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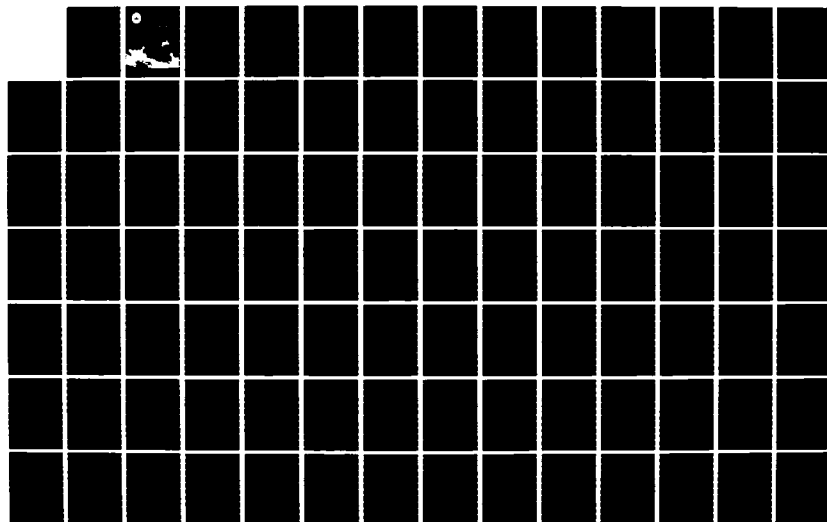
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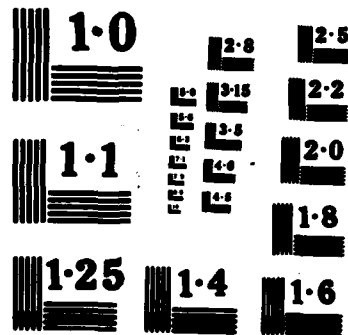
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PROCEEDINGS

DEFENSE READINESS & REQUIREMENTS SYMPOSIUM

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AMERICAN DEFENSE PREPAREDNESS ASSOCIATION

PROCEEDINGS
OF THE
DEFENSE READINESS AND REQUIREMENTS SYMPOSIUM

Program Co-Chairmen:

Mr. Joseph H. Berney
Vice President and Treasurer, National Presto
Industries, Inc., and Chairman of the ADPA In-
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ADPA Materials and Processes Division

ANDREWS AFB, MD.

September 24-25, 1980

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DEFENSE READINESS AND REQUIREMENTS SYMPOSIUM

SESSION I INDUSTRY CONCERNS

Nelson Jackson

At this time I introduce to you Mr. Joseph H. Berney, Vice President and Treasurer of the National Presto Industries and Chairman of the ADPA Industrial Base Planning Division.

Joseph Berney

Good morning. Welcome to our symposium. As I think back over these past four or five years, I remember other symposiums, particularly that which we held in New York two years ago and again in Alexandria, and I think back upon the meeting that we held in April in Orlando. Throughout those meetings I was terribly concerned that in the course of those meetings we may not be asking the right questions, we may not be seeking the right answers, and yet today, when I view the program before us I am convinced that we have been asking the right questions and we have been seeking the answers to the right questions. Because today we are confronted by those problems we forecast as early on as four or five years ago. We are faced today with an eroded and eroding warm industrial base. We are faced today with an inadequate material readiness posture and as a result of those concerns, we now have the platform for this meeting. That platform is in the form of the August 1980 ADPA white paper, which summarizes that area of concern and which projects very serious problems. For those of you who haven't had the opportunity to read that ADPA white paper, I'd like to quote a little bit from the summary. This white paper presents Industry's view that the material readiness of our armed forces is deficient; that their sustainability in combat is questionable; and that the preparedness of the industrial base to support the armed services in an emergency is inadequate. This white paper includes observations by a senior defense officials which seem to reflect conclusions similar to the Industry's view. Despite this apparent consensus of views, Industry is not aware of any effective government programs designed to improve the overall defense readiness posture.

I am encouraged about this meeting today because the Pentagon has agreed to have with us and to present to us papers by most senior officials to answer our concerns. But we will have those concerns as long as our defense posture focuses primarily on

acquisition of materials, for so long as we have express concerns that focus and drive a budget to only one war scenario and a budget that does not provide line item designation to ensure the maintenance of a warm and active industrial base. Hopefully we will hear things that address those areas of concern. Let's hope that your attendance at this meeting signals Industry's view that they want to cooperate in these efforts and want to help us maintain an adequate deterrent capability.

ADPA's founding fathers were convinced that the industrial base of the United States is the ultimate and essential ingredient of national security, that this base must always be prepared to support our military establishment and those of our allies, and that intelligent planning in peacetime is the one sure way to guarantee preparedness. Let's hope this meeting marks a beginning and shall spark a solution to those problems presented in ADPA's white paper. We still have the time, we still have the capability. We can succeed in establishing a credible deterrence if we but have the will.

At this point, I'd like to introduce to you our host for this day-and-a-half seminar, Brigadier General Archer L. Durham, Commander, 76th Military Airlift Wing, Andrews Air Force Base.

General Archer L. Durham

Thank you very much. I'd like to take this opportunity to formally welcome the members of the American Defense Preparedness Association here to Andrews. We are delighted to have the opportunity to provide administrative and logistical support for your most worthy cause. I think I would be less than candid if I did not comment on having an opportunity to take a cursory look at your agenda for the next two days and to get some idea on what your topics and subjects are going to be about. I was most impressed to see that you are addressing a subject that many of us who have been in the military for years have felt and known about a long time and that is the relationship or partnership or interdependence, if you will, between our ability to sustain our forces, our readiness, and, of course, our industrial base and industrial preparedness to keep those forces in top combat readiness. I think it is also rewarding to see that there is going to be a healthy dialogue, not only between members of Industry, but also officials of OSD to talk about this most important subject. So it looks like you're in for a couple of good, productive days with a lot of lively discussion, I am sure - but discussion that can only result in a stronger defense for all of us and, of course, for this great country of ours.

Again, we are delighted to have you and we wish you the best with your endeavors. Thank you very much.

Joseph Berney

Our first speaker this morning is Tom Pownall, the President and Chief Operating Officer of Martin Marietta Corporation. Thomas Pownall is the Chairman of the American Defense Preparedness Association and the subject of his talk will be Force Materiel Readiness.

Thomas G. Pownall

Good morning, distinguished members of the Armed Forces, civilian colleagues in arms, all. The introduction was correct. I am here as the Chairman of the ADPA. I am really not here as an expert on today's topic. I am here, much as Joe said earlier, because like most of you, I suspect, we have a concern. My concern is real, although some may argue that it is unrealistic, maybe even hopeless. Certainly it is a concern that didn't begin today. It has been sustained for some period of time. And if the concern is justified, it may even be justified as being said to be unrealistic. There are others, of course, who would say that the concern that I will express and the concern that you must be expressing by coming here is overstated. That we are unnecessarily concerned. That may be true, also. I am not sure. But I protest that my concern is genuine, and as you know, one need not have any special access to get concerned. There is sufficient material in the public domain provided by experts, one of which I am not, as I earlier stated, but sufficient material provided by experts to generate genuine concern. An expert, in this case, by my own definition, is a professional military or civilian person in a position of great responsibility in our defense establishment who has an opportunity to speak to the topic publicly or privately.

As I will shortly illustrate, it is not they - it is not the experts who have permitted a situation to develop to the point of concern. It is they who have been calling attention to it. It is they who have to live with the problem. It is they whose responsibility it is to protect and defend. Those who affirm or deny their request for support are not the ones whose honor or duty or life is on the line.

The defense establishment, in my opinion, is regularly accused of poor planning, poor deployment, poor maintenance, and poor mouthing. It has received considerable political abuse and interference and to its everlasting credit, it takes it all standing up. But it is no secret, I believe, that it is becoming more and more difficult to play make believe. Food stamps may help in one category, but food stamps will not buy tanks and guns and ships and airplanes and, in fact, they won't fill up the ranks of the volunteer forces. No one wants a draft. No one really wants

registration, if I can believe what the candidates for office are saying now. No one wants to provide acceptable pay levels and those who deny are not truly accountable. It amazes me that so many are electable. My advice to the DOD, in preface to what I may later say, is don't close any more bases. These days it must be apparent that it is one base, one vote and sometimes if you are lucky, two or three.

I'd say so much for the prologue, except that I made a left-handed observation about people. It's a topic these days, it seems to me, in the vernacular of Defense that is not addressed very well. It's too emotional. It's too expensive. It's too controversial. It's too political. Hopefully, it isn't too late. But in trying to research what is happening in the budget, I came across an item called, "Costs of Manning the Active Duty Military: A Staff Working Paper," May 1980, by the Congressional Budget Office. In the preface to this piece of work it says, "In recent months the military has encountered difficulty in recruiting and retaining active duty personnel, particularly enlisted personnel." That's a shocking statement. I just don't know how they could have come by that as late as 1980. And then it goes on to say some equally esoteric things about people and the cost of people, all of which I think could have been delivered in five minutes by several offices in the Department of Defense. But finally, before Alice Rivlen signs this thing, she says, "The study was prepared by Robert F. Hale and Joel N. Slackman of the National Security and Industrial Affairs Division of the Congressional Budget Office." I think the Budget Office has only been in business for a couple of years, but they have some divisions, already, of great order and it is under the general supervision of another guy by the name of S. C. Chu. Now these may all be very talented people. The authors gratefully acknowledge the contributions of John Ens and Andrew Hamilton and Alice Hugely and Michael Miller and Nancy Swope, none of whom are known to me. And then it says that Francis Pierce edited the manuscript, Nancy Brooks and Janice Stafford typed the various drafts, and Nancy Brooks prepared it for publication. With that impressive preface, I thought it must be very valuable and then I went on. It says, "The Administration's pay proposals for fiscal 1981, despite pay increases, would be insufficient to meet the Services' needs for enlisted recruits and maintain recruit quality in 1980 and 1981." By the way, you can buy this from the Government Printing Office. "The Senate recently approved a package of compensation improvements contained in the so-called Nunn-Warner amendment. Together with Administration proposals, the Nunn-Warner amendment would improve retention sufficiently so that the career force would return to 1979 levels by 1985."

Well, I think that this is not the point of today's meeting. But I wanted to stick it in, only owing to the fact that if some considerable portion of one's management time in the military is spent trying to stretch a thin force across thin resources, as is the case, that circumstance has got to be corrected and it's got to be corrected perhaps even ahead of some of the materiel problems that we are going to talk about. At least, I hope it will get that kind of attention, however improbable it may seem.

So much for my preface. It is not available in the Government Printing Office and I don't propose to make copies of it available to anyone else, but I would be happy to talk to you about it later if you'd like.

Now, let me see if I can provide some evidence to support what I said earlier was my concern - or our concern. In a broad context, what I will be saying to you or relating to you is a perception that our conventional forces, at least, may not be prepared to fight a war with Soviet Pact forces in Western Europe or elsewhere perhaps, or to sustain themselves in combat for any reasonable time. It is particularly important that you should understand that in preparing this material, as I said, I was a non-expert. I have relied exclusively - 100 percent - on data available to the public, furnished by experts (my definition) through the Congressional Record, various documents available in the Library of Congress, Janes Fighting Ships and various other similar documents of some authority, and publications of various defense analysts, all unclassified. There is not one whit of information that I have that is mine. There's not a word from this point forward that has not been plagiarized from some other source, no matter how it is said to you....and if necessary, I could provide the references.

The reason I emphasize this so is that one need not be a member of an industry that supports or supplies the Defense establishment to become concerned. One has only to be alert, not even to the extent that I've been because in preparing to come here today I obviously had to spend at least a very brief period of time in assessing what has happened over some period of years. But this could be obtained from one fiscal year's report to a half-dozen committees of the Congress. Even an imbecile in the United States today has to come to the conclusion that we have some very serious problems if, in fact, the experts know what they're talking about, and I suspect that they do.

Way back many, many years ago, the story was much as it is today. But to give it some currency, let's say that early in this decade warnings on the deteriorating state of our armed forces were being voiced by the Secretary of Defense, then Melvin Laird, and the Chairman of the Joint Chiefs, Admiral Moore, in appearances before the Armed Services Committees of the House and Senate.

On the 4th of March, 1971, Secretary Laird said, "Today the operational readiness of the Army's active forces is lower than we would like." I always thought that Secretary Laird was a very polite person. This statement is not only polite, it's quite undramatic. It understates the then situation. It was the beginning, though, of what you might call current bad news. And then he goes on to say, "This has been brought about by the severe imbalances stemming from the one-year tour in Vietnam and by the heavy procurement requirements that were needed for Vietnam, both to support our own Army units there and to help equip South Vietnamese units. Army forces outside Vietnam simply have not been supported as well as those in Vietnam." I don't call that a terribly profound statement. It simply is the beginning of calling attention to what goes on and on.

Admiral Moore said, about a week or two later, on March 15, 1971, "In this connection, the fiscal 72 defense budget gives particular attention to the improvement of the readiness of our active land forces." Secretary Laird described in his statement, "A major effort is now being made to provide combat serviceable equipment for the Army Reserve forces." Sort of like they discovered something. "However, it will take some time before the accumulated deficiencies resulting from the draw downs to support the war in Southeast Asia can be eliminated." As you will see, as we continue on, it has never been eliminated. Since then and continuing through 1970, the whole decade, we have heard repeated warnings of the deterioration of the materiel readiness of our armed forces made by numerous other experts - senior Defense Department officials - in appearances before congressional committees. I don't really believe that many people understand what an accumulation of these statements before the Congress really sounds like, but it is some bad.

These statements also clearly show that while deficiencies in materiel readiness have been recognized, there has been little change in the overall situation. For example, by the middle of the decade, the problem of readiness of our armed forces was of concern to everyone in town, including one of our long and dear and great friends, recently deceased General George Brown, who was then Chairman of the Joint Chiefs, as indicated by a statement that he made before the Armed Services Committee on the military posture for fiscal 76. He said, "The materiel readiness of our armed forces remains below desired levels." You notice how everyone is polite when speaking to Congress for one reason or another. "Below desired levels." What he really would probably have preferred to say was that the "situation is crappy." "Our materiel deficiencies are the cumulative result of many years of constrained funding for materiel requirements, especially during our protracted active involvement in Southeast Asia and its associated attrition of equipment, draw down of stock piles, and the tempo of operations

which militated against proper equipment maintenance." He goes on to say, "Materiel readiness properly should have improved in the period since our direct involvement in Southeast Asia ended. However, in spite of the efforts of the military departments, materiel readiness remains a major problem due to austere funding, the energy crisis, and unprogrammed materiel demands for support of allies."

Among those who made accurate statements with a minor amount of punch, at least, that came about as close as any that I saw for a while because he emphasized that it is because of austere funding, the energy crisis, which spread their money around in a different way, and unprogrammed materiel demands for the support of our allies.

The procurement account of the annual Defense budgets has been kept at a low level since the end of the Vietnam war. It sounds like I said that. The fact is, I didn't. I picked that up some place. As a result, few new major items of equipment have entered the production phase, and these at stretched-out rates. Other new items of equipment have been kept in the development phase for long periods because there just wasn't money in the procurement account to finance their production. The total Defense budget, excluding military retirement, averaged, during the 60's, \$150 billion. This is in constant '81 dollars. In the 1970-1972 time period, it was \$150 to \$120 billion. It dropped off there pretty badly. And then from 1972 to 1979, it was an overall of somewhere between \$120 and \$125 billion. But there has been a drop in constant '81 dollars over the period between the 60's and now of about 20 percent. But the investment account, R&D, T&E, procurement and military construction, which was about \$60 billion in fiscal 81 dollars in 1960 is now about \$45 billion, a drop of about 25 percent. I don't think that anything will ever be cheaper than it is today and it was a lot cheaper in 1960. It's pretty obvious, I think, that in constant dollars, we're just buying less now than we were capable of buying some time ago.

There have been some significant events. There has been a shift in the order of priorities for federal spending and it has been used to excuse a decline in real terms in budgets for DOD in the decade of the 70's. You are, of course, familiar with this and we all vote for the people who support this sort of thing. But their argument is that there is only so much money and they have been spreading it differently. In 1960, national defense was 49 percent or so of the budget and now it's 23 percent and income security was 19 and now it's 34 percent. Health was less than 1 percent and now it's more than 10. The only two things that have gone down are national defense and veterans' budgets in that period of time. There have been increased personnel and operating costs, caused predominantly by fuel costs, which have caused further reductions in funds available for investment. Everybody is familiar with the fact, I am sure, that in fiscal '64, the cost per military

person, active, was \$4,500. In fiscal 81, it's \$18,600. That is in constant 81 dollars. It's a whopping big number. Reductions in investment accounts caused programs and development to be stretched out, reoriented, and cancelled. The main battle tank and the B-1 are two of the better known examples. In the same period, the Soviets have been steadily increasing their spending on T&E and procurement until currently their rate of investment is well above that of the United States. It is estimated that the total military expenditure in the USSR has grown at a rate of 3.2 percent and for military investment, it has grown at 4 percent, and now stands at \$85 billion, where ours is at \$45.

A point. Following the Korean war, the US entered an era of aggressive build-up of military forces with heavy emphasis on strategic forces, while the Soviets concentrated on defense of the homeland. As a result of the embarrassment of the Cuban crisis, the USSR began to concentrate on the massive build-up of its strategic forces, plus development of a capability for power projection which included building a massive blue water Navy and massive conventional forces with modern weapons. You know what has happened here. Our engagement in Southeast Asia deterred our own modernization activities and the state of readiness of our forces began to decline vis-a-vis the USSR. As a result of public pressures created by the heavy cost of Southeast Asia, the US began to curtail its spending for national security, while our principal adversary continued spending heavily. I'm not sure that the public believes that we should spend the money the way we're spending it. The Congress seems to have a mind set that produces this sort of thing. I'm not sure because I've never known anyone, or very few people ever bring it up when they're running for election. You'll find a few people who are very strong on this. But very few people go out and knock it. I never heard of anyone being defeated. I'd like to hear of someone being defeated because he did not vote for an appropriation.

Another factor is that even though we're spending less than the USSR, we're spending a lot more than some of our allies whose collective GNP is now greater than ours. Comparison of defense expenditures as a percent of GNP in 79 were 5.2 for the US, 3.6 for NATO Europe, 1.8 for Canada, 4.3 for total NATO and somewhere between 12 and 14 percent in the USSR. If you start comparing the resources that we presently have, beginning with manpower, of course, which is incomparable, we can't, I suppose, really make an effective manpower comparison with the USSR. It can be done but it doesn't lead you anyplace. We simply have to give up in that category. If it's ever hopeless, it's hopeless there. There is zero prospect, in my opinion (I didn't pick this up from the Congressional Record) - zero prospect that we are ever going to get 4.4 million active duty military. That's what they've got. We've got 2.1 million. They've got 8 in the reserves and we've got a little over 1. So we start out, as I said at the beginning, dragging one foot. We don't have the strength that we need now

which is less than half of the armed forces of the USSR. If we could get even to today's authorized strength with some feeling of security for the next six months, we'd have made great progress. In strategic forces we still have an advantage in warheads, at least. The Soviets have an advantage in throw weight and they are continually modernizing their forces. I don't know anything about this topic, particularly, except what I have read about it in the negotiations towards SALT I and SALT II. I would imagine that there are people who are concerned the viability of our force against the USSR, but I think that most people conveniently believe that we have at least some sort of parity there. In submarine-launched missiles, they have twice as many platforms and 50 more missiles, while we have a very substantial advantage in the number of warheads. In strategic bombers we have a clear advantage in numbers. We have some difficulty once in awhile in this country trying to determine what is and what is not a strategic bomber in the USSR. We don't have any trouble in determining which are and which are not in this country, because for practical purposes we only have one, plus a few FB-111's. It reminds me of a story that was told by a Chief of the Air Force some years ago, whose name I'm not going to use, when describing a visit to the White House to see the President. All the Chiefs went over once a week in those days and each of them had a chance to talk about what was going on in Southeast Asia and what we should do. When he told the story he said he had been there a few days before for the fourth time in less than a month. On the first visit, when it came his turn to speak, he told the President that "what we ought to do is to break out the B-52's and really sack it to them." He said, "There's no question we can do it. We are ready and all we need is the signal." The second time when it came his turn to talk, same deal - "Mr. President, if I were you I'd break out the B-52's and really lay it on them." Third time - same story. "Mr. President, we can end this thing quickly. We'll just use the B-52's and get in there and really give it to them. That's the answer." On the fourth occasion he said, "When it came my turn to talk, the President looked at me and said, 'General, I know exactly what you think. And if I should ever decide to bomb North Vietnam with the B-52's, as you suggest, you, sir, may have the privilege of leading the whole bomber force.'" And he said, "When I go back next week, I do not propose to bring up that tactic as a mechanism for solving the problems in Southeast Asia." I only mention that to point out that it doesn't matter much what we've got unless we're prepared to use it, and in some cases we certainly have not.

In conventional forces we are well aware of the fact that in tanks we're outnumbered by almost 5 to 1. In light weight armor, by 4 to 1, in artillery 5 to 1, in mortars 3 to 1, theater nuclear forces 5 to 1, air defense missiles 3 to 1, air defense guns 4 to 1. It's a big number. And I'm only comparing us with the USSR. What is more difficult, of course, is to admit that in many cases we're having a terrible time keeping that which we have maintained to the point of decent use.

We mentioned earlier that the USSR has gone into a massive build-up in a blue Navy and surely it has. We still have a very major advantage in carriers and depending upon whose numbers I see - and I've seen two sets of numbers - we're maybe a push in destroyers. In all other classes of ships we are growing further and further behind. We have some advantages and disadvantages in some other areas. We outnumber them in helicopters and in fixed wing strategic aircraft, as I mentioned. But our war reserves of major assets - ammunition and repair parts - are well below force requirements for even a short war and our allies are in even worse shape. There's a lot of evidence to this effect. There have been several studies conducted by a number of quite illustrious military officers in the last few years which suggest that in ammunition stocks alone we are dreadfully below par. We have large stocks of unserviceable equipment awaiting overhaul and ammunition requiring renovation. The Secretary of the Air Force and the Chief of Staff of the Air Force in their report to Congress in February 1980, stated that "In addition to these operational problems we face materiel readiness deficiencies that are of grave concern. Out maintenance activities continue to be complicated by inadequate inventories of support equipment and spare parts, as well as by backlogs of equipment awaiting depot-level maintenance. These supportability problems, when coupled with shortages of war reserve materiel, to include spare parts and munitions, seriously detract from our ability to sustain combat." It's another polite statement, but it's a part of the litany. It's been going on now for more than 10 years.

The funding shortfalls of the 70's, plus a decision to use CONUS-based readiness forces materiel for POMCUS resulted in aggravating the readiness and modernization efforts of the services. Plus the shortage of replenishment spares which have reached monumental proportion. The Air Force cannibalized older but still usable aircraft to keep their newer aircraft, like A-7's and A-4's, operational. And the Army performed a similar practice with its armored combat vehicles and helicopters. By the middle of the 70's, as many as 70 naval platforms, or about 15 percent of the active fleet, was in the backlog of ships overdue for scheduled overhauls. And numerous ships scheduled for retirement remained operational beyond their useful lives. There is even a report, which I had never seen before, called Cannibalization Per 100 Sorties. In one case, the number is more than half the sorties - in 100 sorties, there were 70 cannibalizations in one aircraft type.

Our strategy calls for heavy and rapid deployment of forces and materiel to Europe with only a short warning time and we are deficient in air and sealift capabilities. I'm sure I'm telling you things that you're tired of hearing, but it is an essential piece of the background if you're going to talk about the problem. To compensate for this deficiency, three division sets of mobile material are being forward based in central Europe to fill the gap until the next generation rapid deployment forces can be fielded.

In modern warfare we must rely on strategic airlift for resupplying during at least the M plus 12-day period to augment POMCUS. During the first 33 days of the Yom Kippur crisis in 1973, October 6th to about mid-November, 70 C-5A's and 234 C-141's flew 22,395 tons of equipment from the East Coast to Israel, and it took 85 percent of the strategic airlift capability to do it. The first ship to drop anchor delivered more outsized cargo than all the aircraft combined, but unfortunately the war had ended. The increased size and weight of the Army's main firepower equipment makes the task of resupplying our forces approach the impossible. Comparatively speaking, we've got a fairly significant strategic airlift capability. The point I'm trying to make is that in one small engagement in which we were not even a factor, practically speaking, it used nearly all of it. Secretary Schlesinger, in his annual Defense Department report on fiscal '76 said the following: "Unfortunately, however, it is not possible to state with confidence that we have a high degree of readiness in our non-nuclear forces today." I just love the language. I had to smile every time I read one of these things. There are several ways to tell the story, but to be polite about it is not one of the best ways to get attention. And to say that unfortunately, however it is not possible to state with confidence that we have a high degree of readiness in our non-nuclear forces today -

"The Arab-Israeli war was so short" (that's the only complaint I've ever heard about it) "and consumption rates of equipment and supplies so high that for all practical purposes it was fought out of inventories. But as we have subsequently discovered, with some pain, inventories must be replenished from a production base. And that base should have the skills, diversity and responsiveness to supply these needs in a timely fashion. Otherwise, the readiness that we require simply cannot be adequately maintained."

Now, ordinarily I gave Secretary Schlesinger credit for being fairly straightforward and direct and that was about as indirect a statement on the problem as I have read. "I noted that last year," he says, "in addition to continued equipment modernization we now need to improve substantially the materiel readiness of our land forces, including the replacement of assets provided to other nations. Further study of our inventory objectives in the light of the recent Middle East war has convinced us that in many cases we have been underestimating wartime attrition and consumption rates. Moreover, the unanticipated needs of our friends and allies abroad have resulted in a serious breakdown of stocks of many key items of land forces equipment and consumables and to make matters worse, we have permitted our industrial base to deteriorate to the point where we are now experiencing great difficulty in expanding production of some major items of equipment to meet these increased requirements."

