?

Mr. FULTON. Who do you mean?

Mr. HECHLER. The Republican Party.

Mr. CHAIRMAN. Mr. Daddario?

Mr. DADDARIO. Mr. Lanphier, taking into consideration the many lacks that you have referred to on page 3 and your experience in industry, is it your opinion that the United States has the industrial capacity or has not the industrial capacity to accomplish these ends if properly harnessed?

Mr. LANPHIER. Yes, sir; most certainly. I don't know that we can do it in time. But I certainly think we have the capability. It remains to be seen whether we have the time. We have the people to apply to these things, yes, talented people.

Mr. DADDARIO. Well, you have referred to the fact that American men of science and industry deserve better recognition. What do you mean by that? In what way would better recognition, in whatever form you decide it should be given, in what way will it help to close these gaps to which you refer?

Mr. LANPHIER. Well, as I have remarked before, we are in the only phase of the third world war that we have a chance of winning: the deterrent phase. Our chance of winning that—and we may have already lost it, I don't know—we may lose it next year or we may never know we have won it; it may go on for decades. In any case

our chances of continuing to win it, if we are still winning it, are a combination of the quality and quantity of the force in being at any given moment with which to deter Khrushchev or whoever succeeds him, that one man, that group.

The quality of the force in being is primarily engineered and has been for the last 10 to 15 years from science and industry, not the other way around [from Government]. Time was when the military said, "This is our problem of tomorrow, I want a thing that will go this fast, this far," and so forth. They still do this in some respects. But more and more things like the Atlas, B-58, and so forth, are engineered out of a process of product analysis, if you will, of what the enemy is going to be doing 5 and 6 years from now in terms of the threat, an assessment of what appropriate system might meet that threat at that time. Then a competition with the rest of the industry to see if you can win with your own idea and away you go. This is my point. The people in industry and in science are on the front line of the combat in World War III and not too many people quite appreciate it, and I include here the Congress. Last summer Congressman Hébert had a hearing that lasted for several weeks in which this point was never clearly asserted by anybody from the industry. I don't think they bespoke themselves very well.

Mr. DADDARIO. Your point is that better recognition would not necessarily close the gaps but it would be deserving of these people for their advance planning and for the awareness that they show to the responsibilities that industry has to the preservation of this country from the standpoint of weapons system developments?

Mr. LANPHIER. Yes, sir. It would expedite their mission, too.

Mr. DADDARIO. Now, my colleague, Mr. Wolf, has touched on this business of intelligence information being passed back and forth. Do you believe corollary to that that American industry has properly taken advantage of the large number of technical pamphlets in our country?

Mr. LANPHIER. No, sir.

Mr. DADDARIO. And technical information which is published and which is readily available to all of us?

Mr. LANPHIER. No, we do not; I grant you that we do not.

Mr. DADDARIO. What do you think industry could do to take better advantage?

Mr. LANPHIER. We each have our problem. In Convair we have some 65,000 people. We try—one of my jobs is to try to coordinate and keep up to date such information as this, to keep the people in each of the divisions and programs—to force feed them, because it is a job each company has to do as best it can. To the extent it does it well it progresses beyond some of the others.

Mr. DADDARIO. Is it possible that a centralized agency which could feed to industry that information which each of the industries happen to be working on might be the answer to the utilization of that, because it is information which is here before us, which has nothing to do with intelligence but just properly utilize information on hand?

Mr. LANPHIER. The problem there is who knows what who needs. In my company I would have had to know everything you had available to determine whether I can use any part of it. I despair of the

bureaucratic approach to it if it is done by the Government. Time is the problem.

Mr. DADDARIO. It is one of the problems.

Mr. LANPHIER. Yes, sir; communication is a problem in our outfit like—

The CHAIRMAN. The gentleman's time is up.

Mr. Moeller?

Mr. MOELLER. Mr. Lanphier, I wasn't here at the beginning of the session. I am disturbed about something I read in the last full paragraph of your testimony where the statement is made, "I am regretfully leaving the country"—that should have been "company?"

Mr. LANPHIER. I said "company." I was dictating with toast in my mouth.

Mr. MOELLER. I am probing not so much into what you are saying but why you are testifying as you do. You say we ought to be spending between \$4 and \$5 billion a year?

Mr. LANPHIER. That is my best guess.

Mr. MOELLER. Where would you say we ought to spend it? Have you told us?

Mr. LANPHIER. Yes. I would be glad to run through it again. You were absent.

Mr. MOELLER. All right.

Mr. LANPHIER. I would suggest a general thing be done. That is, an effort by the President to make a more candid statement of what the threat is and what must be done to meet it. Thus to reorient the national attitude to adapt itself to hurrying up to get some of the things done that must be done in the next 2 or 3 years or almost immediately. On an immediate—I would convert to a method of developing the budget from year to year by directly relating it to the threat. A threat that is understood in the summer of each year by both Congress and executive branch, then both sides working toward a budget in January that they understand has a real bearing on the problem with which we live.

In terms of immediate action I would get a significant element of SAC in the air, whatever that cost. I would buy more tankers, the KC-135's, because we already need them for SAC, we are going to need them for airborne alert.

I would accelerate both the Atlas and Titan programs. I know the Atlas can be accelerated into more hardened bases by the end of 1962. It is not currently planned to do so. It peters out at the end of 1962. I believe the Titan can also be accelerated. An effort should certainly be made to get more of both of these missiles out there and in ground within the next 2, 2½ years.

Meanwhile, rush the Polaris and the Minuteman, mobile systems, which make better retaliatory systems than the Atlas and Titan. My concern, expressed earlier, is we are not going to get them anywhere near as soon as many people say we are. We keep kidding ourselves this way as an excuse for not having some more in force today. We can't afford to continue to do this.

I would suggest an acceleration of the Midas and Samos, these two surveillance weapons space systems that the Air Force has underway to take a look at what the enemy is doing and warn us if he fires missiles at us.

I suggest more B-52's and B-58's for use 2 or 3 years hence when the airborne alert wears out the present force.

I would, by all means, suggest the immediate procurement of airlift and considerable airlift for the Army and Marines to begin to lend some mobility to such limited war deterrent as we currently have, a mobility which we don't have. Witness General Taylor's excellent book on the subject, "The Uncertain Trumpet."

And I would urge a civil defense program.

Mr. MOELLER. You have covered it.

Mr. LANPHIER. Yes; by all means.

Mr. MOELLER. Did I read correctly in the newspapers you gave up a \$50,000 job because of your disturbance over this present situation? You have no other income?

Mr. LANPHIER. No, sir.

Mr. MOELLER. Have you been approached by anyone else for a position?

Mr. LANPHIER. Yes, sir.

Mr. MOELLER. In a similar type work?

Mr. LANPHIER. No; I am not going to go back into the defense business.

Mr. MOELLER. All right. May I ask you if you are aware of other men who were at one time in a similar position as you who may now be entertaining the idea of doing the same thing in order they might protest?

Mr. LANPHIER. I have had some interesting mail since I made my little dive off the high board.

Mr. MOELLER. In other words, we know you are not a lone wolf in this crusade.

Mr. LANPHIER. No, sir.

Mr. MOELLER. You feel this number might be growing?

Mr. LANPHIER. My experience is only limited to 2 weeks. In this couple of weeks I would say really valuable people in the defense effort who should stay there, I would say a dozen, probably, indicated in the next 2 or 3 months if something specifically isn't done they might publicly protest.

Mr. MOELLER. The sole reason for these people sacrificing lucrative jobs is because they are convinced that our defense posture is not what it ought to be today.

Mr. LANPHIER. Yes, sir. I can say this absolutely, that the great majority of scientists and engineers whom I know—and I have known a good number of them over the last 10 or 15 years and we have some of the outstanding ones in the country working at Convair—the majority agree with what I have said, some of them can say it far better, but nobody with more vehemence or conviction. It is not fair to quote somebody blindly, but that is a fact. It also goes for some people in uniform. Unfortunately, when they do say it people think they are grinding an ax. Unhappily. There is a general assumption that a guy has some angle, he is trying to sell missiles or sell his service, and it could be so. The unhappy fact is that the very people who are authoritative in the field are these people in the industry and in the service. If they are discredited as authorities whenever they say anything on the subject of the national emergency

I don't know where we would look for an exercise of the democratic system, especially on a critical subject like this. So I got out.

Mr. MOELLER. And you are absolutely convinced that these men are not motivated for any political reasons whatsoever?

Mr. LANPHIER. No, sir; not any more than I am.

Mr. MOELLER. That is all.

Mr. FULTON. Even with a presidential year coming up?

The CHAIRMAN. Mr. King?

Mr. LANPHIER. You have your point of view, Mr. Fulton, more power to you.

Mr. KING. Just one brief question.

Time and again we have had officers from the Defense Department and elsewhere come before us and the same question has been asked invariably; namely—Do you need more money? If the appropriation were increased could you use it profitably and usually the answer was something to the effect that, "No, no; we couldn't use much more if any; it isn't as simple as just turning a valve; after all research and development takes time and you can't force these things; we are moving just about as fast as we can move and if we had more money it would just have to lie idle until certain basic research and other things had been accomplished." So I should like to ask you in a general way inasmuch as you just got through saying that we should accelerate our Titan and Atlas and Minuteman program and so on, do you think that we could put on the steam, perhaps appropriate more and use it profitably right now?

Mr. LANPHIER. Yes, sir, you can always say at a given moment that there are some things you can't do in the next 6 months with money, that is true, and especially with these complicated systems as they are now. However, the fact is also that at any given moment you can start to doing something about 6 months hence. If you wait, in another 6 months you can again at that time say that, "I can't spend any money in the next 6 months." This has been going on in Mr. Truman's time, Mr. Eisenhower's time and I would like to hope it would pretty soon quit in terms of at least the defense effort.

Mr. OSMERS. Would the gentleman yield for one question?

Mr. KING. Yes, sir.

Mr. OSMERS. Mr. Karth before asked the witness a question with respect to the access which the witness has and has had to intelligence estimates of our potential enemies and as I understood the reply you said that your top-secret clearance did not give you access to enemy intelligence estimates.

Mr. LANPHIER. No.

Mr. OSMERS. If that is so, how are you then able to make positive testimony without knowing the intelligence estimates of our potential enemies?

Mr. LANPHIER. Well, I will revert to the colloquy with Mr. McCormack. I made assumptions that anybody can make who is in this business. No. 1, that had we done 2½ years ago what the Soviets did 2½ years ago we could by now have 400 missiles in this country. Reversing that, you can assume the Soviets have done the same since they have declared over and over again that this is their intention.

No. 2. In 20 years, 4 of which I took out for the newspaper business, the other 16 of which I have spent in this defense effort one way

or another, in 20 years you get to know a great number of people. In all aspects of the defense effort, including the intelligence fraternity and people are people and some close friends are close friends and clearances are clearances. All I am saying is that I am trying to keep my argument clear out of the intelligence field and I make no claim to having any formal knowledge of what the Government understands the enemy to have, although I wish the Government would acquaint some of us in the business of supporting the defense effort a little more readily than they do.

Mr. OSMERS. In other words, your remarks here are made without any knowledge of what the intelligence information is about the enemy?

Mr. LANPHIER. If that is what I just said, that is what I just—

Mr. OSMERS. All right.

Mr. KING. Mr. Lanphier, reverting to my question, what you in effect are saying is that if the well only holds so much water, instead of year after year after year just saying that it holds so much water—

Mr. LANPHIER. You can start building the well bigger.

Mr. KING. Enlarge the well, immediately.

Mr. LANPHIER. Yes, sir, 6 months in some things, a year in others, none in some.

Mr. KING. Thank you.

The CHAIRMAN. Mr. Roush?

Mr. ROUSH. Mr. Lanphier, specifically what was your job with Convair?

Mr. LANPHIER. For most of the time I have been there I have been in charge of the long-range planning, product planning for the company.

Mr. ROUSH. How close is that to the top?

Mr. LANPHIER. I was the—I guess the No. 2 or 3 man in the company.

Mr. ROUSH. All right.

Now, your statement here is a very sharp and critical statement of not only our present defense posture, but what will be our defense posture over the next few years. It is very critical and it is very forthright.

Apparently you are of the opinion and conviction that somewhere along the line certain wrong decisions were made.

Mr. LANPHIER. Or not made at all.

Mr. ROUSH. Or not made at all.

Would you care to list some of these wrong decisions or decisions which were not made which would have put us in a better position today?

Mr. LANPHIER. Yes, sir. I will just go back 1 year or about 15 months.

When there were some of us carrying forward the argument that there ought to be at that time ordered more Atlas missiles to be hardened and dispersed, it took us almost 6 months to get agreement to disperse and harden them, which in turn requires the enemy to have that many more to destroy them. We never could get agreement that there should be more than the Atlases that were ordered last winter. However, the Congress last spring ordered 8

more squadrons or funded 8 more squadrons. This winter the President accepted the money for 4 of them and is buying them, but not the other 4.

My simple point is I wish he had decided that last year, accepted them last year and accepted all 8 of them, we would be that much better off next year than we are going to be, which is pitiful.

Mr. ROUSH. Can you point to any other decisions which were not made or wrong decisions?

Mr. LANPHIER. I have yet to see a decision made as to what we are going to do in terms of both the physical support of and the establishment of a policy, for instance, over Berlin. I don't like to be in a position where I sat last spring and heard the President tell me, when they asked him if he was going to meet the East German movement on the ground, and he said: "Anybody knows we don't have the force to meet them on the ground." They said: "Will you use the big bombs?" He said, "We will face that when we come to it," or something of the sort. To me what he was saying was that he will decide at that time whether or not my country is going to commit suicide over Berlin. Obviously if we use the big bombs it is going to be a mutual exchange which will destroy us both. It is also not too obvious to me that any President might even do that. Therefore, I don't like to have my country in a position where it doesn't have an alternative, the alternative being something that the enemy respects on a localized basis. I see no currently planned alternative, except to drift along to Paris this spring, and we are going to lose a bit of ground as we did last winter.