Well, I think he's really more alert than that suggests because that story is kind of an old story at this point. I don't think that there's anybody engaged in the act of supporting the Department of Defense who does not consider that to be the most important business of his life. But, the fact is that the industrial base has not been attended to much of late and it is becoming an increasingly more serious problem. I don't know when we're going to see some of that blue water Navy of the Russians, which would threaten our sealines of communication in a very serious way just now - and embarrass us. God knows we've been embarrassed enough times in recent years to last for the rest of my life and I'm getting kind of old. It's a serious situation.

During the past decade the USSR has engaged in a very aggressive new ship construction program while a major portion of the once powerful U.S. fleet has been retired and new construction held to a low replacement rate. U.S. combatants declined from 500 to 360 in this period of time. The Soviets, I think, now hold about a 3 to 1 advantage. They've also acquired an impressive capability for chemical and biological warfare. We have a very limited defense capability and virtually a zero offensive capability. The Soviet and pact nations have demonstrated a capability of cooperating in a CW-BW environment, at least during maneuvers. The U.S. has completely abrogated its development programs related to offensive weapons and its status in the defensive environment is so poor that in certain cases there are no existing suppliers for critical items of protective clothing. We are pre-positioning several division sets of Army equipment in Europe, but the hardware is being taken out of the already short Army stocks without replacement. Further, these division sets will be vulnerable and if they're destroyed before the arrival of the divisions from the U.S., of course, the effect would be utterly, incomparably disastrous. But it does compensate, to a degree, for our lack of ability to maintain a sufficient level of strategic and tactical airlift capability. However, as force modernization programs are delayed in transitioning from R&D into production, as in the case of the XM-1 tank, the infantry fighting vehicle, and other increased fire power materiel, CONUS-based readiness units are being depleted of their materiel as the older equipment production lines are closed. With the ever increasing imbalance of forces in central Europe, the forward based materiel becomes more vulnerable.

Despite the overwhelming Soviet air superiority in western Europe, the air defense systems, which have been in R&D in the United States, are moving very slowly, if at all, toward production. Despite the increasing deployment of Soviet air power in central Europe, along with modern air defenses, the U. S. seems to be dragging its feet on modernizing in a variety of circumstances. As presently planned, the production of newer, more capable systems are being deferred and reduced in quantity while older and less capable air defense systems are undergoing product improvement to maintain their original level of lethality against

threats that no longer exist. The much advertised increases in defense spending during recent years has been literally eaten up by inflation. It's a scary subject because the point spread is somewhere between 3-1/2 and 4-1/2. The error in judgement over a sustained period of years is disappearing. It evaporates. Just like your pay.

During the latter part of the past decade, DOD programs suffered as a result of the use of optimistic inflation forecasts. While their intent was good, I suppose, in that it supported real growth during the budget planning cycle, history proves that the guidance regarding inflation was so optimistic that practically speaking, no real growth was achieved in any category.

Secretary Brown said in his annual report for fiscal year 79, "I should emphasize that while the prospect for short, intense wars makes it necessary to have our own main conventional forces in being, that alone is not sufficient. We must also maintain a high level of readiness in our active forces. Otherwise, we will have the facade rather than the reality of collective security. I consider our forces to be ready when they are well-trained, have modern unit equipment, in good operating order, hold war reserve stocks from which they can draw for the early stages of any conflict, and are capable of timely response to crises. Unfortunately, I cannot report" (this is another one of those polite statements) "that our forces by this definition are as ready as I would like them to be."

I really have the feeling that for some long period of time we have been preaching to the choir. We are part of the choir. I have found zero evidence in any Administration, no matter who may have been the Secretary of Defense, or the Chairman of the Joint Chiefs, or any of the Chiefs, that the military establishment has failed to reveal the existence of a shortfall in most important categories. I must say that I don't think that in any case I have heard anything more than the most polite, delicate language used to do it. I don't know what restraints one is under. I suppose to become more vocal and vociferous and to hook them up in series, as it were, when you go to Congress might cause one's superior to look with disfavor on promotion opportunity. But that's no excuse for the civilians who are in the business, whose life is fore-ordained to end with an Administration change, which inevitably has got to happen someplace along the line. Somebody has got to call a spade a spade. We're not doing that at the moment, it seems to me, and if we are correct in the assumptions, if the experts are correct in their assessments of where we stand today, we have a major problem with the 535 people on Capitol Hill. That's where it's stopping, generally speaking. There isn't always the greatest support, either, in the White House and the Executive Department. But it's been known that the Congress can override the White House on occasion. Something is wrong with our ability to communicate. We simply aren't getting the message through to

the people as well as we ought. Somehow or other we have to get the communication system tuned up to the point where we are on a harmonic that will let the people really hear what's being said.

Joseph Berney

Thank you, Tom. Our next speaker is a member of the Board of Directors of ADPA, Robert A. Fuhrman. Robert Fuhrman joined Lockheed in 1958, moved successively through that organization, and is now Chairman and President, Lockheed Missile and Space Company, and Senior Vice President of Lockheed Corporation. His subject, Industrial Base Readiness.

Robert A. Fuhrman

Ladies and gentlemen. Tom's a tough act to follow, but he has given us, I think, a good, concise view of the state of readiness of our defense forces, including those pabulum-type statements that come out of the five-sided palace. Although I can agree that this country has a reasonable, but I think deteriorating strategic nuclear posture, compared to the Soviet Bloc, our ability to deploy and sustain even modest forces, let alone conduct a protracted conventional war, I think is very poor. Some of these people who leave the Pentagon seem to get a little more positive after they leave and I noticed in the Washington Post this morning that Jim Schlesinger talked in an article about "rapid? deployment? force?" and I think there's probably a little truth in that. It may not be rapid, it may not be quickly deployable, and I guess there's some question about the value of that force or the readiness, certainly, of that force.

In the past, the production capability of the U. S. has been able to provide our armed services and our allies with more than enough material to help assure success. Today, however, we find that our services are hard pressed to equip themselves fully. Certainly, terribly hard pressed to quickly replace equipment transferred to our allies...I think Tom explained that one very well...and to maintain the active units at a reasonably high state of readiness - and I say reasonably.

I'd like to take a few minutes to make some observations on what has been and is happening to our defense industry that appears to be making it so difficult to sustain our defense readiness. Many individuals in the Defense Department, throughout the defense industry I do think are sincerely concerned about the present ability of our industry. Just in the past two months I had the opportunity to chair a task force of the Defense Science Board that studied the question of industrial responsiveness and that Board was set up because of concerns by Dr. Brown and Dr. Perry. The formal DSB report hasn't yet been published, but since we did present some of the more important results and recommendations at an open session of the House Armed Services Committee last week, today I'd like to use some of the information considered

by that task force in our discussion of this industrial responsiveness.

The readiness of the industrial base to provide the needs of our armed forces is not good. Data from that DSB study highlights some of the symptoms of the industry's problems in terms of lead time and cost. For instance, between 1976 and 1980, the lead time for aluminum forging increased six-fold, from 20 to 120 weeks. From 1977 to 1980, the lead time for typical aircraft engines went from 86 to 168 weeks, just about double. In the last two years, the time required to get delivery of integrated circuits has more than doubled. The problems of lead time are not being solved by the defense priority system. We don't show it here, but actually we have cases in this report that represent both DX and DO priorities and it doesn't seem to make much difference which ones they are. So the priority system is apparently not being invoked uniformly in order to secure the raw materials and supplies. This is particularly true, we find, at the lower tiers. Perhaps this is due to the manufacturers' own reluctance to divert critical materials from their more favorable commercial programs. But I really think it's because we don't have a consistent way of applying this defense priority system throughout our industry.

The increasing costs of defense material also has been noted. And these cost increases in the past year have been much greater than the general inflation rate, as defined by OMB, or even as measured by the Consumer Price Index. For instance, in the past year the cost of a typical spacecraft increased 25 percent and the cost of an aircraft radar went up 23 percent. OMB guidelines that were given to Defense for their planning at the same time ran about 9 to 9-1/2 percent. In each case, the cost was for an identical unit and for comparable quantities. What is more disturbing is to note that while these price increases at the system level are serious, they tend to mask what is taking place at the subsystem, component, and materiel level. Microwave tubes went up 30 percent. Electrical connectors, aircraft electrical connectors specifically, 170 percent. Nonferrous metals, 86 percent. Molybdenum, 267 percent. As these raw materials and parts price increases work their way through the pipeline, the pressure on the price of the end items is obviously severe. These price and lead time data are not isolated cases. We had data from four major prime contractors and about six different systems and they were all typical of these numbers.

These increases in lead times and prices may explain partially why our military forces are having difficulty obtaining the materiel required to properly equip and maintain themselves at some reasonable state of readiness. But the statistics do not explain why industry is having such a hard time producing the required hardware in a timely and economical manner. I think there are many reasons for industry's problems and let me mention a few, probably interrelated factors. In fact, I assure you they

are interrelated. First is the very character of the defense industry itself, the fact that it has changed. Second, the productivity improvements of the industry which I think are lagging. Third, the subtier supplier base is shrinking. And finally, there is a serious shortage of skilled manpower. Now, some of these are real problems - I think the shortage of manpower is one. I think the others are, in fact, problems, but I want to emphasize I think there is still an industry out there. I just don't think it wants to participate in the defense business in the same way it has in the past.

I want to make a few comments on each of the aspects of the overall defense industrial base. Many of us refer to the defense industry, certainly in this country, as some sort of monolithic entity. But there are relatively few firms totally devoted to defense matters. Over the past 10 to 20 years, most companies supplying defense hardware have become multi-customer, multi-product firms. These companies, in the interest of their shareholders, often find non-defense business more attractive than defense business. The result is that defense must compete for management talent, facilities, skilled labor, and capital. Quite often in today's economic environment the high risk-low margin defense business comes out second best.

Let me use the electronics industry as an example. In the aggregate, defense business accounts for less than 10 percent of their total business. The rapid advances in the electronics state-of-the-art require that these companies invest substantial funds in their new products and in new facilities, if they are going to continue to grow. But the generally low quantities, the instability of defense funding, and the relatively low margins allowed on the defense contracts make it difficult to justify major investments in specialized defense production facilities. The amalgamation of defense and non-defense business in the individual companies requires that investment decisions be made in favor of those business opportunities offering the best return on investment with a reasonable stability and a moderately low risk.

With foreign cars, foreign TV sets, and foreign materials making major inroads into the U. S. markets, a great deal of attention has been directed to the productivity of U. S. manufacturing. The rate of productivity increase in the United States is well below that of other countries and is hurting the defense industry as well as all other industries. The productivity lag is generally attributed to the low rate of investment in new plants and equipment. In Japan, for example, some 16 percent of the GNP is invested in capital improvements, whereas the U. S. percent of the GNP so invested is only about 7-1/2 percent. The story doesn't really end there. The investment in what we're concerned about, I say, is even lower. Although this shows a positive increase in U. S. productivity, and obviously we're not talking absolute values, we're only talking rates of change, in

the last year we could say that the U. S. productivity has probably actually gone negative.

If we consider aerospace as fairly representative of the defense industry, the problem here is to get data, the companies in the defense sector have been investing at even less than those in the non-defense sector in capital improvements. In aerospace we have been investing over the last 10 years roughly at about 50 percent of U. S. manufacturing industry in total, but more shocking is that U. S. manufacturing has been investing at roughly 50 percent or 60 percent of all U. S. industry. That says something else about U. S. economy. We're starting to invest more in service industries than we are in manufacturing industries. That's a national problem. We did talk to that some in the DSB report and I think we are getting interest in that subject in Congress. I think it is reasonable to conclude that the defense industry's productivity improvements are, indeed, lagging and must be improved and this will require large infusions of capital. Then the question is going to be, where does that capital come from? By the way, that recent upturn in aerospace, when you examine it, appears to be investment in the commercial airplane business in the last couple of years.

Companies in the defense sector are probably reluctant to invest in productivity improvement for a variety of reasons. The instability of defense programs is a major cause. That instability is, in turn, further aggravated by those unrealistic low inflation assumptions that Tom mentioned earlier. They are made when budgets are planned and they relate back to those OMB planning factors or something like that. But when annual appropriations are fixed, the real inflation requires that DOD stretch out its procurement, resulting in still lower and less economic production rates and still higher unit costs, ending in a situation where other where other than perhaps in a few of the strategic programs there is almost no defense equipment procured at even a reasonably efficient production rate.

In the case of new systems under development, the instability of the defense budget keeps deferring the decision to put a new item into production. And I think industry is understandably reluctant to invest in new efficient production equipment and processes when it is not confident when or if there will be an adequate production run to provide a payback on the investment. The defense industry's productivity improvements are probably going to continue to lag until ways are found to substantially improve the industry's capitalization and to gain a level of program stability and financial attractiveness that warrants major productivity investments.

The state of industry's readiness to support our defense needs varies throughout the industry. It is more critical,

however, at the subtier level than at the prime contractor level. Here we find a shrinkage of the vital supplier base that is eroding our ability to maintain current production schedules, let alone provide any surge capability. Again, some of the task force data, I think, will help to illustrate the problem.

In one large program, the task force found there was a turnover of about 1500 suppliers out of a total of about 6,000 in one year. In other words, a 25 percent loss of the supplier base in one year. Now, new people for sure came in, but you lost experience. In another case, a very large aircraft program, the prime contractor was able to get bids from only 60 percent of the companies who responded to his solicitations compared to the prior year. The reasons for that drying up of the subcontractors and suppliers interested in defense business, I am sure is varied. Many are experiencing difficulty in raising the capital required to effectively compete, because it does cost. Some have gone bankrupt. Some find the numerous health, safety, and environmental standards beyond their economic means and they close up shop. We found that was particularly true in the small castings business. Still others, because of their size, again usually small size, object to the extensive documentation, reporting, and surveillance requirements associated with a defense contract. But whatever the individual cause, the fact remains that the sources of supply to the prime contractors are becoming more limited. This, in turn, limits the production capacity and in the face of any increasing demand, it has a strong adverse affect on costs.

In spite of our current recession and its attendant, highly local unemployment problems, there remains a shortage of skilled labor required by the defense industry. We are all aware, because we read about it and see it every day, of the shortage of scientists and engineers and the intense competition we have for the available supply. But our task force again found that the nation is going to be short some 250,000 machinists over the next five years with no apparent program to solve that problem. Now that kind of manpower problem limits the industry's ability to expand production and it also exerts a constant upward pressure on costs. The people shortage, plus pure economics, is creating a third hazard regarding our defense readiness. To alleviate the skill shortages and for purely economic reasons, U. S. electronic companies, as an example, are going offshore. Today, though they are producing wafers in this country for the semi-conductor industry, they are sending them overseas, particularly to the Far East, for subsequent assembly and test operations. We are consequently becoming almost completely dependent on offshore producers and therefore vulnerable to potential political instabilities which could disrupt the necessary flow of critical components. In some cases, we have no capability in this country to produce defense electronic components.

The aspects of the defense industry that I have enumerated, its multi-product, multi-market character, its reluctance to make substantial investments to improve productivity, the shrinkage of the supplier base, and that persistent shortage of skilled manpower all add up to the indication that the industrial structure is hard pressed to meet the current needs of the defense establishment and obviously is ill prepared to respond quickly to meet emergency or any kind of surge situation.

Our industries and the defense departments, for that matter, preparedness planning or surge program I consider largely ineffectual. For one thing, we don't know what to plan for. The products to be considered for surge production are not well-defined. There is nothing in the preparedness planning system that really encourages either a government or an industry commitment to realism in the planning. Today we talk about providing surge capability for some 6,000 end items. With just lip service being paid to it, I say that list is way too large and the funding is non-existent to do anything. Consequently, industrial preparedness is largely talk with very little substance.

I'm afraid that Tom Pownall and I have painted a pretty grim picture of the state of preparedness of our conventional forces, certainly in our defense industry's ability to support the needs of those forces. I do believe there is cause for concern but not dismay. U. S. industry, given the right environment, can improve its productivity. It can produce the necessary equipment. It can provide a surge capability. The problems are surmountable. The solutions, however, will require resolve, an improved stability in defense programs, and a more attractive defense procurement environment. I note that subsequent panels are scheduled to discuss some of the possible solutions and I don't presume to have even part of or all the answers. However, because I don't want to conclude my remarks on a totally pessimistic note, I do want to suggest some thoughts for your consideration. First, the lack of readiness and the urgent need to provide our troops with adequate supplies to sustain them in the early phases of any conflict may well mean a reordering of our defense priorities. Perhaps for too long we have placed our reliance on just new equipment development, rather than on the quantities of ready equipment that are needed for our forces. Perhaps if our defense budgets cannot be substantially increased, and as Tom said, they are really not being increased at all in the face of inflation, it's going to be necessary to slow down some of the development of the more exotic weapons and devote more of our resources to the production and improvement of our current systems, and with that the essential maintenance, repair, and war reserve stocks which are in pitiful shape. We must improve the productivity of our industries. We must develop government policies that will provide a real incentive to provide greater investment in modern tools, facilities and labor-saving processes. Creating that favorable investment climate may require a significant

revision to our tax structure. For example, more rapid write-offs of new equipment and perhaps direct government financing of standby or surge productive capacity. But I like to remind people that Japan allows 95 percent write-off on like equipment in the first year. We're talking of perhaps getting a five-year write-off. Both the government and industry must face the problem of skill shortages. Jobs are going begging at a time of high unemployment because people have not been trained in the needed skills. We need to establish policies that make it more advantageous to acquire and apply a needed skill than to turn to the welfare office. Given the policy framework, all of us must be sure that we've got the required instructors and training facilities and that they're wisely operated. Given a suitable investment environment and the trained labor force, we must try to make defense production as rewarding and efficient as commercial production. This may necessitate changing some defense procurement policies, removing or relaxing some of the reporting requirements and other regulations that are objectionable, certainly to some of the lower tiers.

I think all of these suggestions are going to require resources. In today's environment, with its conflicting socioeconomic and national security needs and the taxpayers' natural resistance, it is obvious that our national leaders, especially our elected representatives, must make some very difficult priority decisions. Too often, I think, we all look to Washington for leadership without helping enough to create the political environment that facilitates the Administration in congressional actions required. I think our government does respond, perhaps ponderously, to public views. I believe that organizations that are concerned with defense issues, organizations like ADPA, can do much more to bring about a public consensus regarding our defense needs. Through perhaps ADPA's national chapter network, we should be trying to address local business and taxpayer groups and associations regarding the status of our preparedness and the cost of an adequate defense system. I really do think that an informed public will respond in such a way that the government and defense industry can proceed to provide this nation with the security that it must have.

SESSION II

DEFENSE OVERVIEW

Joseph Berney

Session II of our meeting will be the defense overview of the problems of this symposium. Before introducing our next speaker, I'd like to take a couple of moments, if I might, and try to provide some type of transition between our morning comments and those that will now commence. I thought they were excellent presentations. But one observation that I have had has been that the continuity of expressions of concern raised by Joint Chiefs Chairmen and the Secretary of Defense, dating all the way back to 1971, brings to mind a personal experience that I have had, because I've had the opportunity to go to the Orient on several occasions and to negotiate with those that represent a different culture from ours. I found early on in those visits that all too often in response to business proposals that we would make, the other side would greet the information with the word, "yes." I thought "yes" meant that we had an agreement. I then found out that "yes" means they've heard us. I genuinely believe that when the Secretary of Defense or the Chairman of the Joint Chiefs talks about the inadequacies of our materiel status, understated as it is, talks about the deterioration of our industrial base and the loss of our war reserve stock capability, understated as it is, it is a sincere expression of the problem. But until the dollars come into the budget requests so that Congress must take a position on these areas of concern by accepting those dollars or rejecting those dollars, all we will get is a continuity of "yes" - not meaning that they agree and not faced with the problems of disagreement, but yes, they have heard and they are entrusting our senior defense officials to correct those problems. You don't correct those problems until you put dollars on them.

This is the lead in for the opportunity to introduce our next speaker, a man who has broad experience, a man who has listened to industry, a man who has been a part of industry. After receiving his Ph.D. in physics, he entered the U. S. Navy, became a Commander during the second world war, had executive positions in U. S. industry, returned to the Navy, and then to NATO, serving our country, became our Under Secretary of the Army, and on September 14, 1979, became Principal Deputy Under Secretary of Defense for Research and Engineering. It is a real pleasure at this point to introduce to you our speaker, Doctor Walter LaBerge, who will discuss the defense program to achieve materiel and industrial readiness.

Doctor Walter B. LaBerge

Many of you are good friends. A very large number of you have been to my office in the various positions I have had. We have had a chance to interchange information, with both my staff and myself trying to give you an understanding of where we were on various positions and where we were likely to be in the future on upcoming issues. In the same way, we have genuinely solicited an opinion from you and such actions as you were willing to take which bore on the problems that we considered most important. That relationship has been very close. The relationship with the ADPA has been very close and as close relationships sometimes permit, it is possible for people to be rather more forthright with each other than one is not friendly.

So for a little while - and in a half-hour, one can really not talk too many different issues - I'd like to give you some candid views of the problems in readiness as I see them, talking primarily to the ones of greatest importance to me and, I think, the greatest importance to the Department of Defense, and to comment on some strengths, but perhaps mostly on shortcomings of the relationship that we currently have between the military leadership and its industrial complex. So if you would permit me, I would use the friendship that we have as a basis for friends hearing how one really feels rather than hearing a bunch of statistics. And if you might, I would do that with you. I have only one chart and we will decide during the course of things if that's really worth showing. But that's the extent of the formality of the discussion.

Let me start by saying that the issues that I'd like to talk to are really, as the program says, military readiness, industrial responsiveness, and industrial preparedness. I'd like to talk to them together because they clearly are linked.

With respect to military readiness, there is a very substantial serious effort as a first priority to get the readiness of the United States Forces to a level beyond that which they are today. The credibility of our deterrence is, I think, clearly a question of now rather than a question of the future. The question of our future deterrence, of course, depends on what we do today in providing for tomorrow. But the world situation is such that we need today a deterrence of substance and that deterrence can only come if the belief on the Soviets' parts are that we can intervene substantially and that can only come if, in fact, there is a reality that we could intervene in substance. And so we are making a major shift in the effort of the Department of Defense as seen by its budget to work the problem of readiness. I think most of you are familiar with the issue of the relative proportions of the monies we spend. We put about 10 percent into research and development and engineering for production, about 25 percent into production itself, and the remainder into paying for people and for

paying for the support of the systems as they are in the field. We are making a shift of the order of 10 percent, about \$5 billion shift from modernization over to readiness items over the next year or so - very substantial. Most of you who run businesses are aware of how hard it is to make major shifts within them. Ten percent seems like a fairly small change, but the momentum of any business is such that to make a 10 percent change in it is virtually like going out of business and starting all over again. I think we have wrenched the system about as hard as we know how to do. It is leading, in our 1982 planning, to some very substantial difficulties because in order to get the money for readiness we are finding that we cannot do all of the modernization things that we thought were possible.

Now lest you say, as my introducer did or as others do to me, "it can all be cured by bringing more money," let me only suggest that as you run your companies you set reasonable levels which are affordable in terms of the health of your company, in terms of modernization, and in terms of assets to current operations. OMB, the President, and others have set some general guidelines for what is a reasonable amount of money to spend and that has been endorsed in the main by the Congress. Unless we argue the issue of who is the more profligate spender, it turns out that the Budget Committees and their budget resolutions are in the same general ballpark as to that which is put forward by the President. And so we are talking about how to take advantage of the monies that we have and what should be the relationships and although we can argue for more, more has got to have some basic bounds on it. We have put our emphasis on readiness and it shows up in the preposition materiel that is going over to Europe, the prepositioning materiel that is going to go in ship bottoms for the Marines, it shows up in KC-10's that we are going to buy to transport Infantry to where it needs to go. We are stretching C-141's. We're strengthening the wings on the C-5's. We're about to embark on reengining the KC-135's so that we can tank people as we transport them. So there is a major effort on readiness and I don't think that can be increased very much more. Now, one can talk about localized areas, but it is already a big enough switch to where without a very substantial increase in the budget, we are, I think, making a fairly major effort.

There are some areas, though, that are not being worked on very hard and ones which are probably very important and I'd like to go through just a few of them.

The people issue is the predominant issue with respect to readiness. There is a feeling on the part of most of the service associations of retired people - I get the feeling when I go away even with an organization like this that one ought to bring back the draft and the people problem would go away. I would just contend to you that none of you in your companies are prepared to give the major responsibility for repair and maintenance of your

most sophisticated equipment to people who have been with you only for a few months, people who have had incomplete training, people whose tenure with you will be only a short period. I don't think we can take people from the outside and force them in for a two-year period, perhaps, eighteen months, even, and figure that they're going to be very useful if, for example, in Patriot it takes them 46 months for the skill training which is incomplete at the time they get done. Because, though, we argue the draft issue in the backs of our minds, nobody quite faces up to the issue of how do you in fact solve the manpower problem which is the underpinning of the readiness issue. There are two facets of it, both of which you can be helpful on. One is to make it clear that we are going to have to pay a competitive wage to the young people who come into the services that we have. Large numbers of people support this in occasional ads in newspapers and the like, but if I were to guess the percentage of the time that the lobbyists of each of the companies here spend in convincing the Congress that the competitive wage scale is sensible, that number would be less than 1 percent of your time. But this country needs a pay scale that will encourage people to stay in the service long enough to be productive, long enough to understand their weapons systems, long enough to make them able to maintain the complicated kind of equipment that we are putting out.

The second issue is that we need in the military to rethink the issue of whether or not military only field repair and maintenance is, in fact, a sensible way to go. We are limited by the total number of people that we can reasonably expect to have in our armed forces. We are already talking in terms of needing 30 percent of the male population of this country as it reaches the age of 18. To double that is patently unreasonable in a volunteer system. To expect that to stay in for the 10 years to become really expert is even more unreasonable. So I would believe that we are going to be driven to a program which finds a creative way to get, for example, the technicians from RCA to go repair the CG-47. It's probably going to be just as safe on the CG-47 as it is in Moorestown if we actually get into a major conflict. I think we need to rethink the whole issue of the people business.