Mr. ROUSH. Would you say the decision to cut the Atlas thrust down to 360,000 pounds which I believe was made in early 1953, or 1954, was that a correct decision?

Mr. LANPHIER. That was a technical decision made because at that time we learned the bomb was to be smaller. We then found out a year after it was known in other elements of the Government that a smaller bomb was available. We worked for 1 year on an Atlas that was not necessary; that is, a five-engined one. When we were notified officially a year later than it was known in other parts of the Government that a smaller bomb was available then we reduced the power because it was what was required to get the job done, and it increased the reliability of the system.

Mr. ROUSH. During your testimony you said the advanced Atlas missile was pending a decision in the Pentagon. By chance, that doesn't refer to the Atlas something like the original Atlas 600,000 pounds?

Mr. LANPHIER. No; this actually has the same number of engines, uprated engines.

Mr. ROUSH. What thrust?

Mr. LANPHIER. I am sorry; I don't recall. I can get that for you. [The exact figure is not yet unclassified.]

Mr. ROUSH. Will it have a greater thrust?

Mr. LANPHIER. Yes; considerably. It will do what the second Sputnik did.

Mr. ROUSH. Will it be similar to our F-1 engine or what our F-1 will be capable of, or Saturn project?

Mr. LANPHIER. No; not that strong. It is between—between the current Atlas and the Centaur combination. This is not a double-stage operation; this is just an uprated Atlas engine, bigger in power.

Mr. OSMERS. Will the gentleman yield?

Mr. ROUSH. No; I am sorry. I decline to yield.

Do you believe we have a present military requirement for a large thrust engine?

Mr. LANPHIER. Yes. There will be a requirement when we can get to the point in history when we have such an engine; yes. Not in terms of carrying a payload to some other point on Earth if that is what you mean, but certainly in terms of carrying a payload out into space.

Mr. ROUSH. Now, I am referring to our present needs.

Mr. LANPHIER. I don't believe—

Mr. ROUSH. You are projecting it into the future?

Mr. LANPHIER. Yes. I don't really believe that except for the advancing a little earlier bigger packages in space that either the Atlas or the Titan ought to be uprated if either one of them is bought but if either should be bought I would obviously prefer to see the Atlas for a number of technical reasons and the calendar advantage it offers.

The CHAIRMAN. The gentleman's time has expired.

Mr. MORRIS?

Mr. MORRIS. Mr. Chairman, Mr. Lanphier, what do you think of the Bomarc B versus the F-108 interceptor?

Mr. LANPHIER. I don't think either one of them makes much sense.

Mr. MORRIS. Well—

Mr. LANPHIER. I don't mean to be flip. I just don't. The defensive systems that we are groping with now, the Bomarc, the Nike-Zeus and the proposed F-108 don't warrant the kind of moneys that are being put into them in terms of the return you get as an added element to the deterrent, no one of the three that you have mentioned, sir, I don't believe.

Mr. MORRIS. Now, you are in favor of an antisubmarine defense development?

Mr. LANPHIER. Yes, sir.

Mr. MORRIS. I agree with you 100 percent. Yet you are not in favor of the proposed development of an antimissile?

Mr. LANPHIER. I didn't say that, sir. I just talked about that specific one.

Mr. MORRIS. You talked about the Nike-Zeus.

Mr. LANPHIER. That is what I said. I don't think—that is what I meant earlier—that specific approach is technically valid to the problem it is trying to resolve. I would certainly like to see the continued prosecution of an antiballistic missile system. It is a feasible thing in 6 to 7 years, though by that time the other guy is going to have a new trick.

Mr. MORRIS. But the Bomarc B missile you think should be canceled right now?

Mr. LANPHIER. Yes, sir, I don't see much sense in it.

Mr. MORRIS. But F-108 fighter, you don't think—

Mr. LANPHIER. I don't think the mission it could accomplish if it were brought in 5 or 6 years hence, which is when it would be available, would be worth the money it is going to cost. No, sir, when

you evaluate it against what other things cost and balance what you have to buy in retaliatory systems.

Mr. MORRIS. Why I am asking you these questions, these are some of the things that could be done within the framework of the organization at the present time?

Mr. LANPHIER. Yes, sir.

Mr. MORRIS. You recommended certain long-range and certain changes to be made in the whole system within your list, the six things that you recommended, such as the President making available what the missions are and assigning them, and they should be justified on the basis of the threat.

Mr. LANPHIER. Of the threat; yes.

Mr. MORRIS. Now, you say that you think more money should be spent on the Minuteman and the Polaris?

Mr. LANPHIER. Yes, sir, to accelerate them—to accelerate.

Mr. MORRIS. I definitely agree with you there. But you also state on the Titan—let's talk about the Titan versus the Atlas. Are not the Titan and the Atlas almost the same missile?

Mr. LANPHIER. They are exactly.

Mr. MORRIS. Why go spend more money on the Titan then when we have an operational Atlas which can hit the target within 2 miles in a 7,000-mile shot?

Mr. LANPHIER. Because hopefully the Titan will do the same when it reaches its operational state and we need the numbers at that time.

Mr. MORRIS. Why not produce numbers of Atlases?

Mr. LANPHIER. I would like to see more of each.

Mr. MORRIS. You have a proven system?

Mr. LANPHIER. But in the next 2 years there are just so many more Atlases that you can buy hardened. So what I am saying is buy more Atlas and buy more Titan in the same period.

Mr. MORRIS. Do you mean to tell me the Defense Department can't cancel the money for the Titan since the Atlas can do the job?

Mr. LANPHIER. I would rather see the job go ahead with both of them. I would like to see the numbers from whatever source as soon as possible. In 3 years from now we could afford through just the Atlas program alone all the missiles in the third year the country thinks it might need.

Mr. MORRIS. But the part about your testimony that I don't understand is that you are in favor of greater numbers?

Mr. LANPHIER. As soon as possible.

Mr. MORRIS. I agree with you there. Well, why gamble on a machine that isn't proven when you have one that is proven that will do the same job.

Mr. LANPHIER. Why not go ahead with that one—then you are not gambling—and gamble on the other one, too.

Mr. MORRIS. Why not improve the one you have. Whenever you get an automobile, from the time that an automobile is invented up to the present time, an automobile is still an automobile, it has wheels, brakes, and motor.

Mr. LANPHIER. I refer to my basic concern, that is, over the next 2 to 2½ years somewhere we are going to have to have greater numbers than we have planned. You can't get—

Mr. MORRIS. Can you mass-produce Atlas and Titans quicker than you can mass-produce Atlas missiles alone?

Mr. LANPHIER. No, sir, I didn't say that—oh, yes, you can get double—you can get some Atlases between now and 1962 regardless of what you do about the Titan.

The CHAIRMAN. The gentlemen of the committee cannot hear. Members of the committee cannot hear; there is so much noise going on.

Mr. MORRIS. The part that I can't understand is that you don't know—we are speaking within the framework of the organization and the budget that we have now and what looks like might be a recommendation for the future and you are recommending that we spend part of this money on a gamble on the Titan, which has not been proven.

Mr. LANPHIER. Most of the gamble on the Titan has been taken in terms of dollar investment. I would say a couple of billion dollars' worth of investment has been taken. We might as well realize on it.

Mr. MORRIS. Probably going to be another billion before it is proven.

Mr. LANPHIER. Well, it should be; that was the case of the Atlas to get to this operational point.

Mr. MORRIS. But the point is, it seems to me, it would make more sense to take this billion dollars—

Mr. LANPHIER. Why not buy a billion dollars' worth of each?

Mr. MORRIS. You don't know the Titan—

Mr. LANPHIER. My point is we can build you just so many Atlases by the end of 1962; that takes X dollars. I forget the dollars, but it is about 45 more Atlases in hardened bases if they wanted to buy them. That is all we can do in our plant in 2 years and support with bases.

Mr. MORRIS. If these people who are trying to build the Titan—couldn't they build some Atlases?

Mr. LANPHIER. No, sir; not in the next 2 years, that is my point.

The CHAIRMAN. The gentleman's time has expired. Mr. McDonough?

Mr. OSMERS. Would you yield to me for a couple of brief questions?

The CHAIRMAN. For a brief—for a question.

Mr. McDONOUGH. All right; I yield.

Mr. OSMERS. I was very much interested, Mr. Chairman, in the witness' observations on global strategy in Europe, his observations about Berlin. Is it fair to draw the inference from what you said, Mr. Lanphier, that you believe this country should attempt to establish superior ground and conventional forces in Europe to those of the Communist bloc?

Mr. LANPHIER. One way or another, yes, sir; not in terms of matching them man for man, but in terms of more imaginative devices than that. We at Convair have had for about a year and a half a committee of five fairly well-versed gentlemen consisting of Dr. Edward Teller, Dr. Kissinger, Dr. Morgenstern, Dr. Wheeler, and Dr. Sherwin, all five of whom have worked as consultants for the Secretary of Defense and the Air Force and so on over the past few years. They have been working on a project to consider the problem of limited war in all its aspects, economic, political, and military. They have come up with some interesting possibilities of mechanical devices and systems that can substitute, if prosecuted, for numbers of people on the ground.

I would like to see the Government doing something like this.

Mr. OSMERS. The Government hasn't done anything like that at all—

Mr. ROUSH. Point of order. The question has been answered.

Mr. OSMERS. This muzzled program, it is rather interesting.

Mr. MILLER. It is not muffled.

The CHAIRMAN. The gentleman is wrong about a muzzled program. This is a rule adopted by the committee and we are trying to enforce it.

Mr. McDONOUGH. You were assisting Mr. Symington in the Defense Department, weren't you?

Mr. LANPHIER. Yes, sir; about 11 or 10 years ago.

Mr. McDONOUGH. During that time the defense potential was a problem for the Nation as it is today?

Mr. LANPHIER. At that time the limit the country could stand, I think, was \$13 or \$14 billion, until Korea and it jumped to \$60 billion.

Mr. McDONOUGH. Why wasn't there at that time, since you are apparently so ambitious at this time to close the gap between Russia and the United States, why at that time weren't you instituting an ICBM program, a rocket program, something beyond the B-36 and the other—

Mr. LANPHIER. The Air Force was, the Air Force was doing the Navaho program.

Mr. McDONOUGH. How far did they go with it?

Mr. LANPHIER. Right up to the point where it is now propelling all the ICBM's we have.

Mr. McDONOUGH. The Navaho is certainly not an ICBM and it became obsolete before it became operative.

Mr. LANPHIER. The engines did not, they were the ones that power the Atlas and Thor.

Mr. McDONOUGH. The criticism has been leveled—

Mr. LANPHIER. I am not talking about the past. I am talking about today and tomorrow.

Mr. McDONOUGH. I am talking about today, too. The situation today is one that is a matter of numbers. We haven't had our defense tested, we haven't had any challenge. All we are talking about is a possibility—

Mr. LANPHIER. I see challenges every 3 or 4 months, in space, clearly written, clearer than any adversary has ever done before.

Mr. McDONOUGH. Such as what? You mean scientific challenges?

Mr. LANPHIER. Of course, related to military.

Mr. McDONOUGH. We haven't established that yet.

Mr. LANPHIER. We have to disagree, in our business.

Mr. McDONOUGH. It hasn't been established to the point that a satellite has a defense potential, it has a communication or reconnaissance or a potential of that sort.

Mr. LANPHIER. I beg to differ with you, sir. That is why I am here.

Mr. FULTON. Would you yield?

Mr. McDONOUGH. Yes.

Mr. FULTON. The question comes on your use of Air Force bases, published by the Military Service Publishing Co. of Harrisburg, my home State, as a basis for your estimates. Then they say:

The publisher will welcome suggestions and criticism which will, in any way, provide a basis for improvement of the book. Where any installation has been omitted, due to inadvertence or through lack of information, we will be most grateful for data concerning it.

My question is this. You rely on that. But the President of the United States appeared before Congress on March 13, 1959, and gave us what the bases were. My question is have you studied that particular message because there the President says:

Our friends among the free world nations make available to us for the use of our forces some 250 bases in the most strategic locations, many of them of vital importance. They support ground forces totaling more than _____ million men stationed at points where danger of local aggression is most acute, based on their own soil, and prepared to defend their own homes. They man air forces of about 30,000 aircraft of which nearly 14,000 are jets, 23 times the jet strength of 1950 when the program started. They also have naval forces totaling 2,500 combat vessels with some 1,700 in active fleets or their supporting activities.

He likewise says they have spent \$141 billion, our friends have, more than six times the \$22 billion we have contributed in military assistance. During calendar year 1958 they contributed \$19 billion of their own funds to support these forces.

First, have you studied this message of the President or read it?

And in that conjunction, of course, I would like you then to show that you have by naming the number of million troops that our allies have supplied in the one place that I left it vacant. That will show very conclusively how much you have studied it. So you name them.

Mr. LANPHIER. I obviously don't know the number.

Mr. FULTON. And you obviously haven't studied it, have you?

Mr. LANPHIER. That is right. That is not pertinent to what I am talking about.

Mr. FULTON. I would imagine——

Mr. LANPHIER. If I may do some simple mathematics, I assume you are trying to get this straight from me, are you not, as to whether or not there are less than 100 bases and whether or not I am sure there are less than 100 bases from which SAC and our other forces can retaliate? Is that what you are groping for? Is that what you want to know from me?

Mr. FULTON. I don't believe I would like to have put into my mouth——

Mr. LANPHIER. You have been doing that for me all day.

Mr. FULTON. I asked some telling questions——

Mr. LANPHIER. I am trying to give you an answer——

The CHAIRMAN. The gentleman's time has expired.

Mr. FULTON. The figure is 5 million men the others have supplied.