One other area that is absolutely obvious is the question of reliability and maintenance. We have a tremendous number of people supporting our equipments in the field. One thing that OSD is doing, and I can swear to each of you we are going to do harder, is to make sure that the equipment that we put into the field works. I would suggest those of you who want to go to school on the current environment in the Pentagon should bone up on the current situation on the Patriot. We went through the desarc process and have essentially decided to allow a low rate production for the purpose of getting the bugs worked out but not

to allow a ramping up of a system we very badly need until we have got the bugs worked out and that system is reliable before we turn on full-scale production. Very, very few times has anyone stood up in front of that kind of juggernaut and made that kind of decision. With respect to the F-18, for example, the program voluntarily, but I think recognizing this mood in the Department of Defense, has recommended and has, in fact, adjusted its production line to put in the fixes which have come out of the flight test program in the early airplanes rather than trying to convince us that we would wait until airplane 200 to get an aircraft which embodied the fixes necessary to make it a useful combat machine.

With respect to reliability, I believe the place is putting the clamps on to get it right before we turn it on into production and that is going to have a very great impact back into our readiness. Let me just cite one example. The Hawk system is alleged to have a lot of problems. That's comparative - you have to compare it to something else. It turns out the Hawk system is very good and we didn't buy enough spare parts for it. That's a problem that we will try to solve. But it's also a system which started off thinking that its internal checks electronically derived for fault-finding would be at the 90 percent level and it turns out to be at about the 30 percent level. So the poor guys who are fixing that thing, who had expected by their training to have a device which showed them where the problems are, are now having to go find the problems themselves. Now with respect to Patriot, Patriot's expecting to get 99 percent of the problems found electrically for the guy who's going to fix it. If we take the Hawk experience of 90 to 30, 99 goes to 35 or 40. And I would just guarantee to you that is not going to happen with that system or any other one that we have coming out. But I think that will have a reasonable impact on our readiness.

One other major area that is being pushed is the issue of training and training devices. It would seem to me that our greatest failure is to believe that a young kid who gets to fire Dragon, for example, once a year at best, is, in the heat of battle, going to stand up, sight that rascal properly and with the artillery raining stuff down on his head, be able to understand how to make this thing work. We need devices that routinely train, that are affordable in a competitive sort of way, people to be able to use under great stress things that up until now they're only trained infrequently on. If I have anything to do about it, and I suspect that I will in one form or another, the issue of training, training devices, and particularly skill refreshing is going to be a major issue, not because of one's like for the technology - and it is a kind of fun technology - but the issue is really how do you get the system ready. So far we have concentrated mostly on the hardware, but in the end, probably from Hannibal and Caesar's time on, the greatest benefits come

to the greatest trained troops, and not necessarily to the ones who are best equipped. So that's where we are going. We could, in fact, use more money. We are, in fact, going to ask for more money in the 82 budget. But we have to get our heads screwed on together as to what the problems are and get working on them and the reliability of the hardware that we provide is a key issue. Now, the industry can be extremely helpful in this. We have a bunch of people who are bedazzled by what your marketing departments tell them might happen, capability-wise, performance-wise, and we have virtually no recourse if what has been promised does not, in point of fact, happen. We need, and we will try to find some incentives, but we also need a management which helps to put a reasonable caution into the things which are proposed so that we have some reasonable expectation of seeing them fulfilled.

With respect to industrial responsiveness, Bob Fuhrman talked to you. He said, as I chatted with him in a slightly different way than what he had prepared for the DSB, which I would hope many of you would have a chance to see. The key issue, though, in responsiveness is to get two things to happen and these are the areas that I suspect we will work on. One is the lead times down and the second is the productivity up. And they are both keyed together. Let me talk to you for a moment about the things that we are doing and then come back to what I think you could well help us do.

We have a major MANTECH program. We have put on the order of \$600 million into manufacturing technology over the last five years. into trying to find ways to encourage greater productivity by ourselves paying for cooperative work with industry on the development of the techniques which are then made available to the industry as a whole. The tasks run about \$500,000 each. There are roughly of the order of 400 a year new tasks being scheduled. We plan to spend over the next five years about \$1,300,000,000 in manufacturing technology issues. And I think that can be very, very helpful. I think we have an excellent program.

But let me size for you the problem. Ford Motor Company will spend more money than it has had in profits since it got started on the changeover of automobiles from its obsolete line that it can't sell to the line it hopes it will sell, of the order of \$13 or \$14 billion next year and over the course of the future years the industry will spend upwards of \$100 billion in tooling over to be competitive. That got wrenched out of their hearts not because the government exhorted them to. It got wrenched out because they were about to go out of business if they didn't. We have no corresponding way to provide productivity improvement in the defense world that we're in. That's my major argument to you - that we together have got to find out what the environment is that allows for productivity to be the primary interest of our defense population.

I know a bunch of you and I've been a part of you and let me just candidly argue that I know that the place the money goes is to develop the business for the future. Once you have a sole source position, you operate ethically, but your spare money doesn't go in saving the government any money. Your money goes in buying the things that the government is going to consider important for the future business that you're in, because that's where your profit comes from. We take away the profit that you get if you lower the cost, we'll next time renegotiate you down to the same fee so you haven't really kept any of the money anyway in terms of reducing your cost. So from my perception we have absolutely no incentive for anybody to improve their productivity after they have won a contract. What I'd like to talk to you about is some of the things we're trying to do to change that.

We have a substantial expectation of changing the legislation so that we can get multi-year contracts. We then can, as part of our selection process, make it competitively important for people to want to have an increased productivity. It is unlikely, though, that we're going to extend out into the 20-year lifetime of an XM-1, an F-18, or an F-15. So albeit useful, multi-year contracts do not do, in the end, the thing that I think is most important, which is to create the environment that makes productivity important. Exhortation, I claim, is just in fact not something that works any better in the industrial community than it does in the church pulpit. It takes during the time of the lecture, but it is very hard to go back into that outside world unless there is some real, perceived incentive for you to put your money on the issue argued by the exhortation. So our job is to figure out how to get productivity, something which is important in the P&L statement of the industrial user.

Now, some ways to do this. The F-16 had a very remarkable thing happen. By the way, not because Mr. Lewis is a good friend because of General Dynamics, but almost entirely because of one very first class officer, General Abramsom who wanted to work the problem. What he did was essentially to get together with GD and come up with a sharing arrangement where the government was willing to put in a quite large amount of money into manufacturing technology exploration on the F-16 in return for the company's willingness to commit a very large block of money, about five times the amount the government put in, into manufacturing techniques which would increase the productivity and then based on this there was a sharing arrangement where a group composed of both sides looked at what money was, in fact, saved and that money returned both to the government and to the commercial operator. That's been done once, as far as I know, in any major size. That could be done in every program we have and we're looking at the issue of how to do it.

Another way is to try and find a way to have true competition through the lifetime of a program. I have been talking to both GE and Pratt, getting very little enthusiasm, by the way, of seeing whether or not we can, in fact, make the holes into which we drop engines such that we can continue like T. Wilson can continue to drop either brand engine into it.

Now, this gives us some maintenance problems, it gives us some logistics problems, but it may well give us 15 or 20 percent reduced costs because all of a sudden, it becomes important to the F-18 engine provider to get his costs down so that he isn't beat out by the other manufacturer. The same for F-100 manufacturers. So I think we're looking at the issue of how, in fact, we can get competition through the lifetime of a program, rather than just at the time we make a selection.

I guess what I'm saying is, most of the studies, including Bob's here, say, "just bring money." I would contend in one form or another, all of the advice that I've ever gotten was to bring money. All that leads to is spending money and it's not clear that people put their first-class people on the problem unless it determines what their futures are. By our bringing money, I don't necessarily believe we're going to get the top-flight people of the country to work the problem. because in very many cases they're off trying to secure their futures by working something else.

At any rate, I guess I am Darwinian in nature, believing that people - ethical, sensible, responsible people - respond to the environment that they're in. And right now we have not provided an environment that emphasizes productivity and it is clearly my intent to try to make that happen.

If I can talk about the industrial preparedness business, I guess I need to admit to you right off the bat that I am unclear as to what we should be aiming for. I am getting substantially tired of arguments which argue that we just have got to do something to augment the industrial base because I don't quite understand what that means in the context of airplanes that take, even when we're in full production, something like 30 months to 40 months to produce. I can't imagine a line going dead and doing better than what we can do with a live line. I don't think anybody has truly thought through what it is that we're talking about in getting an industrial base prepared. Nobody is thinking through what we ought to do if you wanted to have one. And let me just cite a few things that have never been argued to me but which I believe would be constructive suggestions on what one might do to help the issue of industrial preparedness. For example, the air form, fit, and function business. We now manufacture every single thing that we provide - tanks, IFVs, airplanes, helicopters, and what not with

different instruments, different radars, and none of them can be taken out and plugged into something else. If I did it the way they do with the airplanes, I could take the new thing which I have and plug it into the hole that the old thing was in. I could take an F-4 and modernize that rascal by having the equipment which came out of the F-15 plugged into the F-4. We could have a form, fit, and function which would allow an operating instrument, radar, altimeter, what not, actually be used in our equipment and get much more rapidly into the spare parts we need than if we had to go back and manufacture something for an F-111 that we don't know if we have the drawings for. If the airplane industry can do it, I believe we could do it if we chose to.

Another issue is low-cost line runs. Everybody who comes in to me comes in with one flag, which is "it'll cost you more if you do anything other than what you planned to do." If we want to run more airplanes it will cost me more money for facilitizing - if we want to run fewer airplanes, it will cost me because we run inefficiently. In fact, the chicken little business has gotten out of hand. People come in with the absolute sky-is-falling-down anytime anyone wants to change the line run downward. In point of fact, though, if you're really looking for a way to have a mobilization capability, what you want to do is have the line running at a reduced volume in a portable sort of way. What I'd really like to see are some suggestions as to how you can do it, rather than the catastrophes that come from reducing it. Everybody views the issue as an instant business-based problem and nobody ever really looks at how you run one or two F-16s through a line at a moderately efficient rate. Everybody comes in and tells me, "you have to run 16 and the world falls apart if you run 10 and it'll get even worse yet if you run 8." But if you want to mobilize, have a mobilization potential you've got to somehow or other have the ability to have an existing line cranked up and I would like to talk with people about what we have got to do to get that to happen.

Another thing that seems absolutely evident is that the people are the hardest thing to train in the whole process. Getting materials is hard, maybe we can solve that, but it takes a long, long time to bring the people up to mobilize the system. It beats me why we are so concentrating on the people. It is absolutely asinine that this country has about 15 percent of the total robots which are operating in the world today and the Japanese have over 50 percent. The computer doesn't, in fact, get any smarter with time, but it surely doesn't get any dumber with time. And if you have control machinery, digital tape inputs, robots and the like, we ought to cut down this learning process very, very substantially. Again, Abramson - one of the things that the folks are doing in General Dynamics is having a

robot go around and build the tail of the F-16. I asked him what were the other places where people did this and the answers were primarily Honda, Fiat, all of the foreign people. Yet I guess I believe we could get the mobilization base very greatly helped if we did the things which I think together we need to do to get our productivity up. Basically, the issue of getting a capacity to turn on fast is inherently going to be solved most quickly by getting as much automated as we can. The total number of manhours in an automobile, ridiculously low. The total number of manhours in Patriot, or anything you want to pick, ridiculously high. If we have some incentive which gets the productivity up, I believe at the same time we are going to get some reasonable response to getting the ability to turn on more rapidly.

With respect to surge, we are really looking at the things that are most important and we are going to pick maybe 10 percent of the total as being the most important ones and with the techniques we have today, we are going to try and figure out how to get the industrial base to be able to surge more rapidly. But the things I would like to see are constructive suggestions on productivity, constructive suggestions on how you can run lines at low rates, constructive suggestions on how you get the lead times down, and if that happens then I will constructively look at the question of industrial preparedness.

Thank you.

(Due to technical difficulties, the introduction of Mr. Richard Danzig, Principal Deputy Assistant Secretary of Defense for Manpower, Reserve Affairs, and Logistics, was not recorded.)

Richard Danzig

I knew I had come to the right place to give this address when we pulled up in the car and I saw on the theater marquee that the movie now showing was, "Mad Magazine." It is altogether too appropriate for my remarks. And on top of that, having been so kindly introduced with a long description of my background from universities, I must say I was also struck as I came up when the other movie showing was, "Up the Academy."

Let me take Mad Magazine as my theme, or madness of a sort and suggest to you that a remark of a famous philosopher, actually that well-known defense acquisition figure, Nietzsche, once was that the commonest form of madness was forgetting what we're trying to do. His argument was that so often in many different kinds of circumstances we find ourselves with some original vision of what we're after and then as time goes along

and complexity increases, we forget what it was we were after and settle on a number of intermediate goals. That, I should say, is particularly a problem that afflicts bureaucracies, and the Pentagon is certainly an archetypal case of such bureaucracies, because not only do we have the difficulties that the ordinary person has in keeping track of what it is we're trying to do, we've got an addition to those difficulties compounded by the fact that we are, as you know altogether too well, many people with many different points of view. The bureaucratic messages tend to be extremely complicated, often contradictory. I sometimes think of the Pentagon as an extraordinary behemoth, a gigantic creature perhaps from another age, which survives, which has got about a million different limbs and all of these limbs are tempted to march off, each in their own direction, and an extraordinarily rudimentary central nervous system. The capacity of any Secretary of Defense, even one, I think, as brilliant as this one, to man the system, to send signals out to all those limbs is limited by his very humanness, by the technological wiring of the bureaucratic system. The consequence is that those limbs need extraordinarily simple decisions and one needs, in a variety of kinds of ways, to minimize the amount of information that has to blow from the limbs to the central nervous system before something happens, or from the central nervous system out to the limbs. There is too much of a tendency, if that system becomes overloaded, for the central nervous system not to be able bureaucratically to process all the information and the creature doesn't move. On the other hand, if there is no sort of central coordination, no central vision of what you're trying to do, the affect is that those limbs move in ways that are counterproductive. One moves and another doesn't and the creature falls down. or the entire right hand side of the creature's legs move but the left hand side stands still and the affect is that the creature moves in circles. Other examples could be generated and I'm sure your capacity to play with the metaphor is at least as great as mine.

I say all this as prelude to what I want to talk about today and I really would like to pick up Walt LaBerge left off, with the theme of industrial preparedness. My assigned topic is Sustainability and if you listen carefully, you'll see that I'll say a few things about that in the course of my talk. But I really want to reach out some and connect up the sustainability point with the industrial preparedness issue that I know is of central concern to you, both by virtue of your positions and your involvement, and also is well manifested by the white paper that you have very usefully produced this August as a contribution for this session.

I think that one of the phenomena with respect to industrial preparedness is that there is no clarity or agreement on what it is we're trying to do. Our inclinations towards madness, strong as they are in the normal course, tend to be particularly strong

in this area because we truly do, I think, often have different visions about what we're after. Let me say that some of those visions, and the white paper does a good job of addressing this, relate to the issue of long or short war. And the white paper usefully says, hey - if you have a vision of the world in which you think that there is going to be a real risk of a long war between NATO and the Warsaw Pact, then investments now, as against that contingency, are very useful and we will call those investments, for purposes of the present day discussion, sustainability investments. Investments that would enable us to extend the period of time for which our forces could fight from some number, classified - but let me make up a number - three weeks to some time like three months, and I use these simply metaphorically. The trouble is that there are a lot of arguments against investments against that theory. There are a lot of arguments against war reserve investments of that sort. The arguments tend to run first, that it doesn't comport with our recent experience and people point at the Middle East wars as an example. Second that it doesn't comport with our current analysis when we look at our opponent's stockpile rates, when we look at consumption rates against, again, the experience in the Middle East wars and the like. It doesn't look plausible, either as a matter of doctrine or as a matter of capacity - that our opponents would choose to fight a longer war if they could fight a shorter war or, at the same time, that they would be able to do so, if they chose. To that is added a third kind of argument which says our allies are not well equipped to fight long sustaining wars, therefore investments in enhanced sustaining capacity on the part of the United States are likely to be disproportionate to the NATO capacity as a whole and not to yield real advantages. Why have very large amounts of ammunition or end items singularly suited to the United States expenditures if, in fact, you find yourself with European allies, the British and the Germans, not able to make an equivalent kind of commitment.

That introduces what is, I think, the real culprit underlying it all which is, as usual, that most delicious, most central, most wondrous topic or animator of human conduct, money - the economics of the circumstances. The propensity is to say, rightly, I think, that the cost of buying war reserve equipment is so very, very large that it is beaten out by other kinds of consideration. You have, if you will, in the Department of Defense, maybe some five significant variables by way of investment directions that you could go in. One kind of variable that interests this association a great deal is toward present day materiel readiness and manpower readiness, your capacity to be ready now to fight on quick start. A second kind of investment is in research and development. A third is in acquisition of equipment for modernization purposes, to change the character of your forces, etc. A fourth is towards the notion of expanding your force structure. You could not really modernize your Army so much as expand it from 16 active divisions to some other

number - 20, 30, you name it. And a fifth kind of temptation is to invest in sustainability. What happens, I must say, is that the sustainability investments, for the reasons that I have indicated, can turn out last in that litany of priorities so often. If I've talked about five priorities for the Pentagon or, if you like since there are five of them, I suppose I can call them a pentagon of priorities, if you'll forgive this, in this pentagon of priorities there is a tendency for the sustainability option to come in last. I think you can argue against that with some force - and your white paper does, to some extent - lots of people have in other kinds of instances - you can argue that the recent experiences that we've talked about, the Middle East wars and the like, are only recent experiences. There are a lot of experiences that run against that. And even if your experience and your analysis in the near term, now, suggest short war, you ought to be a little discomforted at least by the fact that it appears that everybody who has planned for modern wars has planned for short wars and yet they've turned out to be long wars. That is, with some frequency turned out to be long wars. That is a deeply unnerving fact which ought to give people pause. You can argue against the fact that the allies are said not to have the adequate level of resources to invest in sustainability by saying that there are lots of things the allies do wrong where we march out smartly and take leadership. Lots of people in the Department of Defense have built reputations by their capacity to drag, kick, pummel the allies to the point where they are doing what we think they ought to be doing. Why is it that at least we aren't doing that here? Put another way, if we can decide what it is we want to do, at least we can march out to do it to the best of our ability and the fact is, we ought not to say we don't want sustainability or we are not willing to make those investments simply because of these kinds of pragmatic difficulties that arise.

I think in the end, though, you come back to a strongest kind of argument and often a winning kind of argument in this context. The way that argument is put is simply in terms of first things first. Bob Comer is very fond of reciting that phrase. His notion is simply that investments in your capacity to fight in those first weeks are so deficient that to go on and make investments in your capacity to fight in later weeks seems counterproductive. You have to do first what you need first and what we need to do first, therefore, is to intensely prepare for those first weeks. That, in turn, has an association with the economic point. It is so expensive to think about buying even simply for an Army division enough ammunition to carry them an extra week or two weeks, that it is a very uphill fight when you make an argument in that direction.

I'll come back to that first things first point and offer something of a refutation of it in a moment. But let me go on to suggest a second strand in the discussion and that is the

propensity to move in the direction away from sustainability kinds of points, away from the proposition that you should invest in more war reserves and towards the argument that we ought to invest more in industrial preparedness, which is often put - and your white paper does it in this mode - in the direction of a proposition that says what we ought to do is not invest in having the end items on hand, having bought supplies, ammunition, airplanes or whatever in advance and stockpiling them, but what we ought to invest in is getting our industrial base with enough capacity to expand in the event of war so that we could turn around and say if we do have a warning of a war, even a short warning, what we would do is expand that production base and start turning out this ammo, these tanks, etc., at that time.

It's an attractive argument. I understand the logic behind it. Let me tell you, though, that I really believe, in the present circumstance, that argument is best defined as a loser. It is not to say that it is illogical. It is not to say that there is something irrational about the proposition. I just don't think it is sufficiently powerful or persuasive. I think it falls for two kinds of reasons. The first is that industrial expansion, capacity to invest in it in that mode as against that kind of scenario, still is terribly costly. Indeed, if the whole rationale behind doing this rather than stockpiling is some theory that in fact this is a cheaper substitute for that, what you're going to keep finding is that it is not a cheaper substitute in cost benefit terms and that in fact if we have dollars to invest, it seems to me the argument for investing it and acquiring more end items, more war reserve equipment, etc., from the standpoint of the sustainability consideration is very real and very substantial. That in fact the competing investments, if they beat out the sustainability of war reserve investment, are likely to beat out the industrial expansion type argument put this way. That's the first kind of position with respect to that argument.

The second argument is even if it were thought to be a plausible investment in dollars and cents terms, the argument of the short war people is that in essence the short war difficulties objections are just as damning for this theory as they are for the other one because in fact, your production capacity time, your lead times to produce things, are so long that a war would be over before it turned out that you could produce more tanks, ammunition, etc. That even if you had a production base so finely honed, so terrifically tuned that could start turning out more ammunition, as soon as you had the warning of an impending Warsaw Pact attack against the kinds of scenarios that we now look at, you would not produce anything that could be used in that war until it was over. Your white paper itself points out that even in a World War I context, longer war, clearly much that we produced was not available until after the war and we relied on our allies and the like.

Where does that leave you? It leaves me thinking that in fact we ought to be taking a wholly different tack. I'm not alone in thinking this and, indeed, my thinking has been influenced by others, some of them from this association, some of them thinkers outside of it like Herman Kahn who talked a lot about surge in what is, I think, a conceptually different kind of turn of mind. What's the proposition there? I see the proposition as being one that can be put one of two ways. First, with respect to the notion of warning, do we really believe that short warning, as presently proffered is, in fact, the sole *raison d'être* for investments in the defense planning system, the defense budgeting system? It's all well and good to good to say, as the defense system now says, short warning-short war is the scenario against which we plan. My problem with that is that I think that in the end it is theoretically indefensible and fundamentally irrational to plan only against one scenario in a logical sense. I feel as though it were the kind of circumstance where you say to yourself, "what is the worst case," and you conclude that the worst case is short war-short warning. That's fine. And then go on to say, "I will only plan against that," overlooking the fact that there is an implicit presumption there that all of the other cases are lesser included cases, that in effect if you are prepared against the worst case, you're prepared against all cases. I take for an instance in that regard, as an analogy, it's as though you said, "what is the worst thing that could happen to my family in personal insurance terms. The worst thing would be that I'd die tomorrow. Therefore, I'm going to go out and invest in life insurance." Perfectly rational. But I think we would all agree it would be an absolutely insane man if every time someone came to you to sell a fire insurance, you said, "Oh, no, I only invest against the worst case. What I'm going to do is buy myself a million dollars of life insurance and if I've got any extra money, I'm going to buy more life insurance, but I'll never invest a penny in fire insurance." That is an analogue to the fury of what we are doing, theoretically, in the Department of Defense when we talk about short warning-short war. There are lots of investments that are rational against longer warning, etc., that though they ought not to dominate our investment portfolio, ought to be in it. Put another way, there is a rationality to diversifying our investment portfolio so that we cover the range of risks to some rational extent. Or, to put it another way again, if you asked an economist, "How is it that you decide how to make investment decisions in this context of uncertainty?" I think what he would tell you is to figure out the risks that you run and that you want to avert or minimize, weight those risks by the probability of their coming to pass and by the consequences to you of their coming to pass, and then figure out, having weighed your risks, what the marginal return would be for you on your investments against those risks. Ask yourself whether a dollar spent against the risk of a short warning-short war buys you more in diminished probability of being hurt

than a dollar spent against other theories, for example, longer war or longer warning. Invest in the worst case - short warning-short war - up to the point where your marginal dollar doesn't buy you as much diminution in risk along that dimension as it buys you when you spend it in the other arena.

What I'm saying may be, to those of you not too familiar with the terminology of economics, excessively technical and gobbledygook, simply common sense. It has nothing in it that represents the slightest degree of subtlety or intricacy. And everyone who thinks rationally would ultimately agree that that's the theoretical way in which you want to analyze your problem.

Having said that it's the theoretical way in which you want to analyze your problem, I would go back for a moment in theory to the proposition of, "let's do first things first." It's a very common way of thinking within the military context. The normal mode of addressing these kinds of problems is to say things like, "Well, we have to meet the requirement." But what that leads to is if your order your requirements and say we will only invest in the first requirement until we have met it, it leads typically, since you never manage fully to usually achieve your first requirement, leads typically to your never getting on to the second one. What you ought to do, in my view, is invest in the first one until the marginal return on that investment turns out to be lower than beginning the investment on the second one.

Well, that's the theory of it all. And it seems to me in theory there is, therefore, a case to be made along those lines for industrial preparedness in a way that is more articulate, more rational, more theoretically comprehensible, more defensible than the normal mode. Having said that, I want to come back to my image, though, of this many-legged beast and of the rudimentary central nervous system. I think, in fact, that there is this extraordinary gap between what you can do in theory and what you can do in practice. The problem is a pragmatic one. It is extraordinarily difficult to get this beast with all of its legs to march in any one direction, even when you give it so clear a proposition as planning a short warning-short war. Everybody has got his own private budgetary agenda and the like, and the consequence of that private budgetary agenda is that it's very difficult to drive the animal in any direction, even with an extraordinarily clear signal. If you are the Secretary of Defense and you turn around and say to this animal, "Buy up to the marginal return with respect to this first requirement, and then shift over to this other one," the result in the system is likely to be chaos....legs going every which way. Extraordinary difficulties in figuring out what it is we are trying to do.

Put another way, there is a wonderful line in which Teddy Roosevelt once said that a campaign speech has to be a poster and not a lithograph, a phenomenon that John Anderson ought to think about. The proposition is simply, you can get simple messages through. Excessively subtle and intricate ones are very difficult to send through.

What I am saying when I raise this theoretical objection to short warning-short war is that sitting there, as a Defense Department actor, I am seeing all the inadequacies of the posters we put out and I am saying, wouldn't it be a better world if we could draw lithographs. The trouble is, the people who read these posters, if you draw lithographs, are liable to become attracted to the individual details in ways that lose all sight of the fundamental proposition.

What do you do? You see how, in a variety of ways, I am suggesting that Nietzsche is right - the commonest form of madness really is forgetting what we are trying to do. It now turns out that on top of that, we are, in fact, by our bureaucratic necessities, almost driven to putting out a message about what we are trying to do that is too simple, too straightforward, and in a variety of ways, doesn't encompass other things we need to do. Everybody is buying life insurance and no one is buying fire insurance. Fortunately, it turns out, that isn't entirely true. The system hedges its bets in a variety of ways. You could not, if you only looked at a worst case vis-a-vis Europe, etc., rationalize investments as against Korea, but clearly we do that. You later eventually may change planning scenarios so that you begin to deal with the Persian Gulf, but it is clear that we didn't totally ignore investments in other parts of the world before that. It is also clear that though we talk about short warning-short war, we are willing to do other things that don't connect directly to that scenario. For example, the manpower registration system, referenced in your white paper, is an example of now a willingness to grasp the nettle associated with some other kinds of contingencies. If you think within your own area about the Defense Department willingness to make investments in maintaining a warm production base, they are clearly not rationalizable in terms of short warning-short war, but they are rationalizable in some other terms. What you're getting is, while the main drum beat melody that is being hammered out for people to march to is the simple, straightforward poster short warning-short war, the reality is that some other people are doing some other things. And your problem is, how do you articulate the desirability of doing more things along lines of industrial preparedness in that kind of context.

I think there is a way to do it, besides the elaborate way that I've described. And that way is to step back from it for

a minute and to raise a different kind of question, and I think Kahn and the people in this association have done a good job of beginning to flag that and I think that it's something that we in the Department of Defense have to follow through much better than we have followed it through. That way, I think, is to stop thinking for a moment about wars and warning time and to put that aside and say to yourself, "I recognize that over time one thing that has happened historically is that tensions have fluctuated in our relationships with our potential adversaries and when tensions have gone up, as in the early 1960's, presidents have tended to substantially increase the Defense Department budget and their investments in a variety of areas." Is it inconceivable that a president would want to do that again in the near future? No. It is plausible, and we see some of the rhetoric associated with this in the campaign, that a president or presidential candidate would stop talking about 3 percent vs. 4 percent vs. 6 percent real growth in the defense budget and start talking about much bigger issues. For example, whether the Defense Department budget ought to be 5 percent of gross national product or 8 percent of gross national product; whether in fact we ought to start talking about growth of 40 or 50 percent instead of 4 or 5 percent. Now, I don't mean to say that this discussion is here today, but I do mean to say that it is easy to envision states of affairs in the world - I speak as an Iraqi-Iranian war is waging, when you have potential of Soviet invasion of Poland, when all kinds of things could happen or are happening - one can imagine readily a world in which a president said, "I am not happy with our level of security and want to invest substantially more to achieve that. Not because I think war will break out on X day, but because I think that the chances that war will break out on X day are substantially diminished by so heavy an investment."

Now, what would happen if a president said that today? My answer is, we would be in an awful mess, as defense planners and as industrial doers. The reality is that we don't now have a good vision of what such a major expansion of the defense network ought to do and we don't have a good sense of how it would be to do it and we do have, alas, a good sense that in fact, there would be lots of long lead time things that would stand in your way that would make it very difficult to acquire any substantial jump in capacity or to supercharge the system by investing so much more in it. And my proposition is that when one talks about industrial preparedness and when one talks about analysis of that fact, what one really ought to do is to step back and say, "What do we have to do to plan for that kind of case. What kinds of investments of planning energy and perhaps of dollars now would get us prepared so that if a president did come along and say he wanted that expansion, he could get it?" Now that's a proposition that I argued briefly to the Defense Science Board which, I felt, didn't pick it off as forcefully as they should. It's a proposition which others have argued to

some extent in other arenas, but it is one which I think too inadequately attended to. One of the things that we need is a clear sign that that is the direction that we would like to move in. That we are not arguing about long war, we are arguing about something else. And with some understanding about what it is we are trying to do with respect to industrial preparedness, then we were able, if we bought the notion that I just advanced, to begin to plan for it. Let's take very concretely a weapon system, the F-15, say. What is it that you would want to do now and need to do now by way of planning and procurement so that you could maximize your return on a presidential investment of the sort that I've described? What is it, in fact, that you would want to do by way of that investment? You need to start, I think, at the end of the problem with the question of what would you buy if you had 50 percent more defense dollars as a whole by way of expanded F-15? What would you want? How would you match it up with the pilots and the like? That's a very hard question to answer, extremely hard question to address. I would only suggest to you that it seems to be entirely a neglected question. Kahn has argued that we ought to establish within OSD some sort of Executive Office to begin to analyze that problem. That may be the right way to go. I'd like to see at the least a pilot study which took one area and asked about that one area - what kinds of things would you need - and which then might march backward and say, all right, as you sit here putting together the fiscal year 1982 budget, as we are doing now, here are the kinds of investments that you could make that would buy you that latter expandability kind of capacity.

I want to offer a last observation and draw this to a close. I come back, for a moment, to the issue of warning. The notion of warning is, when you think about it, extraordinarily peculiar. It is an analytically understandable concept. But the fact is that if we have a war at any point in the future against the Warsaw Pact, you are now enjoying, I am enjoying warning. People will come back and say, well, the war that broke out in 1990 really had, among other things, ten years of warning when tensions rose, etc., in 1980. How do you decide what your warning time is and what its character is? You can decide it ex post facto, looking back on it, but that's all. You don't often know it when you see it. My proposition is, the way in which warning would manifest itself to us is, in fact, in rising tensions. I think that thought it is strategically tactically sensible, perhaps, to engage in blitzkrieg, cold-start, etc., for the Warsaw Pact, it is, in my opinion, when one factors in political considerations and the like, likely not to happen unless it is against the backdrop of I would guess years, certainly at least months of increasing tension. Now, I'm not sure of that. All I'm saying is when I talk about the probabilities I recognize a substantial probability of the sort of scenario I have described rather than the so-called worst case. And all I'm saying today is recognizing some probability of fire, I do not want to

invest all my money in life insurance. Seeing this slow-growing possibility, I would like now to start thinking about it and planning for it and I'd like you to do the same. Indeed, you are in a vastly better position than I am to think through its practicalities. And then I say to myself, because of the marginal return in this other area, I would like to make some investment in that direction.

Well, I feel having said so much in so many different directions over such a wide span of items, it reminds me of when I was at the Supreme Court as a law clerk. Justice Douglas used to occasionally regale us with stories and Douglas used to say that his father had been an itinerant preacher who wandered around the Northwest and would preach to any congregation that he came upon. One day he walked into church and mounted the pulpit and looked down at the congregation, ready to give his sermon, and he saw only one person out there. He was a bit taken aback, says Douglas, finding only one person out there. He peered over the pulpit and said, "Do you really want me to go through with this service for just you?" The fellow out in the audience said, "Well, preacher, I'm just a lonely cowhand but I can tell you that if I went out to the field with food for 40 horses and found just one, I wouldn't let that one go hungry." Says Douglas, his father thought about that, thought there was some homespun wisdom in it, and decided he would do his best and he proceeded to preach a full-blown service. He did the hymns and the psalms and preached the sermon and he then walked to the back and proudly shook hands with his congregation of one and the fellow shook hands and started to go off and Douglas' father just couldn't stand it and he thought he had done such a superb job, he yelled after the man, "Hey, what did you think of that?" The man turned around and said, "Well, preacher, I'm just a lonely cowhand, but I can tell you this. If I went out into the field with food for 40 horses and found just one, I wouldn't dump the whole load on him." There's a lot of wisdom in that and I'm afraid I may have dumped the whole load on you, so I apologize for it.

If we have a couple of minutes, I'd be happy to take questions or comments, and then you have a much more distinguished luncheon speaker to come. If people would like to ask or comment, feel free.

Q: I agree with your first come-first served theory; however, it seems to me that we have had an awful lot of warning. For instance, the Russians outnumber us 5 to 1 here, 6 to 1 here, 3 to 1 here. What basis are we basing this whole thing on? They must be doing it for a reason. And isn't that some kind of warning to us? Congress makes national policy. We

make it by voting. But there seems to be a warning here that doesn't seem to be coming through. We're the choir here. We see the problems in our plants. We see the long lead times. For instance, Titanium billets, 28 weeks for aircraft. Machine tools, 2 years. Skills. But the Russians are building up their base, they're building up their civil defense, and they're building up the munitions, armor, submarines, and yet we're not doing the same thing. Where do we go from here?

A: Despite my having said that I have dumped the whole load, your quite good question indicates how much more there is to the load. It's all well and good to say what I've said, but you're raising the issue that it's time now for that kind of expansion in defense investments.

Let me say a couple of things about that with a preamble of the fact that I am in no better position than you and a lot worse position than a number of other people in the Defense Department to speak about it. I would note first that it seems to be extraordinarily characteristic of our system that it responds with that kind of slowness. You go back and look at the World War II phenomenon and it is just stunning how much fighting had been done in Europe, how France had fallen, etc., before this country was even willing to commit itself. Pearl Harbor obviously gave us a big push. There were things being done but you look, for example, as I recently had occasion to do, at the debate over the reinstitution of the draft in the United States in 1940 and its one-vote margin in Congress. In 1940, after the Germans had marched into Poland, after France had fallen, etc. So you do have to have pause about the inclination of the system to use that kind of warning. I'd also note, though, that there is good reason for that kind of pause, that there is, really, an awful lot of uncertainty and a lot of dimensions. I think that one of the arguments that isn't articulated often enough is the question about when it is that you think you face maximum kind of risk. If there is a way, when would it be. And I think people walk around with wholly different presumptions in their heads about that. We talk about short warning-short war and worst case, and so on, but there is exceptional precision within the Department of Defense about the scenarios that we are facing. So-and-so many days of warning. So-and-so much force that we would confront and the like. And then people make investment decisions against that, in part. Well, this wouldn't be useful in so-and-so many days. One question I have never heard addressed is the question, when do you think that all this might occur? Now, that might strike you as prophesy or goldfish-bowl-looking, crystal-balling. But what I'm struck by is absolutely fundamental to the positions that people take. For example, if you didn't believe that there was much probability of a war between now and 1990, the argument for taking your scarce dollars and investing them in R&D versus materiel readiness would be extraordinarily high. Materiel

readiness is like french bread - it goes bad tomorrow or next week or whatever. You can't keep it. If you invest in research and development, you're likely to wind up at the time of war with a stronger force than if you invested today in materiel readiness. There are some twists and turns in the argument, but I simplify for purposes of discussion.

On the other hand, if you believed that was was going to break out tomorrow, you wouldn't spend a penny on R&D today. What's happening, I think, is that a lot of top Defense Department planners and others were walking around with wildly different notions in their heads about this. Some people, if they ever let you into their inner hearts and inner minds, would tell you that they didn't believe there was much probability of a war over these next years. Therefore, they weren't going flat out for materiel readiness investments now. To the contrary, they were trying to dampen them, while others made investments along the other dimension. It is another manifestation of the madness of not having agreement about what we're trying to do. What your quite good question does is to stand up and scream from your viewpoint, "hey - I've got my conclusions to that and I want other people to begin debating that." All I can tell you is I think that debate is extremely useful. I think having it now is something that realistically, within this arena, this timespan, etc., we are not going to accomplish. I appreciate your point.

Q: I was a little bit concerned in your argument for investing now vs. some industrial preparedness or industrial readiness. The things that bother me were the values of investing in the end product now. That's a very short-sighted look at things because assume that the situation does not change for 10 years. You've put an awful lot of money into some obsolete equipment and I think that in the long run, whether it's a short war or a long war, you'd be better off to invest in the ability to produce so that you could produce up-to-date items as time goes by.

A: That's a good point. Let me make three points about it. First of all, let me thank you for calling me short-sighted, since I'm so often called blind. This is a wonderful improvement. The second thing, though, is that I would caution you; and you may well know more about this than I do, to recognize that the investments in the industrial preparedness may become as outmoded as the investments in the weapons systems. That is, you can prepare to produce an XM-1 and find, 10 years from now, that the XM-1 is not what you want to produce and if it is what you want to produce, then you come back to the question of why you didn't buy it to begin with and either stockpile it or use it. But the third point is that in fact this comes back to the previous dialogue, in a sense, granting for a moment for the sake of the discussion your proposition, if you think that a war is more likely to break out in 1990, then by your

hypothesis it is better to invest in industrial preparedness. If you thought it was more likely to break out in 1982, then you ought to flat out produce now, rather than invest in more plant for production. Those are some of the kinds of issues at hand. I designed an exercise you may have heard of called "Petit Nugget." I apologize for the name - I was in a whimsical mood. Nifty Nugget had been invested by the JCS as a major exercise, as most of you know, to test our mobilization capacity and it had all kinds of presumptions in it about decisions made before that mobilization was invoked. It supposed that the draft had been resumed, etc. What I said is, let's have a thing before Nifty Nugget - we'll call it Petit Nugget - and let's bring together the top people in the Department of Defense and ask them six months before your scenario leads to mobilization what they would do. Would they make those decisions? Would they resume the draft? One of the most interesting issues raised there was the issue of materiel readiness. You had, by hypothesis, rising tension. And we would say to people things like, "Do you want to bring all your equipment in for maintenance now on the theory that it will be more ready six months from now if war breaks out in six months, or do you leave it out there on the theory that you can't spare it from the front lines? Do you want to invest in surge production for ammunition now on the theory that what we ought to be doing is maximizing our production, so you run as many ships as possible, or, given limited resources and talents, do you want to invest in building another ammunition plant on the theory that maybe you've got a couple of years before anything happens and that this will be a more effective deterrent. The kind of issue you're raising taps directly into that. And I think it's a very intricate and difficult issue, probably not resolvable by us across the board, but rather with reference to specific systems, and I take your point as a useful qualification.

Q: Some of the things can be done to eat your cake and have it, too. In existing ammunition plants, it appears that it would be wise to be in a position to accelerate the production of those plants in a relatively short period, and do the things like, perhaps, stockpiling some material, maybe some critical tools that might be difficult to come by in an emergency, and be prepared to exercise that investment the best way you know how in a short term and if, in the long run, it looks like you need a larger capacity, think about building some of that, too.

A: The trouble with that, appreciating your point, is that the way in which you are, as you rightly put it, eating your cake and having it, too, is, in essence, by buying two cakes. The trouble with buying two cakes is only that it costs money, putting aside, perhaps, indigestion. There is this phenomenon of, again and again, imagine tising tension and the like, if, let's say, you wanted to go and spend a billion dollars - not an unreasonable number - on surging your ammunition production

from existing plants. It's a very large amount of money to go to Congress and ask for a supplemental for, even in a time of tension. If now you're going to add to that the notion of producing and developing new plant capacity, you may be asking for \$2 billion. The reality is, your president may have a lot of difficulty with that. I'm just saying it comes down to the particulars and in Petit Nugget, this is the sort of thing we flushed out.

Q: Are there any cases, though, that you can so contract that a contractor would buy his materials and have those ready and you buy the next contract in such a manner that it overlaps and that you are always in a better state of readiness than just letting a contract and having the contractor start production on a given day, having the last contractor finished on that day or six months before. It may be pulling some of your investment ahead slightly, but no total increase in dollars for readiness in many cases.

A: I think in theory that is an attractive and right point. The problem is that it really is an instance in which the devil is in the details. How much does it cost, how could you do it, at what expense, against what people? But it is a right point. That would be the most attractive way to do it.

I think I'm being pulled off the stage. Thank you very much.

LUNCHEON SPEAKER

REMARKS OF JAMES T. MCINTYRE, JR.
DIRECTOR, OFFICE OF MANAGEMENT AND BUDGET
AT THE DEFENSE READINESS SYMPOSIUM
AMERICAN DEFENSE PREPAREDNESS ASSOCIATION
ANDREWS AIR FORCE BASE

I APPRECIATE YOUR INVITING ME HERE TODAY.

LET ME FIRST SAY THAT YOUR ORGANIZATION'S CONCERNS ABOUT DEFENSE READINESS ARE SHARED BY THE CARTER ADMINISTRATION -- AND WE ARE ALWAYS PLEASED TO BE ABLE TO TAKE PART IN THIS KIND OF A SYMPOSIUM. I BELIEVE THAT ALL OF YOU CAN MAKE A VALUABLE CONTRIBUTION TO HELPING US CHART THE WAY TO A MORE SECURE AND STABLE FUTURE. THAT IS THE SUBJECT I WANT TO TALK ABOUT TODAY -- BUT I THOUGHT I WOULD BEGIN BY SETTING SOME BROADER CONTEXT FOR YOU, ABOUT OUR OVERALL ECONOMIC AND BUDGET POLICIES, AND THEN SPEAK TO WHAT THE LARGER PICTURE MEANS ABOUT THE DEFENSE BUDGET.

AS YOU KNOW, THE PRESIDENT RECENTLY ANNOUNCED AN ECONOMIC RENEWAL PROGRAM TO STIMULATE INDUSTRIAL INNOVATION AND INVESTMENT, STRENGTHEN PRODUCTIVITY GROWTH, AID DECLINING AREAS, AND HELP REDUCE INFLATION. IT IS A SERIES OF TAX INCENTIVES AND, IN SMALL PART, SOME CAREFULLY BUDGETED SPENDING INITIATIVES.

THE REALITY THAT DEMANDS SUCH AN ECONOMIC REVITALIZATION PLAN IS FAMILIAR TO YOU: IT IS BASED ON A DOUBLING OF OIL PRICES LAST YEAR, FOLLOWED BY HIGHER INFLATION; RECORD INTEREST RATES, AND A STEEP -- BUT PERHAPS SHORT -- RECESSION.

AND IT IS ALSO BASED ON SOLVING THE UNDERLYING CAUSES OF THESE PROBLEMS -- MOST OF ALL SAGGING PRODUCTIVITY GROWTH AND INDUSTRIAL DISLOCATION.

IN THE LAST THREE AND ONE-HALF YEARS, WE HAVE MADE REAL PROGRESS IN MANY OF THESE AREAS. WE HAVE REDUCED OUR RELIANCE ON IMPORTED OIL THROUGH OUR ENERGY SECURITY INITIATIVES. OIL IMPORTS THIS YEAR ARE MORE THAN 24 PERCENT BELOW LAST YEAR. U.S. PRODUCTION OF OIL HAS RISEN, HALTING A LONG-TERM DECLINE IN OUTPUT. AND WE HAVE CUT THROUGH SOME OF THE EXCESSIVE AND BURDENSOME REGULATORY CONSTRAINTS THAT HAVE HAMPERED ECONOMIC GROWTH, ALL TO THE BENEFIT OF THE PUBLIC INTEREST. JUST LAST WEEK THE PRESIDENT SIGNED THE REGULATORY FLEXIBILITY ACT, WHICH WILL BE OF IMMENSE ASSISTANCE TO SMALL BUSINESSES. OUR DEREGULATION OF THE AIRLINE, TRUCKING, BANKING, AND FOSSIL FUEL INDUSTRIES. CONSTITUTES SOME OF THE MOST DRAMATIC -- AND POSITIVE -- CHANGE IN THE STRUCTURE OF OUR ECONOMY IN DECADES.

THE PROPOSALS THE PRESIDENT ANNOUNCED IN HIS ECONOMIC RENEWAL PLAN WILL BUILD ON THIS PROGRESS. THEY ARE, COLLECTIVELY, THE NEXT STEP IN THE POLICIES ALREADY IN PLACE. THEY WILL STRENGTHEN AND LIBERALIZE INVESTMENT TAX CREDITS AND SIMPLIFY DEPRECIATION RULES; STIMULATE PRIVATE VENTURES AND

ENCOURAGE INNOVATION, THEREBY BOLSTERING OUR INDUSTRIAL BASE AND IMPROVING PRODUCTIVITY GROWTH. THIS IS THE KIND OF TAX PROGRAM THAT WILL GENUINELY ENHANCE PROSPECTS FOR LONG-TERM ECONOMIC GROWTH. AND, ALLOWING A PARTIAL CREDIT FOR SOCIAL SECURITY TAX PAYMENTS, WHICH WILL RISE NEXT YEAR -- BOTH FOR INDIVIDUAL AND FOR BUSINESS INCOME TAX PURPOSES -- WILL STRENGTHEN THE ANTI-INFLATION ASPECT OF THE PROGRAM WITHOUT THREATENING THE FINANCIAL BASE OF THE SOCIAL SECURITY SYSTEM.

AS I AM SURE YOU REALIZE, EVEN THOUGH WE HAVE MADE CONSIDERABLE PROGRESS IN REDUCING THE INFLATION RATE THIS YEAR, IT REMAINS A SERIOUS ECONOMIC PROBLEM. THEREFORE, WHILE PROPOSING THESE STEPS TO GENERATE NEW INVESTMENT, WE ARE ALSO STANDING BY OUR POLICY OF RESTRAINING FEDERAL SPENDING GROWTH. THIS POLICY IS ABSOLUTELY VITAL IF WE ARE TO BRING INFLATION FIRMLY UNDER CONTROL.

THIS IS THE CONTEXT IN WHICH I WANT TO TURN NOW TO THE SUBJECT OF DEFENSE SPENDING, AND THE OUTLOOK FOR OUR FUTURE DEFENSE PROGRAM. STATED SIMPLY, DESPITE THIS COMMITMENT TO SPENDING RESTRAINT, THE PRESIDENT IS ALSO COMMITTED TO CONTINUED REAL INCREASES IN THE DEFENSE BUDGET.

A BIT OF HISTORICAL PERSPECTIVE MAKES TODAY'S OUTLOOK EVEN MORE INTERESTING. CONSIDER THESE FEW RECENT FEDERAL STATISTICS, AND THE TRENDS THEY REVEAL:

-- DURING THE KENNEDY AND JOHNSON YEARS, NON-DEFENSE SPENDING GREW IN REAL TERMS AT AN AVERAGE ANNUAL RATE OF 5.4 PERCENT.

-- FROM 1969 TO 1977, NON-DEFENSE SPENDING GREW AT AN AVERAGE ANNUAL REAL-GROWTH RATE OF 5.6%. DURING SOME OF THOSE YEARS, REAL DEFENSE SPENDING, OF COURSE, DECLINED RATHER RAPIDLY, LARGELY BECAUSE OF THE PHASING DOWN OF THE VIETNAM WAR EFFORT.

-- THIS TREND HAS BEEN REVERSED, AND DEFENSE SPENDING HAS GROWN. MEANWHILE, THE ESTIMATED RATE OF GROWTH OF NON-DEFENSE SPENDING DURING THE CARTER ADMINISTRATION HAS AVERAGED LESS THAN 1 PERCENT A YEAR IN REAL TERMS -- WITHOUT SACRIFICING ANY WORTHWHILE PROGRAMS AND, INDEED, WHILE ENHANCING SOME.

LET ME BE MORE SPECIFIC ABOUT WHAT THE CARTER ADMINISTRATION HAS DONE TO STRENGTHEN OUR DEFENSES:

FROM 1977, WHEN PRESIDENT CARTER TOOK OFFICE, THROUGH TODAY, WE HAVE EMPHASIZED MODERNIZING OUR CONVENTIONAL FORCES IN NATO AND STRENGTHENING OUR STRATEGIC FORCES. OUR MOST IMPORTANT INITIATIVES INCLUDE:

-- THE RATE OF ARMY MODERNIZATION IS DOUBLE THAT OF THE MID-1970s;

-- WHEN OUR PREPOSITIONING PROGRAM IS COMPLETED, THE U.S. WILL BE ABLE TO TRIPLE ITS GROUND AND AIR FORCES IN EUROPE WITHIN TWO WEEKS;

-- THE NUMBER OF NAVY SHIPS IS NOW INCREASING AND THE PRESIDENT IS COMMITTED TO A SHIPBUILDING PROGRAM WHICH WILL RESULT IN MORE THAN 550 SHIPS IN THE OPERATING FLEET.

-- THE AIR FORCE IS BEING EXPANDED FROM 22 TO 26 WINGS OF FIGHTER AND ATTACK AIRCRAFT, AND MUCH MORE CAPABLE AIRCRAFT ARE BEING SUBSTITUTED FOR OLDER ONES.

-- THE ADMINISTRATION HAS SUPPORTED MODERNIZATION OF OUR STRATEGIC FORCES INCLUDING AN ACCELERATION OF THE CRUISE MISSILE, CONTINUATION OF THE TRIDENT PROGRAM, AND INITIATION OF THE M-X.

THE 1981 BUDGET REFLECTS SEVERAL NEW PRIORITIES, INCLUDING AN INCREASE OF MORE THAN \$2 BILLION IN READINESS-RELATED FUNDING AND MAJOR INITIATIVES TO ENHANCE OUR RAPID DEPLOYMENT CAPACITY.

THE 1982 BUDGET WILL CONTINUE THESE INITIATIVES AND IS EXPECTED TO INCREASE REAL GROWTH IN TOTAL OBLIGATIONAL AUTHORITY BY ABOUT 5% IN REAL TERMS. FROM 1982 TO 1985, WE PROJECT REAL PROGRAM GROWTH OF MORE THAN 4 PERCENT A YEAR. THIS AMOUNTS TO SOME \$100 BILLION AND CLEARLY REPRESENTS A MAJOR, AND NECESSARY, DETERMINATION TO STRENGTHEN OUR DEFENSES. MUCH OF THIS INCREASE WILL BE DIRECTED TO IMPROVED NEAR-TERM READINESS OF OUR FORCES.