Mr. MILLER. How many of those in Korea?

The CHAIRMAN. Your time has expired.

Mr. McDONOUGH. My time has expired?

The CHAIRMAN. Yes.

Mr. McDONOUGH. I thought we have 5 minutes.

The CHAIRMAN. You do. Your time expired 2 minutes ago.

Now, gentlemen, we have 2 minutes before we adjourn. We are due promptly on the floor. I talked to Mr. McCormack about this bill and he said that the bill is coming up right after convening.

Mr. FULTON. Second time around, I wanted 5 minutes, I didn't take it all.

The CHAIRMAN. So have I. I will say to the gentleman, as chairman, that I cut my 5 minutes a little short so as to help the gentleman.

Mr. LANPHIER. The burden of what I am talking about, that there are less than 100 points that the Soviets have to aim at to get our whole retaliatory strike force, is contained in General Power's statement, if you assume 300 missiles will do the trick.

Mr. McDONOUGH. Presuming every one of them is going to hit the target and all shot at the same time.

Mr. LANPHIER. No, you are assuming three of them, of which one will hit the target.

Mr. MILLER. I move we adjourn.

The CHAIRMAN. You heard the motion.

Mr. FULTON. I object to adjourning.

Mr. MILLER. It is not debatable.

Mr. ROUSH. Point of order.

The CHAIRMAN. The motion to adjourn is not debatable. All in favor of the adjournment—

Mr. FULTON. I object to the adjournment when we have further time that we can use this morning.

The CHAIRMAN. All in favor of adjourning at this time, signify by saying "aye." All opposed?

The ayes seem to have it. The ayes have it. We will adjourn until tomorrow morning at 10 o'clock.

(Whereupon, at 11:51 a.m., the committee adjourned to reconvene at 10 a.m., Tuesday, March 8, 1960, on another subject.)

ADDENDUM

In the original planning of the hearings on the review of the space program, as approved by the chairman of the committee, it was intended to hear from six representative major contractors in the space business, with a due regard for previous coverage of companies in other separate investigations of the committee since its formation early in 1959. Invitations were extended to the Boeing Airplane Co., Convair (a division of the General Dynamics Corp.), Douglas Aircraft Co., Lockheed Aircraft Corp., the Martin Co., and North American Aviation, Inc. This number was the maximum which could be scheduled with adequate time to go into their presentations with any thoroughness, considering other obligations of the committee. As the time approached for these hearings on February 25, 26, and 29, it became apparent that it would not be possible to hold to the approved schedule, and the chairman directed that the witnesses be asked to stand by for later rescheduling, possibly in April. When it was apparent that this was out of the question, too, because of the heavy legislative workload of the committee, it was the chairman's hope to salvage for the record any material already prepared by the companies concerned, by its inclusion in the record of the space program review hearings. A cutoff date of May 10 was chosen. The basic correspondence and reports submitted in response to the request are as follows:

The letter of invitation addressed individually to the six companies is as follows, omitting only the names and information on date and hour of appearance. (These letters were dated in the period January 21-25, 1960):

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE AND ASTRONAUTICS,
Washington, D.C., January —, 1960.

Mr. _____, *President.*

DEAR MR. _____: This letter is to confirm oral arrangements for the appearance of * * * before this committee on February —. Your witnesses are asked to testify as the * * * group on that day. * * * Approximately 2 hours will be required for hearing the statement, questions, and any supplementary discussion.

Your Washington representative can receive guidance as to the committee's principal interests as the hearings unfold, as your appearance will be near the end of 6 weeks of hearings. I have already sketched orally some of these needs, and will be glad to amplify to him. In general, this committee is doing three things in these hearings: (1) studying the status of our space and missile programs with a view to determining what needs to be done to enhance their success; (2) reviewing the NASA budget request for 1961 which it must authorize; and (3) considering at least in preliminary fashion the President's proposals for amendment of the Space Act of 1958, and transfer of the ABMA facilities to NASA.

Only 3 days have been made available for hearing industry witnesses, and your company is one of six major participants in the space and missile programs which have been selected to be heard in support of the committee objectives outlined above. From your company, we should like to have a statement on your capabilities to support the national space and missile effort, in-

cluding both projects currently underway and as time permits developments which you see in the offing. We should also like any reactions to problems beyond your individual company as to the organization and funding of our space effort.

The committee would like to have a formal statement. This can be read or summarized orally so as to take approximately 10 or at the most 15 minutes of the time available, with any longer account if required printed in the record. The chairman would like an unclassified statement which can be presented in open hearing. Out of the approximately 2 hours available, perhaps 1½ should be reserved for open session, and the balance for any classified briefing, or for answers to earlier questions which can not be given in open session.

Under the rules of the House of Representatives, statements should be delivered to the clerk of the committee, room 214-B, New House Office Building, at least 24 hours in advance of the hearings. It would be wise to print at the top of the statements "Hold for Release Upon Delivery," and indicate the intended date of testimony. Approximately 150 copies are required to meet the needs of the committee and the press and radio galleries of the Capitol.

As soon as you have selected any corporate management and technical witnesses who will support your appearance before the committee, we should like to have their full names and titles, and a brief biographic note on each which will later be printed in the record. If your appearance involves charts, slides, or motion pictures, your Washington representative should make the necessary arrangements to insure proper logistic support.

The date confirmed in this letter is as definite as is possible under the circumstances. We expect to be on schedule, but in all fairness, experience has shown rescheduling does occur, and if this happens, we shall send as timely notice as possible.

We look forward to having you with us, and expect a very profitable session.

Sincerely yours,

CHARLES S. SHELDON II,
Technical Director.

Written acknowledgements were received from the following (the others being oral) :

LOCKHEED AIRCRAFT CORP.,
Burbank, Calif., February 3, 1960.

DR. CHARLES S. SHELDON II,
*Technical Director, Committee on Science and Astronautics,
House of Representatives, Washington, D.C.*

DEAR DR. SHELDON : I acknowledge receipt of your letter of January 21, which arrived during my absence on a business trip to the East. I can tell you that, with respect to the appearance of the Lockheed Aircraft Corp. before your committee at 10 a.m. on February 29, our company will be represented by Mr. Robert E. Gross, chairman and chief executive officer, and Mr. L. Eugene Root, group vice president in charge of missiles and electronics. By virtue of the nature of his responsibilities, Mr. Root is the one we regard best qualified from a technical standpoint to comment on the science and astronautics aspects of our activities.

Enclosed herewith you will find a short biographical note regarding both of the individuals concerned.

We will be guided in our preparation by the information contained in your letter. In case you have further information for us, you may find it convenient to send it to us through the medium of our Washington office, and specifically Mr. Hal Conner, who concerns himself for us with such matters.

We appreciate the opportunity to appear before your committee and thank you for the consideration which has prompted you to invite us.

Sincerely,

COURTLANDT S. GROSS, *President.*

BOEING AIRPLANE CO.,
Seattle, Wash., February 3, 1960.

Dr. CHARLES S. SHELDON II,
*Technical Director, Committee on Science and Astronautics,
House of Representatives, Washington, D.C.*

DEAR DR. SHELDON: Receipt of your letter of January 21, requesting the appearance of the Boeing Airplane Co. on February 26, 1960, to testify before the House Science and Astronautics Committee, is acknowledged. We have decided to have either Mr. Wellwood E. Beall or Mr. Edward C. Wells appear before the committee as a representative of corporate management, and to have Mr. Robert H. Jewett, Mr. George C. Martin, or Mr. Lysle A. Wood appear as technical spokesman. Brief biographical sketches on these gentlemen are attached hereto for the record.

We shall prepare Boeing's presentation generally in accordance with the guidance contained in your letter. We also will be guided by our Washington representative, who, as you suggested, has been asked to follow the hearings so as to gain the best possible understanding as to the committee's interests. Requirements for logistic support for this presentation will be coordinated through our Washington office.

We are hopeful that the testimony of Boeing Airplane Co. officials on February 26 will be of value to the committee.

Sincerely,

WILLIAM M. ALLEN, *President.*

DOUGLAS AIRCRAFT CO.,
OFFICE OF THE PRESIDENT,
February 12, 1960.

Mr. CHARLES S. SHELDON II,
*Technical Director, Committee on Science and Astronautics,
House of Representatives, Washington, D.C.*

DEAR MR. SHELDON: This responds to your letter of January 25 and confirms that Douglas Aircraft Co. witnesses will appear before the House Committee on Science and Astronautics on February 29.

We have selected to represent us three men we consider highly qualified to provide the committee with the material it desires. They are Mr. Charles R. Able, vice president—defense programs; Mr. R. L. Johnson, chief engineer—missiles and space systems; and Mr. Maxwell W. Hunter, assistant chief engineer—space systems. Biographical material on these gentlemen is enclosed herewith.

Mr. Able will deliver a formal statement, copies of which will be forwarded in advance as requested. Any additional details regarding our appearance before the committee may be coordinated with our Washington representative, Mr. L. E. Tollefson.

I am conscious of the importance of the committee's work, and trust we shall make a worthwhile contribution to it.

Sincerely,

DONALD W. DOUGLAS, Jr.

NORTH AMERICAN AVIATION, INC.,
OFFICE OF THE PRESIDENT,
Los Angeles, Calif., February 12, 1960.

Dr. CHARLES S. SHELDON II,
*Technical Director, Committee on Science and Aeronautics,
House of Representatives, Washington, D.C.*

DEAR DR. SHELDON: Receipt is acknowledged of your letter of January 21, in which you confirmed arrangements made for North American to appear before the House Committee on Science and Astronautics on February 25. You may be assured that we will cooperate to the utmost in assisting the committee in its vital work.

Mr. T. F. Dixon, chief engineer of our Rocketdyne Division, will introduce the company's presentation. Specific North American programs supporting the national space and missile effort will be covered by the following:

Mr. R. M. Ashby, chief engineer, autonetics division, autonetics.

Mr. T. F. Dixon, chief engineer, Rocketdyne Division, rocketdyne and atomics international.

Mr. W. F. Parker, chief engineer, missile division, missile.

Mr. H. A. Storms, chief engineer, Los Angeles division, Los Angeles.

We will inform you immediately if any changes in the above arrangements become necessary. Please let us know if there is any additional way we can be of service to the committee.

Sincerely yours,

J. L. Atwood, *President*.

When it became necessary to cancel the original appearances, the following telegram was sent to all six companies (only the addresses are eliminated):

FEBRUARY 17, 1960.

Mr. ————, *President*:

Confirming call to your Washington office Chairman Brooks has delayed appearance all industry witnesses before House Science and Astronautics Committee due to changes in legislative calendar. Will propose new dates for appearances with timely notice earliest.

SHELDON, *Technical Director*.

When the chairman decided it would be impossible to hear these witnesses this year, the following letter was sent to all the companies (only the name of the addressee is eliminated):

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE AND ASTRONAUTICS,
Washington, D.C., April 20, 1960.

Mr. ————, *President*.

DEAR MR. ————: Chairman Brooks regrets that the pressure of time and committee obligations for handling legislation have precluded the possibility of scheduling this year the originally planned public and executive sessions with representatives of private industry as a part of the 1960 posture hearings on space and missiles. All of us had counted on these sessions as making a particularly important contribution.

In the case of some companies, it may be that the intended statements and exhibits already had been prepared at the time that it became necessary to cancel the originally scheduled appearances. We are sure that these were very fine and would be of value to the committee. If these statements, charts, and exhibits are in suitable form for publication, the committee would be pleased to receive them for inclusion in the final volume of the printed transcripts of the hearings record. If the statements are not prepared and available now, or are otherwise unsuitable for publication, we would leave open and without prejudice the decision of whether you would wish to prepare appropriate materials for receipt here by May 10, 1960, when the record will be closed for printing.

It is our hope that even though events developed this way this year, that you will grant us your forbearance, and future cooperation. We hope, of course, that the opportunity will present itself later for some of our members and staff to visit your facilities at a time mutually convenient. We also expect to undertake a major study of the long-range space program in the second half of this calendar year to which we expect your company could make a very useful contribution.

Your Washington representative has been understanding of our scheduling problems, and I assume has kept you generally posted on developments here. Thank you again for your patience.

Very sincerely,

CHARLES S. SHELDON II, *Technical Director*.

In response to this letter, the following replies were received from the companies concerned:

NORTH AMERICAN AVIATION, INC.,
OFFICE OF THE PRESIDENT,
Los Angeles, Calif., April 29, 1960.

Dr. CHARLES S. SHELDON II,
*Technical Director, Committee on Science and Astronautics,
House of Representatives, Washington, D.C.*

DEAR DR. SHELDON: You are very thoughtful to send me your letter of April 20, and you are assured always of our cooperation in your important undertakings.

It is very easy to understand the pressure of time upon your important committee and the limits imposed upon the membership and staff.

If we can be of any future service, please let us know.

Sincerely yours,

J. L. ATWOOD, *President.*

CONVAIR,
San Diego, Calif., April 29, 1960.

Mr. CHARLES S. SHELDON II,
*Technical Director, Committee on Science and Astronautics,
House of Representatives, Washington, D.C.*

DEAR MR. SHELDON: In reference to your letter of April 20, please be advised that Convair does not plan to present a prepared statement for inclusion in the transcripts of the 1960 posture hearings on space and missiles. Our preference in this regard is in no way at difference with our appreciation for the importance of the committee's activities, but results only from past uncertainty as to the timing of our participation in the hearings, and from the imminence of the May 10 closing date.

We shall be delighted to cooperate in every way with the committee's study of the long-range space program, and with any other work that the committee undertakes. In particular, we shall welcome the opportunity to receive any members of the committee or staff for an inspection of our facilities.

Sincerely,

J. V. NAISH, *President.*

DOUGLAS AIRCRAFT CO.,
OFFICE OF THE PRESIDENT,
Santa Monica, Calif., May 5, 1960.