BUT AS YOU KNOW, SUSTAINING THESE BUDGET INCREASES IS FAR FROM AUTOMATIC. IT CALLS FOR IMPROVING OUR PLANNING, AND MAKING SURE IT'S BASED ON REALISM. AND, AS WE PLAN AHEAD, WE MUST FOCUS ON WHAT WE HAVE ACCOMPLISHED. THE CORRECT MEASURE OF ACCOMPLISHMENT -- AN OBVIOUS ONE IS WHAT IS THE ABILITY OF OUR FORCES IN THE FIELD TO DETER CONFLICT AND TO FIGHT SHOULD THAT BECOME NECESSARY.

PRESIDENT CARTER'S DEDICATION TO A STRONG NATIONAL DEFENSE HAS BEEN DEMONSTRATED BY HIS RECORD. HE KNOWS WELL THAT THE CONTINUING NEED FOR POST-VIETNAM MODERNIZATION AND REJUVENATION OF OUR FORCES IS UNDENIABLE. HE IS DETERMINED TO MEET THAT NEED. WITH THE SUCCESSFUL IMPLEMENTATION OF HIS PROGRAM, OUR FORCES WILL REACH HISTORIC PEACETIME LEVELS IN READINESS AND CAPABILITY IN EACH OF THE NEXT SEVERAL YEARS.

HOWEVER, WE HAVE TO ACKNOWLEDGE THAT WHILE THE PRESIDENT'S EFFORTS TO CONTINUE STRENGTHENING OUR NATIONAL DEFENSE HAVE THE SUPPORT OF CONGRESS -- AND OF THE COUNTRY -- THERE WILL BE INTENSE, CONTINUED PRESSURE ON DEFENSE SPENDING FROM COMPETING CLAIMS OF NON-DEFENSE PROGRAMS.

THE DECADE OF THE 1980S WILL BE ONE OF PARTICULARLY LIMITED RESOURCES, IN MY VIEW. PRESSURES WILL CONTINUE TO MOUNT TO RESTRAIN FEDERAL SPENDING, REDUCE THE DEFICIT AND BALANCE THE BUDGET. AND THERE WILL BE CONCURRENT PRESSURE TO CUT TAXES AND REDUCE REVENUES. ADD TO THIS MIX THE FACT THAT, AS MORE PEOPLE BECOME ELIGIBLE, THE AUTOMATIC PROGRAMS -- SOCIAL SECURITY, MEDICARE, RETIREMENT -- WILL CONTINUE TO GROW, NO MATTER WHAT, AND YOU CAN EASILY SEE THAT THE ROOM FOR MANEUVER IS LIMITED AND THAT THERE ARE REAL LIMITS TO WHAT THE GOVERNMENT CAN DO.

THERE IS ALWAYS A TENSION BETWEEN DEFENSE AND NON-DEFENSE CLAIMANTS ON THE FEDERAL BUDGET. AND I BELIEVE IT IS HEALTHY TENSION. IT IS THE WAY OUR SYSTEM WORKS, AND WHEN IT WORKS PROPERLY, IT BRINGS ABOUT A CLOSER EXAMINATION AND A CLEARER JUSTIFICATION FOR ALL FEDERAL SPENDING. THIS

CONSTRUCTIVE COMPETITION FOR DISCRETIONARY RESOURCES WILL OBVIOUSLY CONTINUE IN THE COMING YEARS. AND, IF I MAY SAY SO, YOU MUST BE PREPARED TO PLAY YOUR PART IN IT.

FURTHER, DIFFICULT CHALLENGES LIE AHEAD WITHIN DEFENSE ITSELF, IN THIS SHARP COMPETITION FOR ADDITIONAL RESOURCES. STRATEGIC FORCE MODERNIZATION, PARTICULARLY THE M-X PROGRAM, IS BUILDING UP. ALONG WITH OUR ALLIES, WE ARE STRENGTHENING OUR CONVENTIONAL FORCE CAPABILITIES TO DETER OR, IF NECESSARY, TO WIN A MAJOR CONFLICT IN EUROPE. WE ARE IMPROVING OUR CAPABILITIES TO RESPOND RAPIDLY TO EVENTS ELSEWHERE IN THE WORLD -- SUCH AS THE PERSIAN GULF. WE ARE INCREASING THE COMBAT READINESS OF ALL OUR FORCES AND INCREASING MILITARY COMPENSATION. ALL THESE EFFORTS ARE EXPENSIVE, AND FUNDS WILL NOT BE UNLIMITED. WE MUST FIND BETTER WAYS TO IDENTIFY THE TRADEOFFS, AND THEN STRIKE THE APPROPRIATE BALANCES.

LET ME SUGGEST WHAT I THINK ARE A FEW USEFUL PRINCIPLES TO KEEP IN MIND AS WE APPROACH THESE QUESTIONS:

-- FIRST, REMEMBER THAT WE MUST CHOOSE OUR DEFENSE PRIORITIES WISELY. WE SIMPLY CANNOT -- AND WILL NOT BE ABLE TO AFFORD ALL PROGRAMS -- EVEN ALL PROGRAMS WITH MERIT.

-- SECOND, WE MUST MAKE CERTAIN THAT WE MOVE FORWARD WITH OUR DEFENSE PROGRAMS MORE EFFICIENTLY THAN EVER. WE MUST BE RESOURCEFUL IN USING OUR TECHNICAL, MANAGERIAL, AND POLITICAL SKILLS TO KEEP DOWN COSTS AND

CUT OUT WASTE. SAVINGS FROM SHARP AND EFFECTIVE MANAGEMENT WILL ENHANCE OUR DEFENSE CAPABILITY, WHATEVER THE FUNDING LEVEL.

-- FINALLY, WE MUST EARN AND KEEP PUBLIC SUPPORT FOR OUR EFFORTS TO STRENGTHEN DEFENSE. SUCCESS WITH THE PUBLIC WILL DEPEND LARGELY ON SUCCESS IN THE DEFENSE PROGRAMS. THERE IS NO FASTER WAY TO LOSE PUBLIC SUPPORT THAN THROUGH "HORROR STORIES" OF WASTE, INEFFICIENCY, COST OVERRUNS, AND LACK OF CLEAR DIRECTION.

WITHIN THESE BROAD PRINCIPLES, MOREOVER, THERE ARE A NUMBER OF UNDERLYING ISSUES WHICH WILL CONTINUE TO WEIGHT HEAVILY IN OUR DEFENSE DECISIONS. LET ME JUST LIST THEM BRIEFLY:

-- HOW SHOULD WE DESIGN AND EQUIP OUR GROUND FORCES TO PROVIDE FLEXIBILITY TO MOVE QUICKLY TO MEET UNPREDICTABLE CRISES AND TO FIGHT EFFECTIVELY IN AREAS OUTSIDE EUROPE?

-- CONCERNING OUR TACTICAL AIRCRAFT, HOW DO WE BALANCE FORCE SIZE, QUALITY, AND READINESS? FOR EXAMPLE, WITHIN LIMITED RESOURCES, WHAT IS THE BEST MIX BETWEEN VERY HIGH PERFORMANCE AIRCRAFT AND LARGER QUANTITIES OF LESS EXPENSIVE AIRCRAFT?

-- FOR THE NAVY, WHAT INVESTMENT STRATEGY WILL PRODUCE, WITHIN LIMITED RESOURCES, THE MOST EFFECTIVE NAVAL FORCES IN THE 1990s?

-- FOR ALL OUR FORCES, IS THERE TOO MUCH INVESTMENT IN NEW EQUIPMENT AND NOT ENOUGH IN MAKING WHAT WE HAVE WORK BETTER?

-- CONCERNING THE ROLE OF OUR ALLIES, TO THE EXTENT THAT WE HAVE TO DEPLOY OUR FORCES ELSEWHERE FOR OUR COMMON DEFENSE (FOR EXAMPLE, PROTECTION OF OIL SUPPLIES), SHOULD OUR ALLIES ASSUME A LARGER SHARE OF THEIR LOCAL DEFENSE?

NEXT, IN THE AREA OF MORE EFFICIENT PROGRAM MANAGEMENT, A GREAT DEAL OF ATTENTION HAS ALREADY BEEN DIRECTED AT IMPROVEMENTS TO INSURE THAT INDIVIDUAL DECISIONS ON FORCE STRUCTURE AND WEAPONS WILL SUPPORT OUR OVERALL NATIONAL SECURITY OBJECTIVES. BUT, I BELIEVE, THAT WE WILL HAVE TO REDOUBLE OUR EFFORTS:

-- WE HAVE TO INJECT MORE COMPETITION INTO THE MORE THAN \$75 BILLION OF DEFENSE CONTRACTS WE WRITE, BECAUSE COMPETITIVE PURCHASES ARE LESS COSTLY THAN NONCOMPETITIVE ONES;

-- WE HAVE TO IMPROVE THE EFFICIENCY OF SUPPLY AND LOGISTICS SYSTEMS;

-- WE WILL NEED ADDITIONAL BASE CONSOLIDATIONS AND REALIGNMENTS, WHICH ARE ESSENTIAL TO HAVING THE RESOURCES NEEDED TO MAINTAIN OUR FORCES;

-- MORE CONTRACTING OUT OF DEFENSE OPERATIONS MAY BE NEEDED, WHERE ECONOMICAL; AND, OF COURSE,

-- WE MUST ENCOURAGE MORE COOPERATION WITH OUR ALLIES IN RATIONALIZATION, STANDARDIZATION, AND OPERATING TOGETHER EFFECTIVELY.

IMPROVEMENTS IN EFFICIENCY ARE DIFFICULT. THEY OFTEN CALL FOR NEW WAYS OF DOING BUSINESS, WHICH MAY SEEM THREATENING TO THOSE INVOLVED. IN ADDITION, THERE ARE OFTEN POOR INCENTIVES FOR IMPROVED EFFICIENCY -- SOMETIMES THERE ARE EVEN DISINCENTIVES.

THAT IS PRECISELY WHY ALL OF US -- WE IN THE EXECUTIVE BRANCH, THE CONGRESS, AND PRIVATE INDUSTRY -- HAVE TO WORK TOGETHER TO SHOW THE NATION AND THE WORLD, THAT WE CAN DEVELOP, BUILD, AND OPERATE -- WITHOUT WASTE AND MISMANAGEMENT -- THE BEST SYSTEMS OF MODERN WEAPONRY HISTORY HAS EVER KNOWN. OUR NATIONAL SECURITY NEEDS ARE VERY REAL, AND THEY MUST NOT BE COMPROMISED BY EXTRAVAGENCE OR INEPTITUDE.

IT IS A SPECIAL CHALLENGE, THEN, FOR ALL OF US, AS MANAGERS, TO INSURE THAT OUR DEFENSE PROGRAMS MAINTAIN THE HIGHEST POSSIBLE LEVEL OF EFFICIENCY WHILE THEY GROW IN REAL TERMS. OUR CITIZENS AND OUR NATIONAL SECURITY DEMAND NO LESS THAN THAT WE GET THE MAXIMUM MILITARY VALUE FOR EVERY DOLLAR SPENT.

THERE ARE NO EASY ANSWERS TO OR SHORTCUTS AROUND THE HARD CHALLENGES INVOLVED IN FIELDING MODERN MILITARY FORCES AND EFFECTIVELY COUNTERING THE EVER-IMPROVING FORCES OF OUR POTENTIAL ADVERSARIES. BUT THE PRESIDENT HAS PROVIDED THE LEADERSHIP TOWARD SUSTAINING A NEW LEVEL OF COMMITMENT TO OUR SECURITY. WE HAVE ALREADY MADE MAJOR PROGRESS IN MEETING OUR MOST PRESSING SPECIFIC NEEDS -- STRATEGIC MODERNIZATION, NATO STRENGTH AND READINESS, IMPROVED NAVAL CAPABILITY, AND GLOBAL FLEXIBILITY FOR AIR AND GROUND FORCES.

NO NATION HAS EVER WON A WAR WITH A BUDGET, AND WE ALL RECOGNIZE THAT A SPECIFIC LEVEL OF REAL SPENDING GROWTH BY ITSELF GUARANTEES NOTHING. BUT THIS PLEDGE OF GROWTH BY THE PRESIDENT IS A CLEAR SIGNAL TO ALL THAT WE INTEND TO BUILD AND MAINTAIN THE STRENGTH OF OUR FORCES, SO THAT THERE CAN BE NO MISTAKE BY ANY ABOUT OUR RESOLVE.

ALL OF YOU HERE TODAY SHARE THE COMMON GOALS OF SECURITY AND STABILITY. THIS ADMINISTRATION PLANS TO RELY ON YOU TO HELP IN ANSWERING THE MANY CHALLENGES WE FACE IN ACHIEVING THEM. WE CAN, AND SHOULD, LOOK WITH PRIDE AT OUR ACCOMPLISHMENTS, BUT LET US NOT REST AT THIS POINT. I LOOK FORWARD TO OUR WORKING TOGETHER ON ALL THE CHALLENGES STILL AHEAD.

THANK YOU.

SESSION III

DEFENSE REQUIREMENTS

(Introduction of Doctor David Blond, Office of the Under Secretary of Defense, Research and Engineering, was not recorded.)

Doctor David Blond

I was pleased to be invited to speak here today, primarily because this is a subject which Program Analysis and Evaluation has been working on over the last three or four months in an attempt to try to provide better quality economic information to industry. It seems that there is some thought that the defense industrial base is something which is always going to be there when we need it and that we don't have to prepare the industry for our requirements. I think that that is not true today and it probably was not true in the last few years, either.

The attempt that we have made in Program Analysis and Evaluation has been to model the five-year defense program from the point of view of translating what is essentially a planning document into an economically useful piece of information. Someone once said a few days ago that the defense industrial base and preparing it is not something that economists should have the sole preserved. I believe that after this presentation, you will see that at least economists can say a few good words about what to do and we can leave it to the technological and intellectual establishment to make the best use of this information.

The five-year defense program is certainly a starting point for this analysis and Program Analysis and Evaluation, if you are not familiar, is the initial programming part of OSD and our aim has been to keep the FYDP document prior to the point when it goes to the Congress and to budget accordingly, given the amount of money available. What we have to do, however, is to translate the FYDP from a TOA-based program document into an outlays document in some base-year dollar. And since most economic models work in 72 dollars, we need to find the equivalence of each of the main categories in 72 dollars. So we have the FYDP, which is the historical period, plus the five-year forecast and we translate this using a set of computer algorithms into the outlays by major appropriation categories for the next five or six years and then we translate these appropriations, or the amount that we are going to spend on shipbuilding and conversion, on aircraft, into 400 industrial categories which represent the basic industrial pattern in the United States. There are about 200 manufacturing establishments and the remainder are service and primary goods producing establishments.

Now, this is just the starting point and we then take this information and we translate it through an input-output model into a macroeconomic model to try to get down to the actual intermediate goods requirements that this FYDP would require. To give you example, we can show you how the budget shares out. The top 2.5 percent in terms of final demand items purchased from the private sector, using the 1967 input-output bridge matrix, as an example. Communications and control equipment take 12.6 percent; aircraft 10.4 percent; guided missiles 6.7 percent. However, when we look at what this means in terms of intermediate goods, i.e., the things that go into those final demand items, we see that the share changed somewhat so that communications and control equipment is 7.7 percent; aircraft is still there, but suddenly motor freight is taking 3.5 percent of the gross output derived from the defense multipliers. It is this kind of information that is important to understand where we are coming from in terms of bottlenecks in industry.

The basic procedure that we use is to take the Five Year Defense Program, we translate it using a set of algorithms developed by the Comptroller each year which say that a naval ship spends out maybe 5 percent in the first year, 10 percent in the next year, 30 percent in the following year, and so on for a ten-year period. It keeps track of the amount that is unspent on prior years' budgeted programs and it looks forward by taking the amount of the obligation authority that they expect to get and which they are planning to get in the FYDP, into the future in terms of the outlays. And so we translate this again into these 400 industrial categories and return them to a single share matrix.

To see what this turns out, we can show you what defense spending by function in 1980 looks like. [Graphs not available] I don't expect you to understand this, but basically you can see that we have military personnel, retired personnel, operations and maintenance, and that this is now split up into key industry groups, where we're spending the money or at least where we think we're spending the money. What we do is basically compress something like this, except that instead of having 10 columns across the top we would have something like 50 columns across the top and we would compress it back to a single column which we would then turn into a share matrix that adds up to one. The reason for doing this is that we are going to release this information to an econometric model that is available in the private sector and that this information might contain some gem of classified information, i.e., what the top line of our expected outlays are. So in order to ensure that it remains somewhat classified, we return a single share matrix, which is then integrated into this modeling system. I think that the next two graphs can give you a feel for why it is important that we see how the shares of final demand change over time. In this case, we have very little variation, although each 1/10th of 1 percent

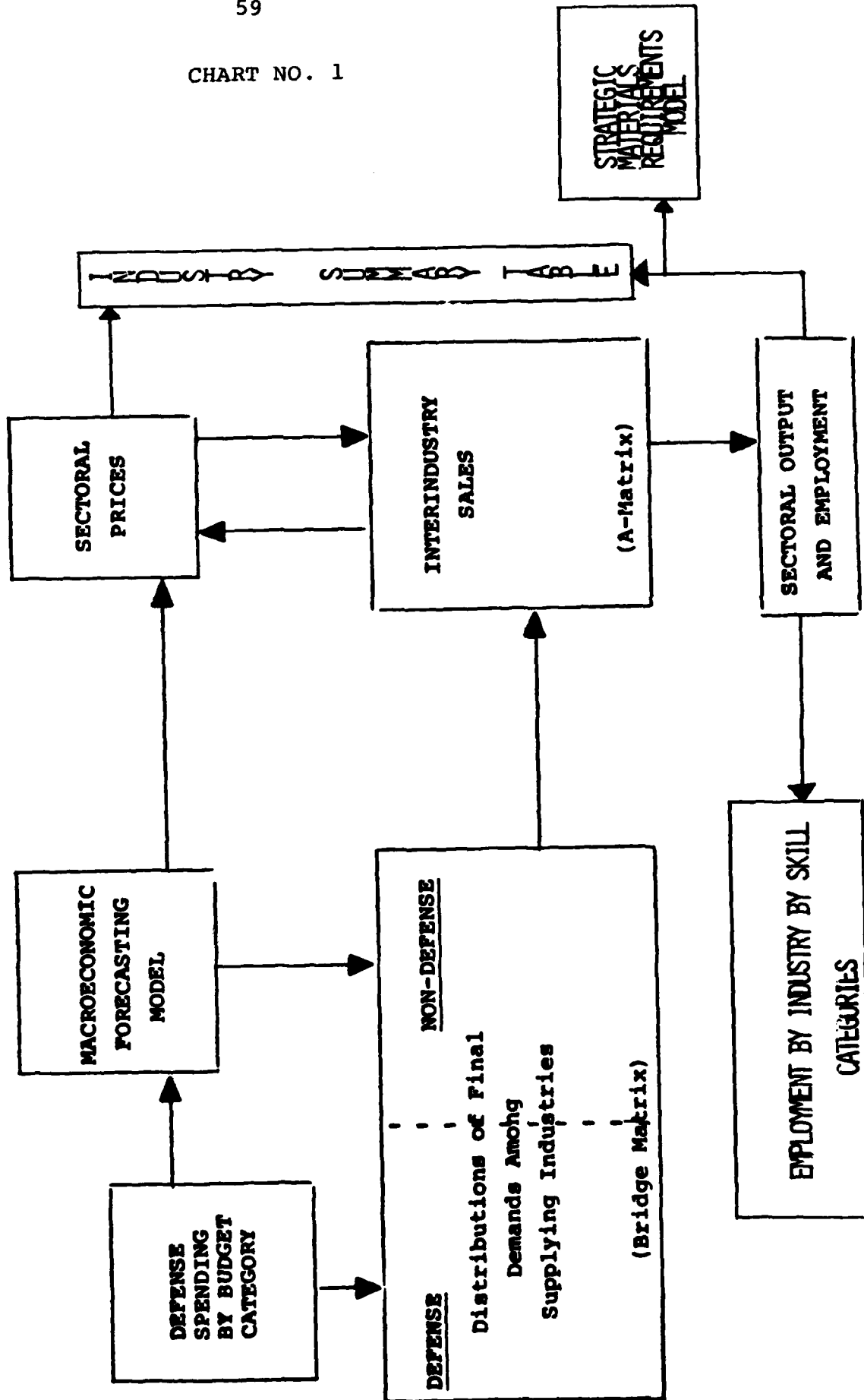
of outlays in the defense budget is about \$150 million. Even the small aberrations that show up here are somewhat important. The next graph, however, is a little bit more dramatic. What this shows is that in 1980, approximately 3.5 percent of direct outlays, final demand, would be given to the shipbuilding and repairing industry, which is the private sector firms. Approximately 3.5 percent would go to guided missiles and space vehicles or the industry that supplies those items. But by 1986, guided missiles and space vehicles coming out of what is being appropriated this year and next year and what was appropriated in prior years for this area, suddenly starts climbing until it reaches almost 4-1/2 percent of our total outlays in those years. And so it is somewhat important that we have a year-by-year statement of what we are going to be spending our money on in order to get the best estimate of what our final demands will be.

As I say, this is just the first step in what is a slightly more complicated set of models and we will try to quickly go through that. We are using, for the primary modeling system, the Data Resources Interindustry Model System. [Chart not available] This is a pictorial that the contractor has put up which shows some of the linkages within the modeling system. Basically what it is is that we put in a scenario of defense spending and a pattern of spending into their macroeconomic model. They supply other policy assumptions on tax cuts and monetary policies and a variety of other special assumptions that they would run. We would then run a model which would go through a cost forecasting service model which would get us the primary product prices to expect for that time period. This, then, goes through a variety of other models and into an input-output model which is a model of the United States economy showing the structure of demand for each of these 400 industrial final demand items. For example, an aircraft is made up of approximately 48 percent value added in the aircraft industry and the remaining part of that total final demand comes from other industries supplying the aircraft industry.

To give you a little simpler idea of what the defense model is like, we have a slide. (See Chart 1) Basically, defense spending by budget category has been translated into a distribution of final demands among supplying industries. They receive from the macroeconomic forecasting model a set of final demands from the non-defense sectors - that's consumption in the private sector, including other government demand. This is then entered into the interindustry sales model, which is the input-output model and from there we go to a sectoral output and employment model, which is the final product, which goes to a summary table and we have prices and a variety of other information that comes off that, including the number of employees that one would expect from a certain size defense program and then using a third model called the Employment by Industry Skill Category Model, we can

CHART NO. 1

DEFENSE ECONOMIC IMPACT MODELING SYSTEM



divide the potential number of employees into something like 300 separate skill categories. This is a model that is put together by the Bureau of Labor Statistics which shows the number of engineers by something like six or eight different categories, chemists, draftsmen, industrial engineering technicians, for any industrial demand or any industry. And so what we have here is a set of models which would allow us to understand as completely as we can at this present moment what the Government's demand for defense is doing to the private sector.

The last is the only thing that we're not ready to do right now. It is a list of the key minerals which we would like to be able to determine the quantities in units/pounds of each of these materials that is included in the gross sales of any industry. (See chart 2) It is a model which the Federal Emergency Management Agency is now using, but which has some problems with specifications.

The reason we are going through all this is to try to get better quality information back to the industry. For this reason we have prepared something that is a summary table which we expect to be made available to anyone who is interested in receiving it for their industry or for the product that they sell to the Government. (See chart 3) What this will show is the direct demand, which is the direct purchases by the Federal Government for defense coming from that industrial category. The next line will show the direct and 1st order indirect - and by 1st order indirect, what we mean is the final sales to the Government plus the sales of that industry to other industries who are supplying final demand items to the Government for defense purposes. The last category is direct and all indirect, which is really the gross sales of the industry that can be expected to come as a result of a certain amount of defense final demand. To understand what a direct sale concept is, we can take the following example. If we trace some of the transactions using relationships included in the 72 input-output table, associated with a \$1 million direct DOD purchase of aircraft, we would find the following: that \$8, 222 of that \$1 million in final demand comes from the screw machine and products stamping industry. In order to produce those screws or whatever, that industry would have to buy \$755 million of primary iron and steel. In order to produce the primary iron and steel, for example, that industry would have to purchase \$9.60 from the maintenance and repair construction industry. And the maintenance and repair construction industry would have to turn around and purchase approximately 30¢ worth of fuel from the petroleum refining industry in order to service that \$9.60 worth of sales. So it is this final summary gross output concept which is what is shown by the direct and all indirect, and it represents sort of the end product of a dollar's worth of final demand for defense going through the entire United States economy.

CHART 2

KEY PRIMARY PRODUCTS TO BE INCLUDED
IN THE DEPARTMENT OF DEFENSE

STRATEGIC MATERIALS REQUIREMENTS MODEL

ALL FORECASTS WILL BE IN TERMS OF LBS.

PRIMARY MATERIALS LISTED IN ORDER OF PRIORITY

ALUMINUM METAL GROUP
CHEMICAL AND METALLURGICAL CHROMIUM GROUP
CHROMITE, REFRACTORY GRADE ORES
COBALT
COPPER
PLATINUM GROUP METALS, IRIIDIUM
PLATINUM GROUP METALS, PALLADIUM
PLATINUM GROUP METALS, PLATINUM
TITANIUM SPONGE
QUARTZ CRYSTALS

COLUMBIUM BEARING METATERIALS GROUP
FLUORSPAR, ACID GRADE
FLUORSPAR, METALLURGICAL GRADE
GRAPHITE, NATURAL-MALAGASY CRYSTALLINE
GRAPHITE, NATURAL - OTHER THAN CEYLON AND MALAGASY
LEAD
MICA, MUSCOVITE BLOCK, STAINED AND BETTER
MICA, PHLOGOPHITE BLOCK
NICKEL
PYRETHRUM
RUBBER
SILICON CARBIDE, CRUDE
TANTALUM BEARING MATERIALS GROUP
TIN
VANADIUM GROUP
ZINC

GRAPHITE, NATURAL-CEYLON
JEWEL BEARINGS
MANGANESE, DIOXITE, BATTERY GRADE GROUP
CHEMICAL AND METALLURGICAL MANGANESE GROUP
RUTILE

CHART 3

SAMPLE TABLE FOR AN INDUSTRY GROUP'S OUTPUT

300 Electronic Computing Equipment SIC 3573		ACTUAL		FORECAST							GROWTH CAR 79-86
		1979	1980	1981	1982	1983	1984	1985	1986		
Output - 1972 Dollars											
Defense											
Direct		- level	-	-	-	-	-	-	-	NC	
		- growth	-	-	-	-	-	-	-	NC	
		- share	-	-	-	-	-	-	-	NC	
Direct & 1st order indirect		- level	-	-	-	-	-	-	-	NC	
		- growth	-	-	-	-	-	-	-	NC	
		- share	-	-	-	-	-	-	-	NC	
Direct & all indirect		- level	-	-	-	-	-	-	-	NC	
		- growth	-	-	-	-	-	-	-	NC	
		- share	-	-	-	-	-	-	-	NC	
Nondefense											
Direct & 1st order indirect		- level	-	-	-	-	-	-	-	NC	
		- growth	-	-	-	-	-	-	-	NC	
		- share	-	-	-	-	-	-	-	NC	
Direct & all indirect		- level	-	-	-	-	-	-	-	NC	
		- growth	-	-	-	-	-	-	-	NC	
		- share	-	-	-	-	-	-	-	NC	
Total		- level	-	-	-	-	-	-	-	NC	
		- growth	-	-	-	-	-	-	-	NC	
Employment - thousands											
Defense - direct & all indirect		- level	-	-	-	-	-	-	-	NC	
		- growth	-	-	-	-	-	-	-	NC	
Total		- level	-	-	-	-	-	-	-	NC	
		- growth	-	-	-	-	-	-	-	NC	
Prices											
Index		- level	-	-	-	-	-	-	-	NC	
		- growth	-	-	-	-	-	-	-	NC	
Imports - 1972 dollars											
Defense - direct & all indirect		- level	-	-	-	-	-	-	-	NC	
Nondefense - direct & all indirect		- level	-	-	-	-	-	-	-	NC	
Defense import share domestic use		- ratio	-	-	-	-	-	-	-	NC	

7/25/80

We are going to show the same information for the non-defense final demand and what it is producing and then we will show employment and we'll give an estimate of prices for that industry, and we'll give an estimate of the amount of imports that we would expect to require to meet that amount of final sales.

What is the purpose of the system? The primary purpose of the system is to provide a better quality information to industry as a prerequisite for asking industry to respond to our requests for additional industrial capacity. The aim is to focus attention directly on areas of potential bottlenecks. Through information feedbacks from industry, we expect the Department of Defense can help industry to overcome problems due to overtaxed production facilities before they occur. Information derived from the skill matrix breakdown on defense final demand may be used for in-house, as well as made available to other federal and government agencies. For example, the Department of Education and Labor may find these estimates useful for their work. It is our hope that job training and basic educational programs can be adjusted to concentrate in areas of greatest critical need.

In short, the intent of the Defense Economic Impact Modeling System is to provide the Office of the Secretary of Defense with a highly automated capability to assess how a pattern and amount of expenditure on national defense will affect industry output, employment, skill requirements, prices, and the adequacy of raw material stocks. By providing some of this information on likely long-term impacts of actual or contemplated budgeting decisions, we may help American firms meet our demands without disruption of the private sector product flows. The effectiveness of this new system of information depends on the reaction of industry to the new system itself. The system described is therefore but a first step in the process of establishing a meaningful dialogue between government and industry on DOD plans and proposed industry responses.

Thank you.

Allen C. Sheldon

Thank you, Doctor Blond. We will now have a speaker from each of the Services. Following these three, we will then gather at the table and have a panel discussion.

Our first speaker, from the Army, General James H. Merryman, is the Assistant Deputy Chief of Staff for Research, Development, and Acquisition. General Merryman.

Major General James H. Merryman

I am very happy to be here today and I say that very honestly. Your Association serves a very worthwhile purpose and if there was ever a time when our nation needed such an Association, it is now.

Today I want to talk to you about an Army that is finding it very difficult to compete with the Soviets numerically, quantitatively, and qualitatively. More important, though, I want to tell you about what we're trying to do about it.

As all of you know, in the 60's, Vietnam took its toll in lives and in preparedness for the always possible "bigger" war. As we poured money into those things that enabled us to fight in Southeast Asia, there was little or no modernization. During that same period and continuing through today, the Soviets carried out a modernization program unparalleled in peacetime.

In the 70's, as the Vietnam war ended and we were able to divert our dollars toward other efforts, we began an R&D program designed to close that gap that had developed.

Today, as we start the 80's, we are ready to reap the benefits of our labors of the last ten years, as most of those R&D programs are now being completed. During the next ten years, we hope to modernize your Army by procuring those systems that have been developed. This is an ambitious undertaking, for the cost will be high. However, it is an undertaking about which there is no choice unless America is satisfied with an Army that is provided with second-rate equipment.

To start my presentation, I want to tell you a little bit about the Soviet Army that we face. Following this, I want to talk to you a little bit about how we do our planning to try to ensure that we get the equipment we need. Then I'll describe some of our new pieces of equipment. Finally, I'll tell you about some of the things we're doing as far as organizing the Army and training the Army, then I'll touch on industrial preparedness as we see it. One thing to keep in mind while I talk about modernization is that we must never forget that the new system being introduced today will probably be obsolete or of limited effectiveness sometime in the future. In today's fast-moving world, the time of obsolescence comes around much faster than in the past. Realizing this, we must remember that the system that will replace the system being fielded today will not be there unless we develop it today. To ignore the requirements for R&D in order to field an effective Army today would be folly, for it ignores the future.

Let's talk about the Soviet Army. I'm not going to give you the old story about Russians being ten feet high, because you know they're not. As a matter of fact, the tankers are barely five feet high. But the Russian Army is capable, well-equipped, determined, trained and ready to fight a fully modern war. They have first-rate equipment in every single significant category of military weapons and lots of them. They have excellent standardization and their interoperability of equipment with the six other nations in the Warsaw Pact. We've always recognized their ability to build rugged and reliable systems but now they are equipped with systems as technologically sophisticated as any manufactured anywhere. Their Army is completely mechanized today. They move their troops and motorized rifle divisions using two personnel carriers. The current top line tank is the T-72. This dude has a 125 mm gun with an autoloader, improved armor and advanced fire control. They've got two new self-propelled Howitzers that combine the traditional Soviet excellence and artillery with their reliable tracked vehicle technology.

A subject dear to my heart, for those of you who know me, the Soviets have adopted our air mobility concepts that we developed in the early 60's and have adapted their helicopter fleet for vertical envelopment tactics. Soviet helicopters have always been monsters and they hold most of the world's heavy-life records and they also build their machines to be rugged and reliable.

The HIND-D has been beefed up to be one of the most heavily armed helicopters in the world. This aircraft has guided and unguided rockets, machine guns and cannons, also a large radar and infrared signature, fortunately.

All in all, the Soviets are equipped to rapidly move large numbers of troops and heavy equipment through the air and on the ground. While on the move, the Soviet Army is protected by the densest tactical air defense system in the world, which includes mobile missiles SA-6, 7, 8 and 9, and the old ZSU-23-4. The system covers low and high altitude and is capable of defending against both high performance aircraft and slower helicopters. The Soviet doctrine routinely calls for the employment of chemical warfare and you all know where we are on this subject. Chemical weapons and defensive equipment are an integral part of each division. Each major unit has the capability to deliver chemical weapons and operate effectively in a contaminated environment. They currently have five different nerve and blister agents that can be delivered by rocket, artillery, mortars, bombs and sprays.

They have a tremendously active electronic countermeasure capability used for jamming and target acquisition. In the '73 war, the Israelis learned to their regret that you can't take

the ability to communicate for granted. The Soviets integrate all of this fine gear into a warfighting machine that is intended to run 24 hours a day in all types of weather. Their tactics call for massive concentrations of artillery and armor at weak points and massive suppressive fires are applied to the full depth of enemy defenses and vigorous sustained forward movements take advantage of gaps in defenses. They're great believers in artillery, tanks, and massive concentrations of each. As a matter of fact, they're believers in massive amounts of just about everything.

All of this equipment is generated by a large and capable industrial base. Due to the destruction and relocation of the industrial capacity during World War II, the Soviets have relatively modern industrial facilities and in their society, military needs come first. We find even the new automated and ostensibly civilian truck factory that Ford helped them build at Kama River is providing its output for Soviet troops in Afghanistan. Their factories are now turning out weapons at rates that rival our peak output during World War II, and this is peacetime, at least for us.

Where does all this technology come from? As you know, they don't have any private firms with engineering talent. They rely on full-time design bureaus who constantly develop and refine designs for weapon systems. Some of these bureaus have familiar, almost household names: MIG, Kalashnikov, Tupolev. If they're not familiar to all of you, they're very familiar in my household. We have seen three generations of their tanks since the '60's: the G-62, G-64, and T-72. The T-80 and follow-on tank are in different stages of development. On the other hand, you know what we have. We've developed the XM-1, which we are now just beginning to field, and the M-60.

Although in the past the Soviets have relied extensively on evolutionary development and product improvement, they are now turning out revolutionary new weapons. For example, the auto-loader on the T-64, T-72 and T-80 tanks' main gun, the HIND-D attack helicopter's radar-directed automatic cannon. Even the Zsu, which has been around since the early 60's has both all-weather radar-directed fire and advanced land navigation capabilities. And we can expect a follow-on version of this particular weapon with improved mobility, armor, and firepower capabilities.

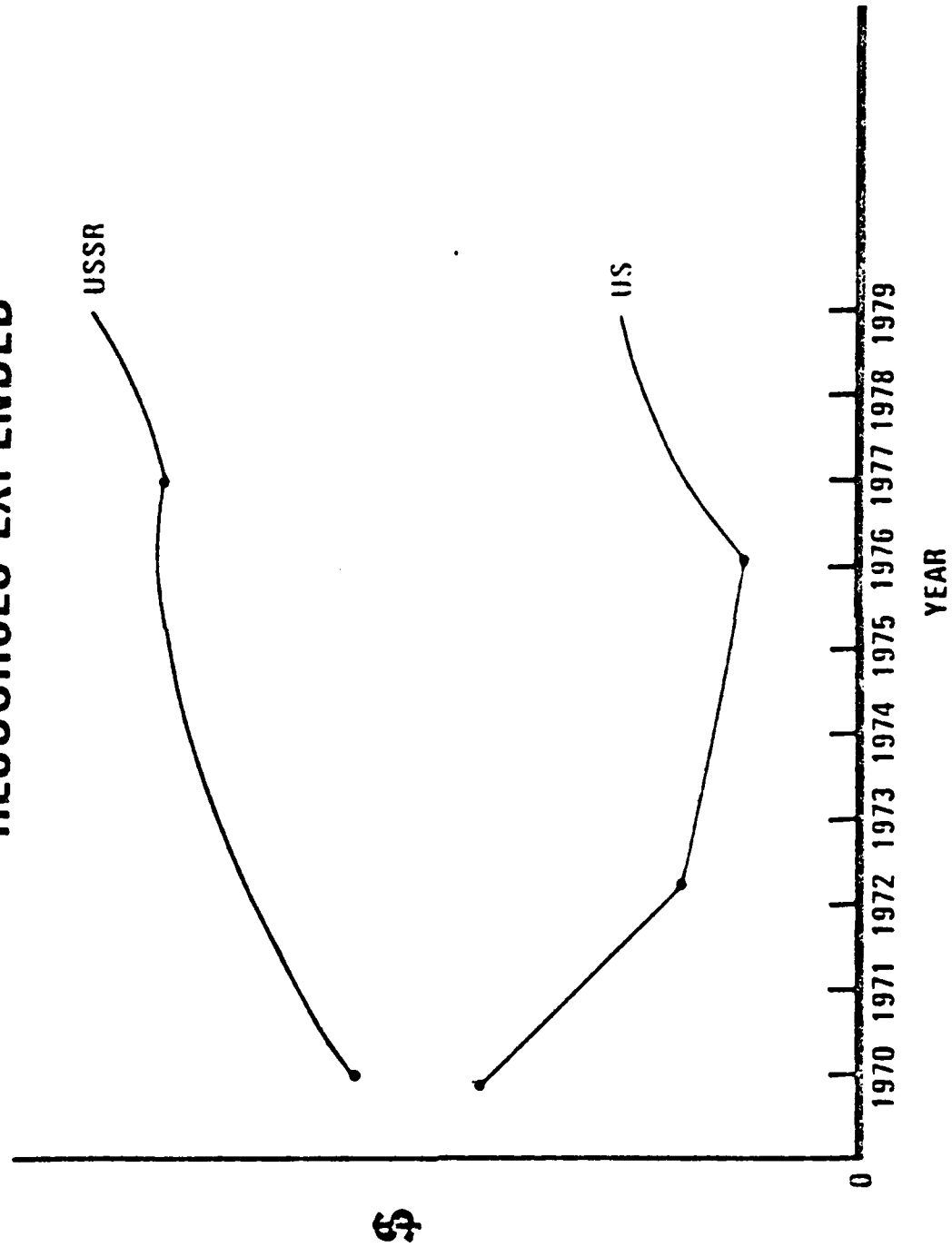
Now, of course it is not my role to evaluate the national goals of the Soviets. But anybody reading the Washington Post and reading a little bit of history can see that their thesis has changed very little since Peter the Great - a search for a warm-water port, a buffer in eastern Europe, and expansion and security in Siberia and eastern Russia. One only need look at Afghanistan today for confirmation.

Where do we stand today vis-a-vis the Soviets? To keep it unclassified, as you know, I can't go into precise dollars, but this slide (See chart 1) will give you a good indication. Since we started phasing out of Southeast Asia in 1971, the Soviets have vastly outspent us. In 1970, they outspent us by 35% and now they are spending at about 300 percent our rate. This chart (See chart 2) shows symbolically the current quantity and quality comparisons. Everywhere there's a plus or equal sign on the NATO column, there's a footnote which says, "Warsaw Pact improving". What this shows you is that we're behind and we're not even catching up. The Soviet production figures (Chart no. 3) do include older equipment for their export market, but so do ours.

In the technology area, the problem is even more serious. Seeing General Miley in the first row brings back memories of eight years ago when I was Assistant Secretary for R&D and I remember what the information showed us in those days. It gave you a pretty comfortable feeling that we were pretty far ahead in many areas. Our large advantage of those days has been eroded in almost every area. Only in the field of micro-electronics and computers can we be assured of a clear advantage now and in the future. In almost every other area that is of significance to military systems, the Soviets are equal or better, and more importantly, they have a strong lead in effectively integrating this technology into fielded systems.

I haven't meant to demoralize you and I haven't meant to push you to the point of cashing in your savings bonds because so far I've only given you the bad news in the picture and now I'd like to give you some of the good news. What we're trying to do in the Army is to respond to the threat in four ways: by better equipment, by organizing to maximizing the capabilities of the equipment, by better training, and by improved tactics. In regard to equipment, my script says we are upbeat and optimistic. I think I should have rewritten that to say that I'm cautiously optimistic. We've got the stuff - it's a matter of getting the dollars to put it in the field. In the next three to five years - in some cases beginning right now - we have the opportunity to field a brand new army, one worthy of the technological ingenuity of the nation it protects. A new tank, one that can outshoot, outmove, and outlive any other that has ever been built, is now coming off the assembly line. For the first time in history, we will have a fighting vehicle for our infantry, arriving at last in the company of other modern armies that have had them for years. Two new helicopters, one devastating against armor and the other vital to our mobility and logistics, will be built. The latter is already in the hands of the 101st Airborne. We have developed in the last few years, and are beginning to produce, a laser homing artillery shell capable of first round hits against moving targets at 15km. We have developed the most technically ambitious and devastatingly effective air defense

GROUND FORCES RESOURCES EXPENDED

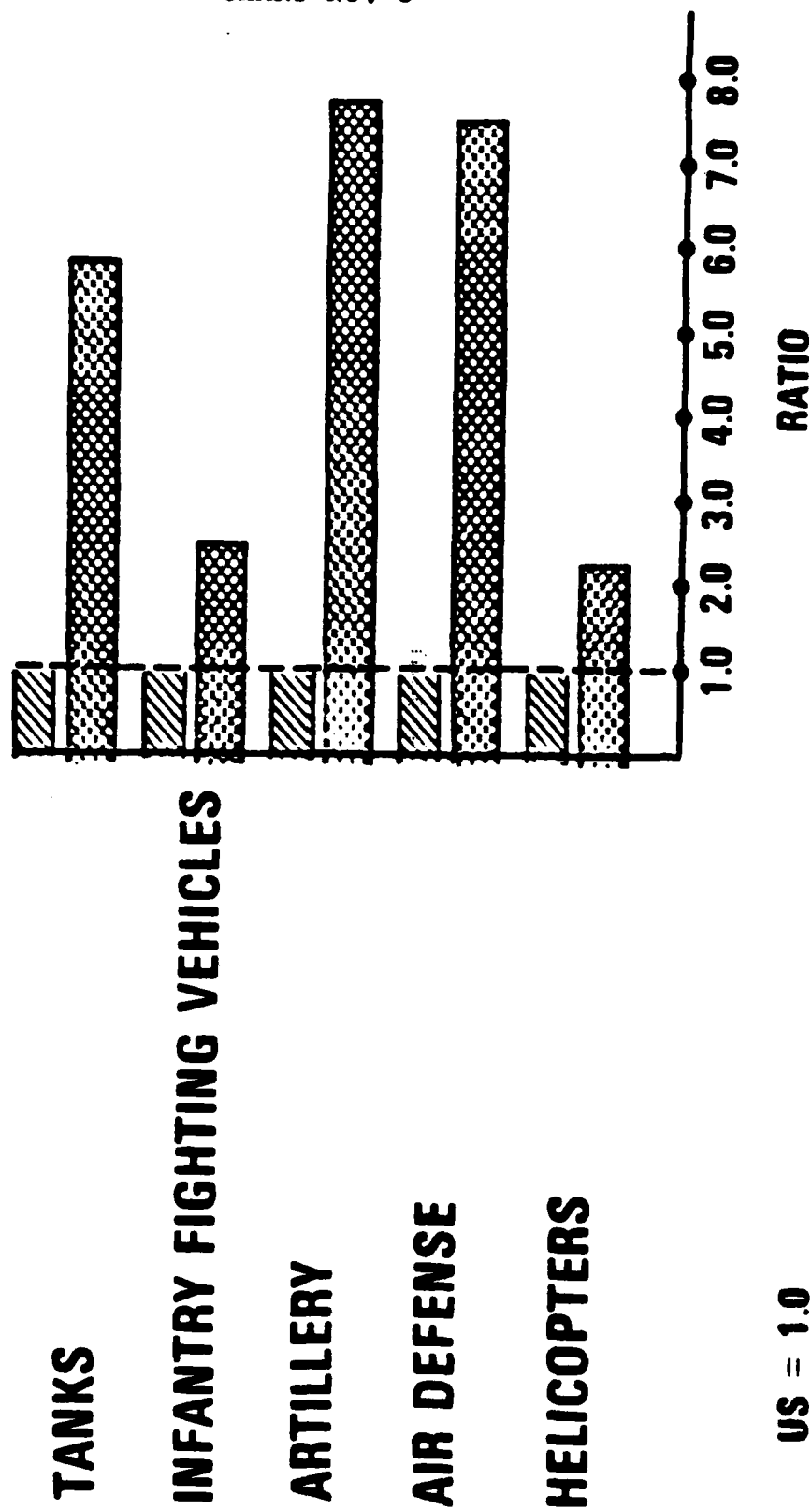


FIELDIED QUANTITIES & QUALITY NATO VS WARSAW PACT

WEAPON	QUANTITY		QUALITY	
	NATO	WARSAW PACT	NATO	WARSAW PACT
TANKS		+		+
ARTILLERY & ROCKET LAUNCHERS		+	+	
ARMED FIGHTING VEHICLES		+		+
ANTI-TANK MISSILE LAUNCHERS	+		=	=
SAMS		++	=	=
HELICOPTERS		+	=	=

+ - Warsaw Pact Improving
=

U.S./U.S.S.R. RELATIVE ANNUAL PRODUCTION RATES



missile system ever attempted and we recently got a production decision. We hope to back it up with two other systems ready for fielding and another one on the way. We're giving the artillery its first multiple rocket launcher capability in 30 years. The Airborne and Air Mobile forces are being given the first new Howitzer since World War II, and finally our division commanders are being provided the ability to observe the movement of the enemy, his strength, and his equipment, before the battle begins.

We have done these things and we've done quite a bit more. What I'm going to tell you about today is a new Army that can be on the way.

Before I show you some of our new equipment, I'd like to talk to you a little bit about the process we go through to develop it. The Army, unlike any other organization, has individuals who are very strong proponents for their systems and if you don't watch out, you end up buying what the most articulate spokesman argues for buying. To preclude that from happening in the Army, we've come up with what we call mission areas, which we hope cover the battlefield. What we do is to analyze these mission areas to see where we fall short in being able to counter the threat or are being able to take advantage of our technological opportunities to make a quantum jump in our capability. That's a key point and I'd like to say a few things about that. I was talking to General Vessey the other day and there's a tendency on our part to talk about "doing things to counter the threat." We've given ourselves to this because all of our requirements documents have to have the threat up front and you can only explain the need for a system based on the threat. That's a very, very dangerous hole in the ground we have to avoid, because it precludes in some cases our ability to make a quantum jump that you and your organizations, through your technological capabilities, can provide us. So the second half of what I just said, taking advantage of the technological opportunities to make a quantum jump, is very key. The one example that I'd like to give. By using the mission area approach we hope to establish a methodology that results in our fielding systems that are needed in a timely manner. Our methodology must include not only fielding new systems in a timely manner, but planning for modifications that will be made and what we think will replace the systems being fielded. It's very key that we think in terms of what we are producing and putting in the field today, how we're going to improve it, and what's going to replace it. It's very key, also, that we convince our Department of Defense leaders and the Congress of this. Far too often, you'll say, "here's what I want." If they ask, "are you sure that's all you want," and you make the mistake of saying, "well, we'd like to add such and such to it," they'll say to come back and see them after you've made up your mind on what you want. Of course you can't do that, because the threat is always changing. If we waited until we had the

perfect vehicle, we'd never field the vehicle. So it has to be a three-step process.

I would like to show you the first of those seven mission areas, (See Chart No. 4) Close Combat. What this shows you are the systems that are covered in that mission area. I want to talk a bit on each one of these and show you the dollars that we currently have planned to go against them.

This is the XM-1, our prime offensive instrument. I think you all know enough about the tank for me to preclude any further remarks as to what it will do. It is quite a weapon system. The XM-2 infantry fighting vehicle, with its sister the XM-3, will be produced in proportion to the numbers of XM-1s. Many people will say, "why don't you buy all the tanks you need?" It is not that simple. We don't have the money in the first place. But it does little good to buy all the tanks you need if you don't buy an equivalent number of vehicles like this so that we can fight the infantry and the armor together.

These systems together will give us a qualitative edge on the USSR, which we've got to have to offset the quantitative superiority I spoke of earlier. For the first time, this vehicle will provide the infantry the capability of carrying their men in a way that they can fight under armor.

In addition to these two new systems, we will continue to upgrade the OM-60 by adding improved fire control systems to include laser range finders, digital ballistic computers, and tank thermal sights. It is essential that we do this because this tank will be with us well through the 80's. We are currently working with the Marine Corps on the development of a new light weight armored vehicle. It is intended for use by the rapid deployment force. It will combine agility, low profile with a high velocity automatic cannon. Combat aviation, in particular the attack helicopter, will give us the capability of very rapid reaction to an enemy armor threat. Attack helicopters possess the capabilities to destroy tanks and other armor vehicles with anti-tank guided missiles. I would like to make a point. There were some who, at the end of Vietnam, thought that the heyday of Army aviation had been reached. Needless to say, I think I can honestly tell you that the Army's leadership does not feel that way, nor do I think anybody else now is feeling that way because it is becoming very apparent that if we have to fight a war somewhere else, other than Europe, you'll probably have to fight armor in that war and it will be most difficult to fly enough tanks to that location to handle that armor and that leads you to the next question, what is it that can fight the armor. What can fight the armor are helicopters like the UH-1 that can carry infantrymen with tows.

CLOSE COMBAT

MAIN BATTLE TANK	M60 PIP XM1
LIGHT TANK	AMAS
INFANTRY FIGHTING VEHICLE	IFV/CFV
ATTACK HELICOPTER	AH-1S AH-64 (AAH)
AIR LAUNCHED ANTI-TANK GUIDED MISSILES	TOW HELLFIRE
MEDIUM ANTI-TANK GUIDED MISSILE	IMPROVED TOW
LIGHT ANTI—TANK GUIDED MISSILE	INFANTRY MANPORTABLE ANTI- ARMOR WEAPON SYSTEM (IMAAWS)
LIGHT ANTI—TANK WEAPON	VIPER

The Cobra dates from the Vietnam war. I was in Vietnam when we introduced this in 1967. This helicopter is a completely different weapon system today. There are four tows on each side. If you have not had the opportunity to fly it, I would highly recommend you do so. It's very convincing once you sit in that gunner's seat and see how easy it is to find the tank, pull the toggle switch and punch the button.

Soon we'll be fielding the advanced attack helicopter with the Hellfire missiles. It will have a night a bad weather capability we have never enjoyed in an attack helicopter before. This capability, coupled with a Cobra, will give us a full spectrum of attack helicopters.