Mr. CHARLES S. SHELDON II,
*Technical Director, Committee on Science and Astronautics,
House of Representatives, Washington, D.C.*

DEAR MR. SHELDON: Thank you for your letter of April 20 concerning the deferment of industry hearings by the House Committee on Science and Astronautics, and the deadline for material that may be submitted for the committee's printed report.

Our preparation of testimony for the committee was suspended at the time of the original postponement of our scheduled appearance, and had not progressed to the point where we would wish to offer this material for inclusion in the committee's report.

May I say, however, that we appreciate very much the committee's consideration, and your own very helpful cooperation. We stand, as always, ready to accept any opportunity to be helpful to the Congress.

Sincerely,

DONALD W. DOUGLAS, Jr.

BOEING AIRPLANE CO.,
Seattle, Wash., May 6, 1960.

Dr. CHARLES S. SHELDON II,
*Technical Director, Committee on Science and Astronautics,
House of Representatives, Washington, D.C.*

DEAR DR. SHELDON: Please convey to Chairman Brooks our regret that committee obligations and the pressures of time precluded scheduling industry representatives for appearance in the committee's 1960 posture hearings on space and missiles.

As you suggested, we followed the proceedings of the committee so as to be alert to the principal interests of its members and in a position to prepare our statement on 1 to 2 weeks' notice. We did not, however, actually develop a prepared statement and, therefore, will not be able to take advantage of the opportunity to submit material by May 10 for inclusion in the printed transcript of the hearings record.

We are well aware of the great importance of our country's space program to national prestige, foreign policy, scientific advancement, the economy, and military security. Should the opportunity present itself at some future date, we would be pleased to contribute in support of the committee's efforts.

Sincerely,

WILLIAM M. ALLEN.

LOCKHEED AIRCRAFT CORP.,
Burbank, Calif., May 9, 1960.

DR. CHARLES S. SHELDON II,
*Technical Director, Committee on Science and Astronautics,
House of Representatives, Washington, D.C.*

DEAR DR. SHELDON: I want to acknowledge your invitation to present material on the status of the space program for publication as a part of the committee record.

At the time that the February hearings were canceled, preparations had not been completed and therefore no material is available. I have postponed a reply to your request in anticipation that appropriate materials related to the subject of your committee study might become available prior to your May 10 closing date. Unfortunately, this did not materialize.

In view of the above, we do not have any testimony developed along the line of your original inquiry. However, I should also like to mention my concern over the unusual hazards inherent in space programs and my concern that contractors and subcontractors be indemnified against such risks. NASA has also expressed concern over this matter and has requested authority to indemnify contractors against unusually hazardous contracts. The requested authority is the same as authority which the Department of Defense has had for several years. I strongly endorse the need for the enactment of legislation to accommodate this request of NASA as embodied in H.R. 9675.

The requested legislation, if enacted, would meet no more than the minimum needs of the Space Administration. At the same time I suggest that the committee consider broader legislation to be available in connection with non-research and development contracting. NASA proposed such legislation (H.R. 4148) during the 1st session of this 86th Congress which was patterned after S. 2110 which would give similar indemnity powers to the Department of Defense. Already there is need for usable authority in connection with supply as well as research and development contracts. This need will increase as work of the administration in atomic and space fields moves ahead.

Three years ago AEC was given broad powers to protect its contractors and licensees and the public against nuclear hazards. Two years ago authority was given to the Maritime Commission for use in connection with the construction of a nuclear-powered ship. Meanwhile, both NASA and DOD continue to remain lacking in adequate indemnity authority. This results in a lack of ability for the two agencies to assume proper obligations and properly protect their contractors, subcontractors, and the public when unusually hazardous tasks in atomic and propulsion work are undertaken.

Therefore, I urge not only the enactment of research and development indemnification authority, but also early consideration of usable authority in connection with supply contracts.

Certainly, we will be happy to give any assistance or information we might have in connection with your expected study of the long-range space program.

Sincerely,

COURTLANDT S. GROSS, *President.*

THE MARTIN CO.,
OFFICE OF THE PRESIDENT,
Baltimore, Md., May 10, 1960.

HON. OVERTON BROOKS,
*Chairman, Committee on Science and Astronautics,
House of Representatives, Washington, D.C.*

DEAR MR. CHAIRMAN: By letters of January 25 and April 20, 1960, Mr. Charles S. Sheldon II, technical director of your committee, has invited us to submit a statement, for inclusion in the record of the hearings recently concluded by your committee. Specifically, the letter of January 25 expresses the interest of the committee in (1) the current status of space and missile programs, (2) the NASA budget request for 1961, and (3) the President's proposals for amendment of the Space Act of 1958. As will be evident hereinafter we are vitally interested in space and missile programs and appreciate the opportunity to comment thereon.

VIKING

At the conclusion of World War II it became clear to us that missilery and exploration of space was to play an increasingly important role in world affairs. Our experience in this field dates from the end of the war at which time we began staffing highly qualified specialists and engaging in missile and space research. In 1946 we began development of Viking rockets for the Navy's upper atmosphere research program. Viking was among the first new, completely American, high-altitude vehicles built. From 1949 to 1955, 12 Vikings were launched, 11 from White Sands Proving Grounds and 1 from the U.S.S. *Norton Sound* in the Pacific. Viking No. 11 soared to 158 miles, a record for single stage unboosted rockets. The instruments on the 12 vehicles provided valuable data on conditions in the ionosphere.

ROCKET REPORT

In 1947 we completed a detailed report on a rocket vehicle designed to launch a 1,450-pound payload into orbit, and which could have been used as an inter-continental ballistic missile. This project was discontinued.

MATADOR

In 1946 we undertook development of the Matador, a ground-to-ground 500-mile-range missile. This missile has been operational and deployed since March 1954.

VANGUARD

In July of 1955, President Eisenhower announced that the United States would attempt to launch an instrumented earth satellite during the International Geophysical Year, July 1, 1957-December 31, 1958. This became Project Vanguard. We were the prime contractor responsible for design and manufacture of the vehicle to be used in placing the satellite in its orbit. The project originally was under direction of the Naval Research Laboratory, was later transferred to NASA, and has now been completed. While the original intention was to launch one satellite, as you know, three satellites were put into orbit, one of which is expected to remain in orbit 2,000 years or more.

I have given you this historical background simply to show our experience in this field, our long and intense interest, and our increasing capability to deal with the future.

At the present time we are engaged in research and development, or production, of the Pershing, the Lacrosse, the Bullpup, the GAM 83-B, the Mace and the Titan missiles.

PERSHING

The Pershing is a selective combat range artillery missile (Scram) in the development stage. The surface-to-surface missile system is designed for effective battlefield mobility and rapid reaction time. The Pershing missile is a two-stage solid propellant missile capable of delivering a nuclear warhead and will replace the much larger Redstone missile system, when operational.