R&D trends between now and 1990 are expected to yield additional improvements to the AH-64, such as increased survivability, safer nap-of-the-earth flight, and tactical operations in adverse conditions through the employment of advanced electro-optical sensors, communications and navigation equipment. Also, it will have radar and infrared countermeasures, passive defense, air-to-air missiles. Improvements to upgrade the AH-1 will also continue and sometime in the 80's we might get started in developing a light attack helicopter to replace the Cobra.

With respect to the IMAAWS, we have just made a decision to give two contracts to Honeywell and McDonnell-Douglas; Honeywell will develop a staff gun launch projectile with a self-forging fragmentation capability and a laser beam rider to McDonnell-Douglas.

For those of you who are not familiar with this program, what will happen is those two will, for the next couple of years, develop their systems and at the same time DARPA's tank breaker effort, which is an imaging infrared passive homing system, will develop their system and then at the end of the timeframe, we will decide which way we should go.

The tow missile is shown. (Picture not available) The picture shows you the three current tows - the one on the right which you are all familiar with, the one in the center is the improved five-inch warhead, the one on the left is the improved six-inch warhead with the improved motor and improved guidance. The emphasis over the next ten years in this category will be on product improvements to the tow warhead and missile to meet the increased armor threat. We are also developing an improved version of the Hellfire missile which will be a true fire-and-forget system. The replacement for the Dragon system will be the IMAAWS and we look forward to our procuring a NATO-developed tow follon-on sometime in the late 80's. Some of these systems may employ new sensors as well as new attack techniques which seek out softer kill areas on enemy tanks.

The final category within the close combat area is what we call individual weapons and ammunition. Standardization of small arms ammo is expected to provide the baseline for the joining of international R&D efforts toward cartridges of increased accuracy, weapons with fully selectable rates of fire, and modernized high capacity manufacturing processes. Warhead and propellant technology improvements are expected to enable continuation of the trend toward very light, highly effective antiarmor weaponry for the individual soldier.

The next mission area is fire support. This category includes all weapons that deliver fire through an indirect flight path. It includes mortars on the low end up through surface-to-surface missiles on the high end.

In the area of cannon artillery we are focusing on efforts to extend range, increase accuracy, improve lethality, and reduce response times through automated procedures.

We are currently fielding the M198 towed Howitzer and have been product-improving the 155mm and the 8 inch Howitzers for the last ten years. During the next ten years we hope to field a new Howitzer that we are going to call the enhanced self-propelled artillery weapon system (ESPAWS). This system will replace the current 155mm and 8 inch Howitzers.

Precision-guided munitions, such as the Copperhead, are other weapon systems important in this category. This artillery round is guided by a laser designator from the ground or in the air and can hit a moving tank at 15 km.

The multiple launch rocket system is a free rocket system with a submunition conventional warhead that is in final development and will soon be in the inventory. It is designed to destroy area targets.

During the next ten years, our plans place emphasis on fielding those systems which improve the U.S. capability to effectively disrupt or destroy the second echelon armor and command and control facilities. Development work will be accelerated on these systems so that these forces can be engaged before they can influence the battle.

The Corps Support Weapon System (CSWS) which will provide this capability will go into development in the mid-80's and should be fielded before the 90's. It will consist of a missile which will deliver a warhead up to around 150 km. It is conventional, employing large numbers of submunitions that will individually seek out and destroy armored targets. (See Chart No. 5)

FIRE SUPPORT MISSION AREA

PROPOSED FY 81-85 PROCUREMENT PROGRAM

ESCALATED DOLLARS IN MILLIONS
BASE YEAR 1981

SYSTEM	FY 81		FY 82		FY 83		FY 84		FY 85	
	QUANTITY	\$	QUANTITY	\$	QUANTITY	\$	QUANTITY	\$	QUANTITY	\$
MULTIPLE LAUNCH ROCKET SYSTEM (MLRS) LAUNCHER/ MISSILES	48	115.2	68	180.0	72	401.2	76	416.8	16	521.5
	2340		2496		25968		25968		51768	
COPPERHEAD	4300	122.1	7600	163.4	7153	137.7	7405	144.5	6960	134.7
PERSHING II			39	104.4	134	220.9	142	280.6		124.3
M110A2 8" SELF PROPELLED HOWITZER MODS		11.5		10.3		23.1		13.1		8.0

The next area is air defense and this is a mission area undergoing great change. The Army's present air defense systems consist of the long-range Nike Hercules, the medium-range Hawk, Chaparral and Vulcan gun systems, the Chaparral missile and Vulcan gun system, and the Redeye. As well, we are completing development and beginning to field the Patriot missile system. We just currently received permission from the Department of Defense to go on contract. This is the world's most advanced air defense system. The big difference between it and the Hercules is that it can engage many aircraft instead of one at a time. Another new system that we'd like to field is the Roland. This is a European-designed system that has been adapted for U.S. use and built in this country. We are also developing a division air defense gun which is designed to provide an all-weather capability that can operate alongside our armored and mechanized forces, and can counter the helicopter threat. If we can keep this system in the affordable range, we are hopeful it can be fielded in the late 80's. The Stinger is going to replace Redeye. The big difference here is that the Stinger provides a head-on capability against high-performance aircraft while the Redeye can only chase them up the tail. (See Chart No. 6)

The next mission area is Command Systems. If the equipment I've described up until now is the muscle of the Army, the command systems I'm going to talk about are the central nervous system. The Soviets have the best electronic warfare capability in the world. We, on the other hand, have the best technology base in electronics and communications. Our challenge in developing our systems to enable our commanders to run the battle is to keep ahead of their disruptive jamming capability in communications. The command systems mission area is expected to see the following changes between now and 1990.

First, a strategic satellite communication system, with an increased bandwidth capability, capable of supporting the joint service users and other special users during jamming conditions. Increased efficient use of the satellite allows for more capability while reducing the number of satellites being used. Smaller tactical satellite communications terminals with increased mobility, survivability, are required to support the tactical forces during the next 15 years. Fielding of an anti-jam capability that will allow greater bandwidth operations is required to support multichannel and high data rate users. An integrated Army tactical communications objective system (INTACS) consisting primarily of equipment systems developed under TRI-TAC, TACSAT, SINCGARS, and associated COMSEC programs that will provide for responsive, secure, jam-resistant, mobile and highly automated tactical communications which will satisfy voice, record traffic, and data distribution requirements. A

AIR DEFENSE MISSION AREA

PROPOSED FY 81-85 PROCUREMENT PROGRAM

ESCALATED DOLLARS IN MILLIONS
BASE YEAR 1981

SYSTEM	FY 81		FY 82		FY 83		FY 84		FY 85	
	QUANTITY	\$	QUANTITY	\$	QUANTITY	\$	QUANTITY	\$	QUANTITY	\$
PATRIOT LAUNCHER/ MISSILE	12	473.7	18	670.6	18	697.0	18	728.8	12	571.8
	183		391		637		739		552	
ROLAND LAUNCHER/ MISSILE	23	369.9								
	600									
STINGER	1356	71.4	1974	173.4	3225	194.3	4300	203.1	4330	197.7
IMP HAWK MODS		36.2		4.7		4.0		3.9		4.3
IMP CHAPARRAL MODS		3.4		4.3		4.4		4.3		4.6

family of automatic test support systems to support the test, diagnostic measurements tasks, and repair the emerging complex and highly automated weapons systems while reducing the number and differing types of test equipment and unique maintenance training skills required to support fielded systems. And finally, tactical management information systems that will employ increasing usage of small, shelter-mounted minicomputers and intelligent terminals at Corps and below theater army elements with communication links to Army rear maintenance. (See chart 7)

The next mission area is intelligence, surveillance, and target acquisition. One of the hard questions that has been asked of the Army in the past is "What good are bigger and longer range weapons if we don't know where and what to hit?" We've been pushing our target acquisition capability in all areas. One of the prime areas is the Scout helicopter mission. We currently have the Army Helicopter Improvement Program (AHIP) which is looking at the OH-6 and OH-58 as candidates for the interim scout helicopter. This helicopter will be equipped with a day/night mast-mounted sight, improved navigation, the ability to communicate during nap-of-the-earth maneuvers, and new provisions for air-to-air self-defense.

Following the AHIP program, if we can justify the cost, the advanced Scout helicopter requirements will be pursued with a new airframe designed specifically for the Scout mission, with all performance, weapon and target, and acquisition capabilities enhanced by integration of latest technologies. We are currently developing a remotely piloted vehicle to provide surveillance and target designation behind enemy lines. The prototype RPV has already been successfully used to designate a moving tank for a Copperhead guided artillery projectile. Future development of the RPV will include better range, improved acquisition imagery, and potentially weapons delivery. The Army is fielding its firefinder radar systems which are capable of detecting incoming mortar artillery and free rockets, and provide instant target data on point of origin before the incoming rounds hit. By using phased array technology, these electronically agile radars are able to handle multiple targets. Future developments include jam-resistance and integration with our counterfire weapon fire control so that accurate and rapid counterfire can be applied.

In the air, we have the standoff target acquisition system (SOTAS) mounted on a Blackhawk helicopter that will be able to detect and locate moving targets miles behind enemy lines from a relatively safe position behind our lines. This target location information is provided in a real time basis to central fire control centers.

In the area of electronic warfare, we are developing and fielding several systems that can acquire target location data from enemy electronic emitters.

COMMAND SYSTEM MISSION AREA

PROPOSED FY 81-85 PROCUREMENT PROGRAM

ESCALATED DOLLARS IN MILLIONS
BASE YEAR 1981

SYSTEM	FY 81		FY 82		FY 83		FY 84		FY 85	
	QUANTITY	\$	QUANTITY	\$	QUANTITY	\$	QUANTITY	\$	QUANTITY	\$
TACTICAL RADIO	307	12.0	12448	58.8					7699	99.1
BATTERY COMPUTER SYSTEM (BCS)	235	35.4	206	45.7	145	29.2	79	18.7	60	11.7
TACTICAL MANAGEMENT INFORMATION SYSTEM (TACMIS)		40.9		27.8		56.3		54.1		43.9
POSITION LOCATING REPORTING SYSTEM (PLRS)			1	31.4	2	45.7	2	51.9	4	75.3

We are pursuing development and procurement of improved components, subsystems, and where necessary, new systems to achieve more sophisticated intelligence support capabilities and increased capability to deny or degrade a hostile force's use of radios and radars. Development of a standoff radar jammer, a multichannel jamming system, an air defense jamming system, and a variety of expendable jammers will continue. Depending on the outcome of current RDTE programs, either existing systems will be modified or new systems will be procured to increase jamming effectiveness and counter newer communications techniques. (See chart no. 8)

The Other Combat Support Mission Area addresses the ancillary services that are vital to proper functioning of the Army in battle. In engineering equipment, the Army has developed the Universal Engineer Tractor (UET) providing the engineers with a multipurpose vehicle that also can provide protection against small arms fire for the crew. Planning trends for the future in the engineering area include: a "combat excavator" for rapid field fortification construction; a soil stabilization system for logistic-over-the-shore (LOTS) operations; rapidly emplaced water storage bladders and hoselines; mobile well-drilling equipment; wastewater reuse equipment and improved filtering of saline and NBC-contaminated waters; new wet- and dry-gap bridges; and rapid crossing site access/egress systems.

In the NBC area we are developing a new protective mask which allows the soldier to operate the optics for the various sophisticated equipment being fielded. We are developing new chemical and biological detectors with improved sensitivity and reduced false alarm rates. We have been intensely improving our personal and equipment decontamination gear. In the offensive area, we have developed a binary chemical munition which is safe during storage and shipment, but becomes lethal only after it is fired from the Howitzer.

In the mine/countermine area, we have developed the family of scatterable mines (FASCAM), which allows rapid delivery of massive amounts of antitank and antipersonnel mines by artillery, aircraft, or ground distribution. In the countermine area we are developing a surface-launched fuel air explosive, a rocket launcher that uses the devastating shock of a fuel air explosive to rapidly clear paths in minefields. We have just begun fielding a mine clearing roller which attaches to the point of our main battle tank and is capable of safely detonating and clearing any known pressure-sensitive mine.

Imaginative advances in mine warfare are expected, including: a family of mines emplaceable by various means, remotely armed, disarmed, and rearmed as often as desired with selective effects on armor and personnel; improved sensing systems permitting emplacement of unidirectional and controllable minefields and

INTELLIGENCE, SURVEILLANCE, TARGET ACQUISITION

MISSION AREA

PROPOSED FY 81-85 PROCUREMENT PROGRAM

ESCALATED DOLLARS IN MILLIONS
BASE YEAR 1981

SYSTEM	FY 81		FY 82		FY 83		FY 84		FY 85	
	QUANTITY	\$	QUANTITY	\$	QUANTITY	\$	QUANTITY	\$	QUANTITY	\$
REMOTE PILOTED VEHICLE (TARGET ACQUISITION/ DESIGNATION AERIAL RECONNAISSANCE SYSTEM - TADARS)					24	31.2	60	65.2	67	91.6
AN/TPQ-36 MORTAR LOCATING RADAR	48	81.3								
AN/TPQ-37 ARTILLERY LOCATING RADAR	24	113.8	12	78.9	13	61.7				
TACJAM	25	61.4	12	43.5	12	46.3	12	49.1		52.2

barriers (i.e., minefields allowing free passage of forces in one direction only and allowing selective control over the direction in which passage is permitted); improved sensing systems permitting emplacement of mines which can discriminate between enemy and friendly targets ("enemy only" mines). Minefield neutralization technology is expected to yield a system for standoff defeat of minefields that will permit early, long-range neutralization by highly energetic systems which are essentially "safe" until the moment of use. Warhead technology is expected to yield an "underside" armor-defeating system that does not depend on proper orientation to be effective.

In the area of night vision, we are currently into the second generation of passive night vision devices, popularly known as starlight scopes. We have reduced the size and weight and eliminated the blooming problem caused by sudden bright light like flares or muzzle flashes. We are currently working on passive thermal imaging devices which can form imagery based on temperatures differential between vehicles and humans and the ambient background temperature. These devices can detect targets through fog, dust, and smoke. Developments in the night observation area will include: development of third-generation, light amplification devices, focal plane arrays for thermal imaging, integrated with millimeter wave radars and CO₂ lasers for target acquisition and fire control. (See chart 9)

The next mission area, Combat Service Support, can be characterized as mobility. We are currently fielding Blackhawk, which is the Army's first true squad-carrying helicopter. It was designed from scratch to be easy to maintain, operate, and be very survivable on the battlefield. We will be upgrading it as it matures, providing improved avionics and navigation equipment and improving the reliability.

The CH-47D is a completely rebuilt CH-47 with improved engines, and new transmission, rotor, and avionics. This program will extend the useful life of the CH-47 another 20 years. That useful life of the Chinook will extend an equivalent time as from the Wright brothers' first flight to the beginning of the jet age.

On the ground we are faced with the same energy crunch as anyone else these days, and we are now searching for more energy-efficient and reliable trucks to move the Army. We are buying a new 5-ton truck and are developing the heavy expanded mobility tactical truck to carry 10-12-ton loads to support some of the heavier new items coming into the inventory, such as MLRS and Patriot. (See chart 10)

Procurement of various-sized generators is continued to provide general purpose power sources for field units. In

OTHER COMBAT SUPPORT MISSION AREA
PROPOSED FY 81-85 PROCUREMENT PROGRAM

ESCALATED DOLLARS IN MILLIONS
 BASE YEAR 1981

SYSTEM	FY 81		FY 82		FY 83		FY 84		FY 85	
	QUANTITY	\$	QUANTITY	\$	QUANTITY	\$	QUANTITY	\$	QUANTITY	\$
UNIVERSAL ENGINEER TRACTOR (UET)			55	40.9	50	38.7				
FAMILY OF SCATTERABLE MINES (FASCAM)		124.1		177.5		160.8		171.0		232.9
PROTECTIVE MASK	36,000	7.9	73,000	10.1	240,000	51.0	240,000	54.2	240,000	57.6
CHEMICAL/BIOLOGICAL DETECTORS/ALARM	2,500	8.7	4,132	16.8	4,666	120.7	9,610	42.2	78	2.7
NIGHT VISION DEVICES	9,724	98.2	260	5.8	2,214	33.2	1,654	24.8	140	2.1

COMBAT SERVICE SUPPORT MISSION AREA
PROPOSED FY81-85 PROCUREMENT PROGRAM

ESCALATED DOLLARS IN MILLIONS
BASE YEAR 1981

SYSTEM	FY81		FY82		FY83		FY84		FY85	
	QUANTITY	\$	QUANTITY	\$	QUANTITY	\$	QUANTITY	\$	QUANTITY	\$
BLACKHAWK UH-60	80	300.6	96	415.0						
CH-47D		198.7		259.7		225.5		247.4		236.9
GENERATORS	1679	41.6	1769	39.5	3771	49.9	7722	65.7	9905	81.5
HEAVY EXPANDED MOBILITY TACTICAL TRUCK (HEMTT)	280	54.7	379	67.6	648	123.9	657	134.5	417	92.2

addition, the DOD family of standard generators and associated equipment will be utilized to provide power sources for Patriot, Chaparral, Tacfire, Hawk, and a variety of other missiles and air defense systems. Initial procurement of the silent light-weight electrical energy plant (SLEEP) model begins in FY 84, and continues with the 3 KW, 5 KW, and 10 KW versions during the next 10 years. Initial requirements for SLEEP generators are proposed for authorization as replacement for existing gas engine-driven models only in those units which habitually operate in the brigade area and forward for functions in which silent electrical power is required to prevent detection by aural or infrared signature. SLEEP procurement will be monitored to assess the affordability of using this fuel-saving system throughout the Army. (See chart 11)

That briefly covers the modernization program. The total price tag for the 400+ systems in the program is over \$38 billion in the next five years alone. There are also \$1 to \$2 billion annual transition costs.

We are going to have to organize the Army to take maximum advantage of this new equipment. We have begun this with the recent CSA approval of Army 86. The significant decisions of Army 86 will result in the structure of the Army of the 90's: The basic form consists of a heavy and light division. Support units will be pared to an adequate but austere level.

It has become very apparent to the Army that as these new systems are added, we cannot continue to be organized in the same way we are organized today. For example, MLR - we're going to add that to the force. At the same time we add this new rocket to the force, we're saying the force will continue to be a 750,000 man Army. We're saying we're going to add additional attack helicopters and additional this and that. You can't add all of those things with, for example, the increased logistical requirements that they will dictate without taking something out.

So what we've been looking at for the last 2-1/2 years is how, in fact, to reorganize the Army for the 80's to maximize the capabilities of these new systems and live within that 750,000 man constraint. That's what Army 86 is all about. Army 86 consists of an analysis of the heavy division, light division, Grps, echelons above Corps. The Chief has approved all of those for objective divisions, which means we will move into those new organizations as the equipment becomes available. We have two or three minor modifications left to make to the light division and the first thing you will see visibly out there in the field will be at Fort Lewis, Washington, where we are going to create what we call a high technology division. Actually, it will be organized like the light division in the Army 86 study and it will start to be organized like that this fall. The first part of it will be to create an aviation

PROPOSED ARMY PROCUREMENT PROGRAM FY81-85

BY APPROPRIATION

ESCALATED DOLLARS IN MILLIONS
BASE YEAR 1981

APPROPRIATION	FY 81	FY 82	FY 83	FY 84	FY 85
AIRCRAFT	933.4	1505.1	1201.8	1314.0	1336.3
MISSILE	1514.4	1732.1	1993.6	2045.7	1876.5
WEAPON & TRACKED VEHICLE	2519.0	2574.6	2744.7	3375.3	3680.4
AMMUNITION	1515.1	2053.1	2712.3	3177.5	4186.2
OTHER	2114.1	1940.8	1980.5	2398.0	2549.1
TOTAL	8596.0	9805.7	10632.9	12310.5	13628.5

brigade in that division. It will be called an Air Cavalry Attack Brigade, organized to maximize the capabilities of the attack helicopters I was talking to you about earlier, and to maximize the reconnaissance capabilities by bringing the reconnaissance element which used to be separate over into this organization. Numerous other things will take place within that division. Numerous pieces of equipment will be looked at out there. Many experimental pieces of equipment will be looked at. But the Chief is serious when he says high technology. The things that will go into that division we haven't even thought of yet and we don't even know about yet. It's sort of the sky is the limit, limited only by the number of dollars that we can get to do that and by the ideas that we can dream up.

I want to tell you just a few things about what we're doing in training insofar as the use of simulators is concerned. The point I want to make about simulators, and I'm sure most of you know what we're doing generally in the simulator arena, we're using them to save fuel, ammunition, wear and tear on equipment. We have synthetic flight trainers, all kinds of trainers that we've been buying over the years. But we have never been looking at them as seriously, perhaps, as we will be in the future for the very obvious reasons that you can get when you read the newspaper. Let me give you an example. here again, going back a few years. In 1973-74, I was the Director of Aviation and I had to go over to the Hill to sell the first simulator program for the Army for helicopters, the UH-1 simulator, the 2B-24. One of the slides I used was a slide that showed that if you buy one simulator with four cockpits, you'll save 1,287,000 gallons of fuel each year. I thought that was quite a significant point I was making. It was not that well received on the Hill, though, because when they asked the question, "how much does your fuel cost," and I had to say 12¢ a gallon, it didn't make that much of a point. Let's take that same question six years later and that same system. If you fly that system 5 days a week, 16 hours a day, and we're doing that with those simulators, to reproduce that same amount of training in a real bird would save you that much fuel. Translate that into \$1.30 a gallon gasoline. As a matter of fact, it's even worse than that because I just came from Fort Rucker. Last year I paid 86¢ a gallon for aviation gas. The year before that it was 56¢. I signed a contract in March this year that goes from last April to next April and the cost went to \$1.43 and that was based on what they think it will be next April. On the JP-8 we currently pay over \$2.00 a gallon. So what all that says, anybody who is not interested in the benefits of simulators will get that way and he will continue to do so as the price of gas goes up.

I want to talk a bit about industrial preparedness. As you all know, modernizing the Army is not going to be a matter of

ordering things from the catalog. Most of our procurements will come from the Army's industrial base, which remains in place from previous conflicts and has provided a peacetime source of procurement. This base consists of both commercial producers and government-owned facilities. The government portion is currently valued at a replacement cost of \$20 billion, half of which is currently held in inactive status. Most of these facilities are World War II vintage, with some limited modernization over the last 10 years. As the Vietnam conflict dropped off, Army procurements dropped until only about half of that base is still active. What this means is that we have a large unused capability out there. That's the good news. The bad news is that it is a capability only to produce old hardware, unable to produce new hardware.

This reserve base is not available to produce the newer systems I'm talking about and massive investments are needed for our new programs. For example, \$900 million for an XM-1 plant, \$800 million for an M-483 155 ICM plant. But even with those dollar figures that I just gave you, these investments are facilities that are for facilities that are not sized for support of mobilization, as were the facilities in the old industrial base. The new ones generally support peacetime buys, but not full mobilization rates.

As I mentioned before, the base we do have can supply larger quantities of older systems but it cannot supply new systems. And even having said that, there are certain restraints in activating the old base. For example, reactivation times for reserve facilities would be lengthy - 9 to 24 months for some items, since they are in mothballs. Much of the commercial sector which produces military hardwares or components and materials has evaporated. There was a subtler structure as a result of lean defense budgets, inadequate Army planning with industry, and the changing economic environment. Large sectors of commercial industry has gone unplanned since the Army has had poor mobilization requirements for our industry to plan against. There is no guarantee of peacetime contracts. There is no guarantee of next year's contracts, even if you get this year's contract. The loss of about one-half of the producers, for example, for M-60 tank turrets, 3 out of 6, is a good example showing the general decline of the national foundry industry as a result of EPA and OSHA-type problems. The loss of mechanical time fuze producers - 4 out of 6 have gone as a result of too many imported watch movements and the rise of electronic watches. Delivery times for many components and parts have increased by factors of 2 to 4 - where they used to be delivered in 20 to 40 weeks, now frequently takes 60 to 120 weeks. Couple this with radical changes in the pricing structure, such as large 50 percent to 100 percent price increases and determination liability purchase orders and we will have problems surging output from the base.

The reason for this? We find ourselves competing with the private sector's commercial orders, and rightfully so. Sophistication has come to the consumer market. Electronic controls for all ignition systems. Smart appliances and toys. Commercial transport aircraft have made a large impact on defense markets. When I was a kid, to play football, I had to go down to the corner lot. My son sits in his bedroom now and works it on a computer. Because of their more stable buying pattern, the commercial market is able to forecast better and can lock up subtler production for years to come.

Recognizing these events, recognizing our shortcomings in our industrial base, we are trying to take some steps. We're trying to get with the program, if you will, and remedy some of the problems. We have increased our maintenance of reserve production facilities so that in FY 81, we can provide adequate maintenance for our inactive production lines having a mobilization requirement. This won't correct previous deficiencies, but it will stock further deterioration. We're providing field commands and our contractors with instructions to make better use of defense priorities systems like DO and DX, in order to reduce material and component lead times. We're performing an analysis of our requirements for resupply to support the Army beyond the initial period of combat. These requirements are the key to answering your questions, "How many do you need and when do you need them?" We'll improve our present readiness, our present preparedness, planning with industry, by placing more responsibility for this mission on the project manager or the item manager, as opposed to a completely separate organization having those functions. And we're going to begin paying contractors to prepare mobilization production plans and schedules rather than to expect contractors to do them free. DARCOM right now is issuing instructions for preparation and funding of contract data item descriptions for these plans.

This seminar, for example, is one step where hopefully we will be able to get an increased willingness by yourselves to assist us in investing in additional, more modern production facilities, especially in the critical materials area. MOBEX 80, which will be conducted next month, would include discussions with 36 Chief Executive Officers from industry, with our Chief and the Army's leadership to discuss and get a better insight into our mutual production problems and how, perhaps, to find some low-cost improvements to our planning with industry to decrease our launch time.

The Army has always relied upon private industry to provide our hardware needs in both peace and war. To assist you, we realize we have to do a better job and are articulating our needs and planning with you for a rapid substantial wartime conversions of the commercial sector.