The Lacrosse missile system is a surface-to-surface system that has been developed to deliver both conventional and nuclear warheads for the close and

general support missions. As a mobile fire delivery system, it has the flexibility to keep pace with forward combat units and provide timely, lethal, and highly accurate fire on enemy forces. The first four battalions of solid-fuel Lacrosse went operational in July last year.

BULLPUP

Bullpup is a low-cost air-to-surface missile system designed for tactical use against surface targets whose relative size, importance, or disposition requires the accurate delivery of a 250-pound warhead. Bullpup is presently operational with the U.S. Navy's Atlantic and Pacific Fleets and has been performing with exceptional high reliability.

GAM 83-B

The USAF GAM 83-B weapon system is an air-to-surface missile system designed to accurately deliver a nuclear warhead by TAC aircraft. This program is a follow-on development of the Bullpup system and makes full use of the prior work.

MACE

The TAM-76A Mace, a surface-to-surface missile, equipped with ATRAN (map matching) guidance system, became operational with the U.S. Tactical Forces in Europe last summer, replacing the earlier Matador, previously mentioned. The new 1,200-mile-range TM-76B Mace, with inertial guidance, is now in production and recently began a series of test flights over the Atlantic missile range from Cape Canaveral. Both the A and B series Mace missiles have nuclear capabilities.

TITAN

Our biggest project at this time is development and production of the Titan. This is a two-stage, liquid-fueled, intercontinental ballistic missile designed to carry an atomic warhead. We received a letter contract in October 1955, later definitized, to design, manufacture, and test the Titan. For that purpose our Denver division was formed and through the joint efforts of the Air Force and Martin the free world's first and only completely integrated missile facility was constructed. Three years from the time ground was broken for this facility the first successful Titan flight was achieved at Cape Canaveral. This was on February 6, 1959. Other equally successful flights followed on February 25, April 3, and May 4 to establish a record-breaking series of launchings. After May 1959 the Titan fell heir to a series of mishaps such as have plagued every new missile development in the free world—and, undoubtedly, those behind the Iron Curtain as well, though we hear only of Soviet successes in this field. However, the Titan has made seven flights this year and has attained objectives that were particularly vital to the overall program. Intercontinental ranges of 5,000 miles, and nose cone separation and reentry were accomplished with three firings. The most important objective gained from this year's Titan flights was the confirmation of the soundness of the missile's two-stage design. It is this two-stage design, together with advanced structural engineering, that gives Titan its high payload capability both as a defense weapon and as a space vehicle. From the beginning the Titan has been designed for use in hardened bases and several such bases are presently under construction. The first squadron of Titans is scheduled to be operational in 1961 and we have every confidence that the schedule will be met.

DYNA-SOAR

The basic function of the Dyna-Soar program is to send an earth-launched, manned vehicle into space and back to Earth again. Rocket power will boost the vehicle to altitudes beyond the Earth's atmosphere where it could travel at speeds approaching 18,000 miles per hour. In reentering the Earth's atmosphere, the pilot will use aerodynamic controls. The craft will glide to a conventional landing area under complete control. This will be the first aerospace vehicle which combines the characteristics of missiles and aircraft into a single system. We have been working on this project since early 1958. In mid-1958 we were awarded a contract, as was another aircraft company, to perform preliminary phase I work for a period of 1 year to define a suitable development program for Dyna-Soar. This contractual effort terminated in approximately July 1959.

However, as you probably know, it was recently announced that the booster portion of Dyna-Soar would be awarded to Martin.

We feel strongly that the Dyna-Soar program is an important one to the Nation and that our previous experience has given us the qualifications and capability to properly develop the Dyna-Soar booster.

SPACE MEDICINE

Space medicine is an area of research which has been catapulted into prominence since the inception of the space age. The problem of man's survival and operational effectiveness has long been of prime concern in the design and development of aircraft, but it has assumed an even more critical role in the design and development of space systems.

For the past 2½ years the Martin Co. has included a space medicine laboratory entirely devoted to research projects directly related to the problems of man in space. While we have not solved many problems facing us in man's conquest of space, we do feel that we have helped identify some of the most critical ones.

The first problem to be solved is man's survival and our space medicine laboratory has concentrated on perfecting a lunar housing simulator which is a closed ecological system intended to provide a continuous self-sustaining human environment including food and oxygen production along with the recycling, processing, and disposal of waste materials. The objective of the development of this closed system would be to almost eliminate the staggering logistic support problem which would be present if all of man's requirements for food, water, and oxygen had to be boosted into orbit, to the Moon, or to some planetary base.

NASA BUDGET REQUEST

We do not feel that we are in a position to comment on the adequacy or inadequacy of the budget presented by NASA. We do believe, however, that the undertakings of NASA are of the utmost importance and that if the Congress approves the programs it should appropriate sufficient funds to permit them to be carried forward in a timely and orderly manner.

NATIONAL AERONAUTICS AND SPACE ACT OF 1958

It is my understanding that H.R. 9675 was originally introduced to amend the National Aeronautics and Space Act of 1958 in line with the request of the administration. We note that you now have introduced a new bill, H.R. 12049, and our comments will be directed to that bill. Among other things it would revise the congressional declaration of policy and purpose; abolish the National Aeronautics and Space Council and the Civilian Military Liaison Committee; make technical changes designed to facilitate administration of the act; and clearly delineate the jurisdiction of the National Aeronautics and Space Administration and the Department of Defense. To the extent that these amendments would facilitate administration of the act and more clearly define the respective responsibilities of the administration and the Department of Defense, we believe they represent an improvement and should receive favorable consideration of the Congress.

We are particularly interested in the proposed amendment of section 305 of the act relating to property rights in inventions. Section 305 has been the subject of much controversy and is inconsistent with provisions of law applicable to other agencies on the same subject. In almost every procurement aspect, except patents, NASA has the same legal authority and has adopted the same policies and practices as the Department of Defense in conducting its business with contractors. One of the purposes of the amendment apparently is to give NASA discretionary authority to adopt contractual patent provisions more in line with those of the Department of Defense where necessary to meet the equities of the situation. We believe this amendment, if properly administered, will go a long way toward eliminating the present unsatisfactory situation.

H.R. 12049 would add a new section 308, captioned "Indemnification." Its purpose is to give the administration authority to indemnify contractors, under certain conditions, against claims by third persons, and loss of or damage to property of the contractor, arising out of unusually hazardous risks in the performance of contracts. Indemnification has been a matter of grave concern to industry for some time. The need for indemnity clauses, in most cases, arises

from the advent of nuclear power and the use of highly volatile fuels in the missile program. The magnitude of the risks involved under procurement contracts in these areas have rendered commercial insurance either unavailable or limited in coverage. The provisions of the proposed amendment appear to be similar with those of 10 U.S.C. 2354 under which the military departments have been authorized to indemnify certain contractors since 1952. While the proposed amendment is limited to indemnification under research and development contracts, as is the referred-to authority of the military departments, we believe its enactment would be a step in the right direction.

We shall be glad to continue to cooperate with your committee and we again express our appreciation for the opportunity to submit this statement.

Very truly yours,

W. B. BERGEN.

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