As I began my speech, I told you that our Army was second rate compared to the Soviet army, as far as equipment is concerned. I have a further concern that I'm not completely convinced that the American people understand that. I fear that many of them today do not understand that the Soviets are fielding tanks by the hundreds that are nearly as good as the ones we will field sometime in the future, in much smaller numbers. That the Soviets today have hundreds of helicopters, all of which are faster, carry more weight, and are far more heavily armed than anything in the American arsenal, and that they are building such helicopters at a significantly higher rate than any plan of the United States. These are just a few of the multiple examples of our unpreparedness.

The bottom line of my pitch is we need your help. We need your help to make sure that America does understand and that America gets what is required and with your help, we will succeed, for succeed we must. Thank you.

Allen C. Sheldon

Thank you, General Merryman. I'm sure there will be many comments when we get together later for our discussion.

Our next speaker will be Admiral Leland Kollmorgen. The Admiral is Director of the Systems Analysis Division, Office of the Chief of Naval Operations.

RAMD L. S. Kollmorgen

It's a pleasure to be here and that's sincere, just as it was from Jim Merryman. I recently gave this talk - as recently as yesterday - out in Los Angeles and I've given similar presentations for the last two years to industrial groups. But I have turned and put a slightly different spin on this one for this group and it will be coming at you today in two chunks: a generalized portion up front, where I hope to give you an overview of what is driving the Navy priorities and concerns, and then we'll get into some more specifics at the back end which has a lot of alphabet soup, but gets into the monetary aspects and also points out those items that we are following with a certain amount of priority and interest. I think you'll be able to see that.

As has already been outlined by the Army and I'm sure in a follow-on talk by the Air Force, there is a real challenge for the decade of the 80's. I'm going to talk a little bit about the character of naval warfare, which imposes its own peculiarities on what we see is important to the Navy and then the affects of what is really more than a decade of resource constraints. I think I can point that out graphically on a chart that I've included today.

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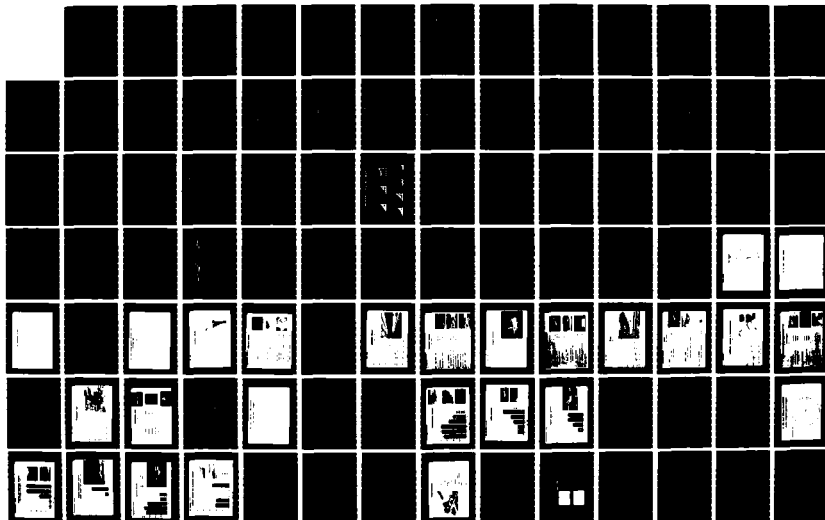
PROCEEDINGS OF THE DEFENSE READINESS AND REQUIREMENTS
SYMPOSIUM HELD AT A. (U) AMERICAN DEFENSE PREPAREDNESS
ASSOCIATION ARLINGTON VA 25 SEP 80

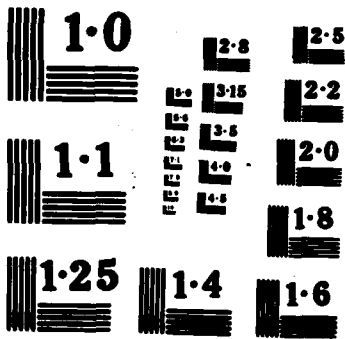
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Where I come from, the Director of Systems Analysis may not mean much to all of you. I think the term "systems analysis" or "operations research" has a certain amount of understanding, particularly in the industrial-military sector. But I tend to do a lot of long-range planning as well. I find long-range planning very interesting, particularly to the extent where it provides some insight to those decisions we are making today. As a case in point, my wife, knowing of my proclivity and interest in this area, caught me up short the other night with a question that had been on the minds of our family, due to some other occurrences, and that was, "Have you thought about what you might do should I suddenly die?" Well, of course, I had to pause a minute and decide just exactly why did that question come out of the blue on that particular evening, and I finally said, "Yes, I have given it some thought," and she said, "Have you considered remarriage?" Yes, that had crossed my mind, after all, I think we had discussed this in times past, that we both felt that it was foolish to continue life, should there only be one of us left, alone because it made sense that there should be some companionship in your later life. She had to pursue this line of chatter, knowing that I was a long-range planner, and she said, "Well, have you thought about what you might do as far as the house." I said, "Given today's mortgage rates, I'm certainly not going to turn in a low mortgage house for a higher mortgage house, so I'd certainly stay here." "Well, how about the furniture?" "You've done a fine job," I responded, "in decorating the home and it's just been a wonderful place to come back to from a busy day at the office, so I'm certainly not going to turn that in at all." This line of reasoning pursued and we went through the car, and I wasn't going to turn that in because those have gone up in price and why do that. It finally came down to more personal things. I didn't think that retaining her clothes was of particular interest to me, but she did get around to something that was near and dear to our hearts - her golf clubs. I told her not to worry, she's left handed.

Just to take a look at where are the relative advantages between ourselves and the Soviets, we still enjoy the offensive punch that is located in our 12 carrier-based air groups. The Soviets, of course, are well known to have the most modern and largest numbers, unprecedented in the world, in submarines. Our Navy-Marine Corps team and in our Amphibious Warfare, expertise is unsurpassed, but the Soviets have fielded a wide variety of cruise missiles that they launch from below the surface, on the surface, and from aircraft. Our technology in submarines remains unequalled. Surveillance and targeting - the Soviets have shown that they have a centralized surveillance and targeting system using either surface vessels or overhead systems. Our ability to sustain naval forces at long ranges from base is something that we pride ourselves on and it is still a very formidable activity that we perform very well, but it is stretched mighty thin. And the Soviets have

entered naval forces - the Soviet Naval Aviation, or SNA, as we refer to - adding yet a new dimension to naval warfare.

Now the determinants in naval warfare haven't changed a great deal since man decided that he wanted to take some of his conflicts on land and put them in ships at sea. And that is, you normally start out and how you fight the war is what you have at hand. You've always needed to know where the enemy is, to be able to detect and locate so that you can hit him. And the reach of your weapons, the ability to outreach your opponent has always been important. Even back in the sailing days, to be able to maneuver a ship, set your sails, get the roll and pitch of the deck going just right so that you could fire your guns or unmask your batteries to good affect, always required some complex and simultaneous actions. The last two bring us more up to date. We need to be able to control all of our forces in a very time-effective way and as it has already been pointed out, the future we look to has a lot of electrons floating around in one way or another. What we think will be unchanged in naval warfare after the year 2000 are the fleet that we have in hand will be the fleet we fight with. In naval forces, the investment we make in platforms last quite a long time. Those things that are on the seas today, painted gray, 60 percent of them will still be here in the year 2000. They last a long time. Surface combatants will still have roles and missions to perform, particularly as they become armed with cruise missiles. Manned aircraft, although I'm sure in some circles there is concern that the flying things called cruise missiles will somehow replace manned aircraft, given the cost of cruise missiles at today's prices, it's unlikely that that will totally happen and after all, you're still going to need weight of effort and that is not provided by a 500 or 1,000 pound rapidly flying cruise missile.

In the future, tactical nuclear warfare will still be with us and the geographic constraints that we inherit on the sphere that we occupy will still be with us, both on the Soviet and the U. S. sides. We will be looking at naval forces to retain that ability to go where we want to go and stay there as long as we want. Self-sufficiency will be important.

What will change over the next two decades, we believe, is the battle space that we need to control and occupy in order to carry out our function is going to grow larger. We need to have more precise capability in acquisition and targeting of enemy forces. With the NAVSTAR Global Positioning System, the overhead satellite based navigation system coming on the horizon, we will have the ability to measure our positions in meters and that gives us some very interesting opportunities. Hitting weapons, if you like, for precision-guided munitions

will be a major factor in warfare of the future. As we field those systems over the next several years, we will find new evolutionary and perhaps even some revolutionary ways to employ those weapons.

As I've already indicated, we'll have a complex electronic environment. Somehow we will either fake, jam or EMI ourselves to ineffectuality. I suspect that won't really happen, but there will be no free rides in the future for naval warfare or any warfare. We'll be delving down into the real noise, or as the electronics whiz likes to talk about it, the grass, trying to get every last DB we can out of the signal, out of the various spectrums that we now occupy, be it radio frequency, or IR, or in the future perhaps microwaves.

Command and control is what we're looking for in the future to give us the synergism that we must have from our dwindling resources in terms of platforms, be they aircraft, submarines, surface vessels. We have to make that whole force play together and we really just are starting to scratch the surface in command and control.

What do we really have to solve? We need to find smart ways to exploit what the Soviets have in terms of weakness. Their weaknesses lie primarily in their geographic construct, the fact that they operate in four fleets rather than two, as we do. They have, relative to our Navy, a great deal of inexperience. Those are weaknesses we can capitalize on. We have a stand-off jammer problem, with the Soviets employing badgets and backfires with jamming capability. We must somehow eliminatethose so that they're not a problem for us in conducting and using our own systems.

The Navy, for some time, along with the Marine Corps, has been looking hard at VISTOL technology as perhaps a replacement for Conventional Take-off and Landing aircraft. We've completed a study and that controversy hasn't totally been laid to rest, but we don't see any near term substitution of Conventional Take-off and Landing aircraft by VISTOL. We'll still bow towards the God of Reliability and Mainability because it offers an opportunity to reduce the manpower requirements through better maintainability and also, hopefully, the cost of operation.

Now I'd like to leave that and go on to the second half where we're going to get down to some of the problem areas that I think the speakers this morning perhaps whetted your appetite for. (See chart

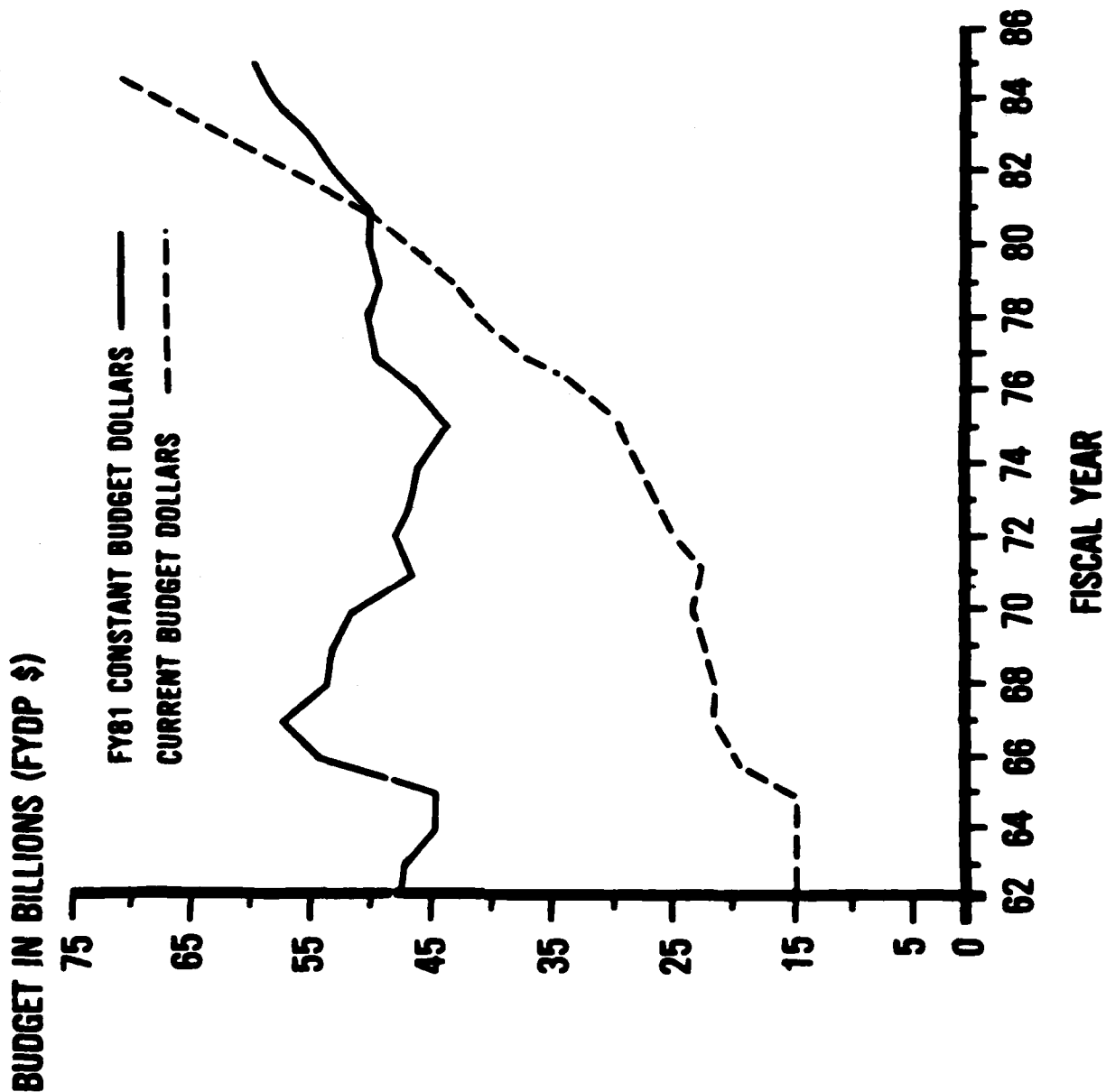
(See chart 1) Here is the Navy's Total Obligation Authority plotted since 1962. If you take that very crooked top line, and I have some very smart analytical types who do something called linear regression analysis - what that means is they try to figure out the slope of that line over time - and what

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CHART NO. 1

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it turns out to be, you kind of ignore the big bulge during Vietnam, we actually have been about zero in terms of growth in the Navy budget until you get out there at the crossover point between the then-year-dollar dotted curve and the constant dollar, which is, in this case, FYDP dollars for FY81. So we really haven't seen a lot of growth and for those of you who have been contractors and suppliers of Navy hardware, that's the reason why we've had to stretch out production lines, why we don't seem to buy in sufficient quantities.

So that brings us to the problem - how do we maintain a Navy given that kind of fiscal picture.

(See chart 2) This is the force we're operating today, roughly 5400 aircraft, 540 ships. Their retirement ages run roughly in that ballpark - 23 to 35 years for aircraft. That's not increasing from 23 to 35, that's the range. Some aircraft is kept around that long. We somehow use up 119 (the number is now adjusted down, I understand, to 114) 119 aircraft every year. We haven't been procuring to that rate for the last four years. We've been buying under 100 aircraft. If you want to maintain and retire the force, you need roughly 330 aircraft and we're a long way from that number. The procurement dollars in constant FY 80 terms are \$5 billion and in the last column you can see we've been funding about half of that - five years of history and five years projected forward in the current five-year defense plan. That's the ten year average that is available. You can see the number gets better, but most of that number that averages out to 247 is included in some rather large buys in the back end of that five-year defense plan.

Ships - if you want 540, nice easy rule of thumb, divide it by 30 and it comes out that we need to buy 17 or 18 combat-type support ships every year just to maintain the Navy you have today.

What we're up against has really been the budget constraints and inflation that in double-digit terms really exacerbates the problem. We don't really program for that. We're always hoping that the economy is going to do a little bit better. Equipment costs have gone up for various reasons, but primarily because the nature of warfare is getting more sophisticated. The Army just ran you through some very capable systems. The Navy has the same kind of outlook and appetite for the future and they cost money and I don't have to tell you that. We also have a problem that was alluded to and brought out in the talk at lunch by Mr. McIntyre. We always have the tough problem when we develop our budget of balancing what to do for the near-term readiness and operations of today's fleet as opposed to the modernization and buying new things for that threat that's always out there to worry about. We have looked hard at

PROBLEM MAINTAINING CURRENT FORCE STRUCTURE

	FY 80	MAXIMUM RETIREMENT AGE	NO. NEEDED PER YEAR (PEACETIME ATTRITION)	TOTAL NO. NEEDED PER YEAR	PROCUREMENT DOLLARS NEEDED PER YEAR	10 YEAR AVERAGE AVAILABLE
TOTAL AIRCRAFT	5385	23 - 35 YRS	119	330	\$5B	\$2.6B, 247 AIRCRAFT
TOTAL SHIP OPERATING FORCES	540	25 - 45 YRS	--	17 - 18	\$8B	\$5.8B, 15 SHIPS

ownership costs for the last two years where it turns out we thought, or at least hoped that we'd be able to dig down into that ownership pot and maybe squirrel out something that had been hidden in there - about \$1 billion. It turns out we were wrong. You've been underfunding ownership and energy, of course, is one of the major highlights that we all understand today. We have tended to underestimate ownership because we didn't think we were going to go to war. That has been a psychology within the Department of Defense for at least ten years, not to worry about sustainability and what you really need to fight a war with today. Now, great interest in readiness - and I think Afghanistan and the current unsettled conditions in the Middle East may be a case in point. We must be prepared. Therefore, you can't really go into ownership to solve that problem.

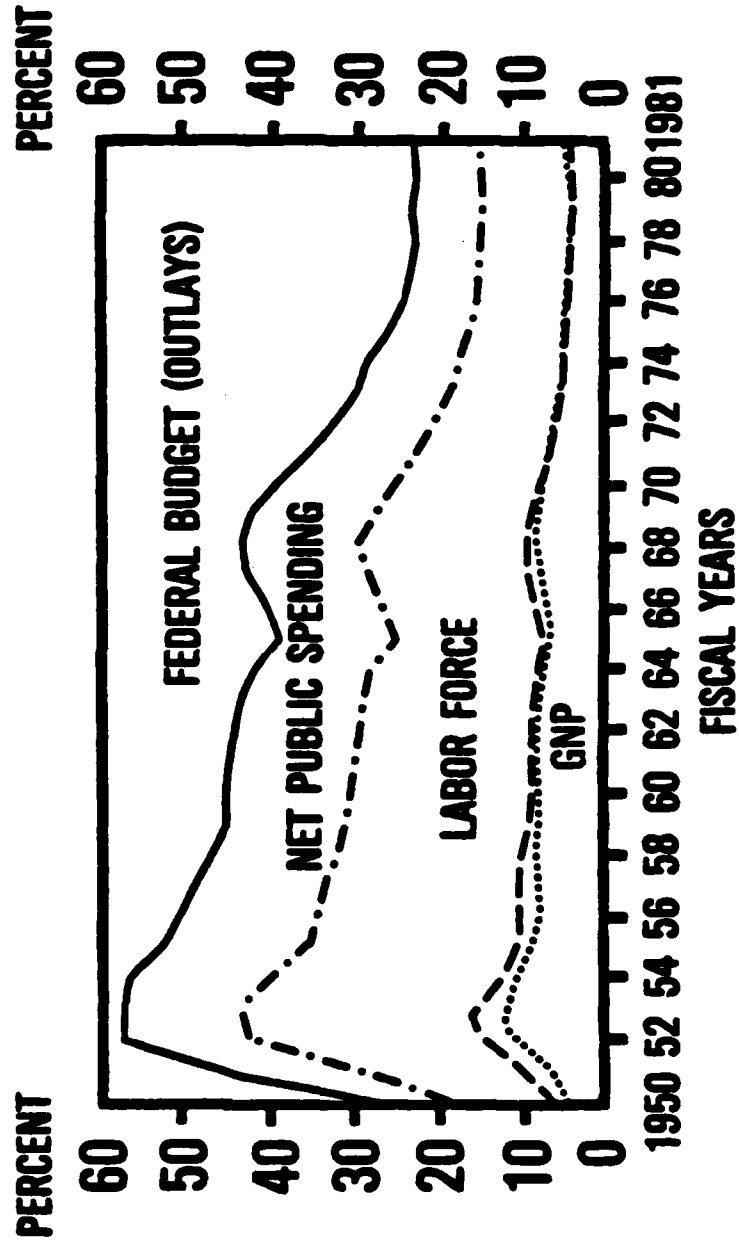
Now here's something that I think is a very interesting slide. (See chart 3) Back in the 50's, we had a President called Eisenhower and he warned us about the insidious affects of the military industrial complex. That had a cultural impact in this country, where I think there has been a real notion that somehow there is a big military-industrial monolith out there that is sucking all the federal pie away. And even though it's a large chunk, I think you can see for 30 years it's been on a straight downward trend in terms that everyone ought to understand. Federal budget outlays were down to roughly 23 percent. Net public spending percentage, 15 or so. Percent of the total labor force and GNP is down roughly to 5 percent today and it purports to grow back up to 6 percent in the five-year projection. But at least for the last four years, seemingly, the Department of Defense has been pegged at about 5 percent GNP. And that, with a GNP that hasn't been rising rapidly enough to keep up with inflation means your purchasing power within the Department of Defense has gone down just as our own family exchequers have.

Part of the problem is the wholesale price index. (See chart 4) The wholesale price index, in ten years from 1967 has gone up from 100 to 200. But aircraft and ships, it has gone up by factors of 3 and over 4, and those are Bureau of Labor statistics standards. Those aren't Navy figures. We have not really recognized that in the Department of Defense because we are generally working on inflation indices that come from the BLS or OMB and they're using generalized factors. I have no criticism of that, but it doesn't recognize reality.

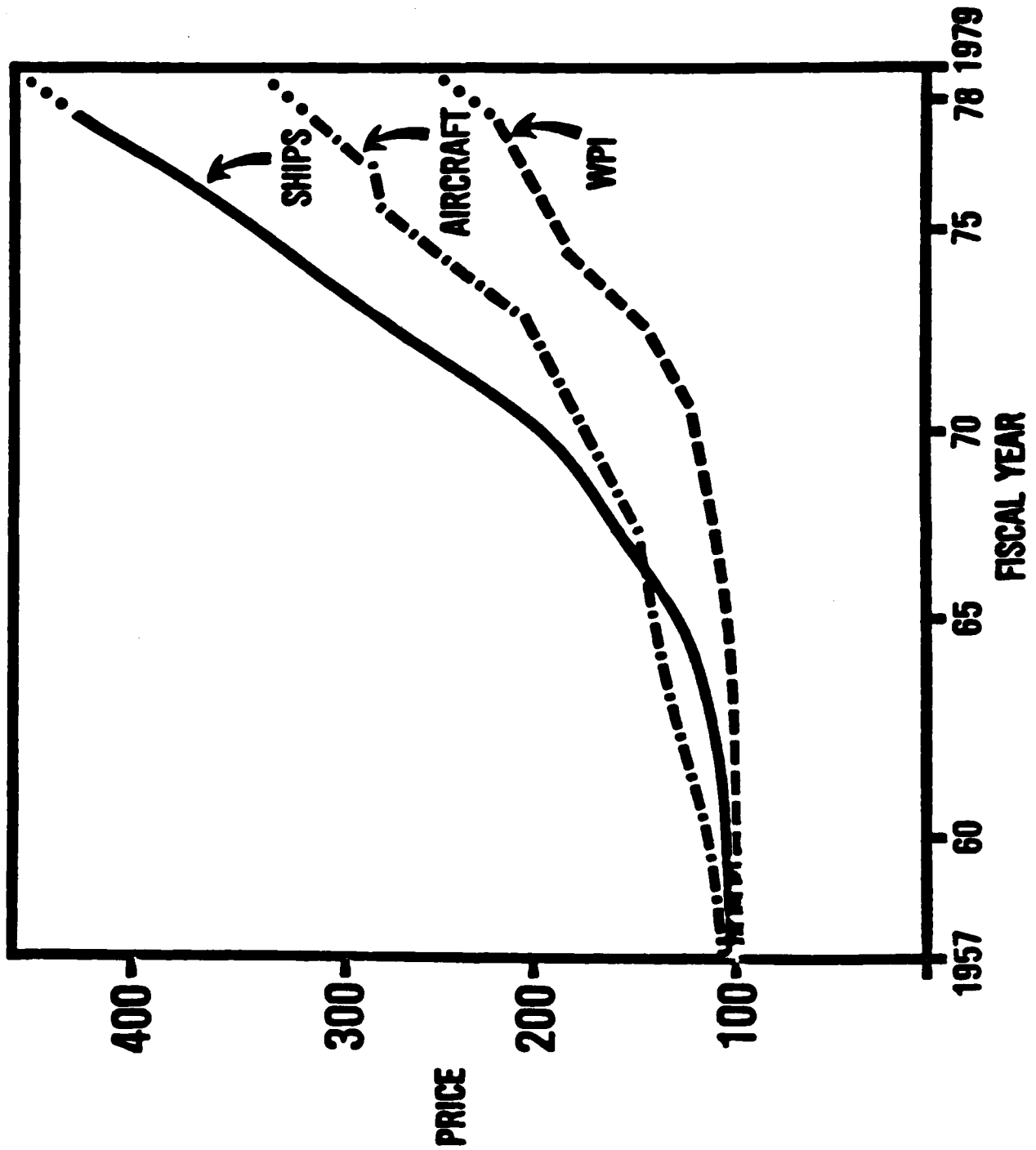
We've also had this phenomenon going on (see chart 5). When we take an original price and modify that original aircraft or ship, we find that it's going up at a compound rate of roughly 3 percent per year just to do the modernizing kinds of things you have to do to make it last as long as we make our ships last, 30 or 45 years. But if we take a look at how new systems have been going up, they've been going up at a compound

FINANCIAL SUMMARY

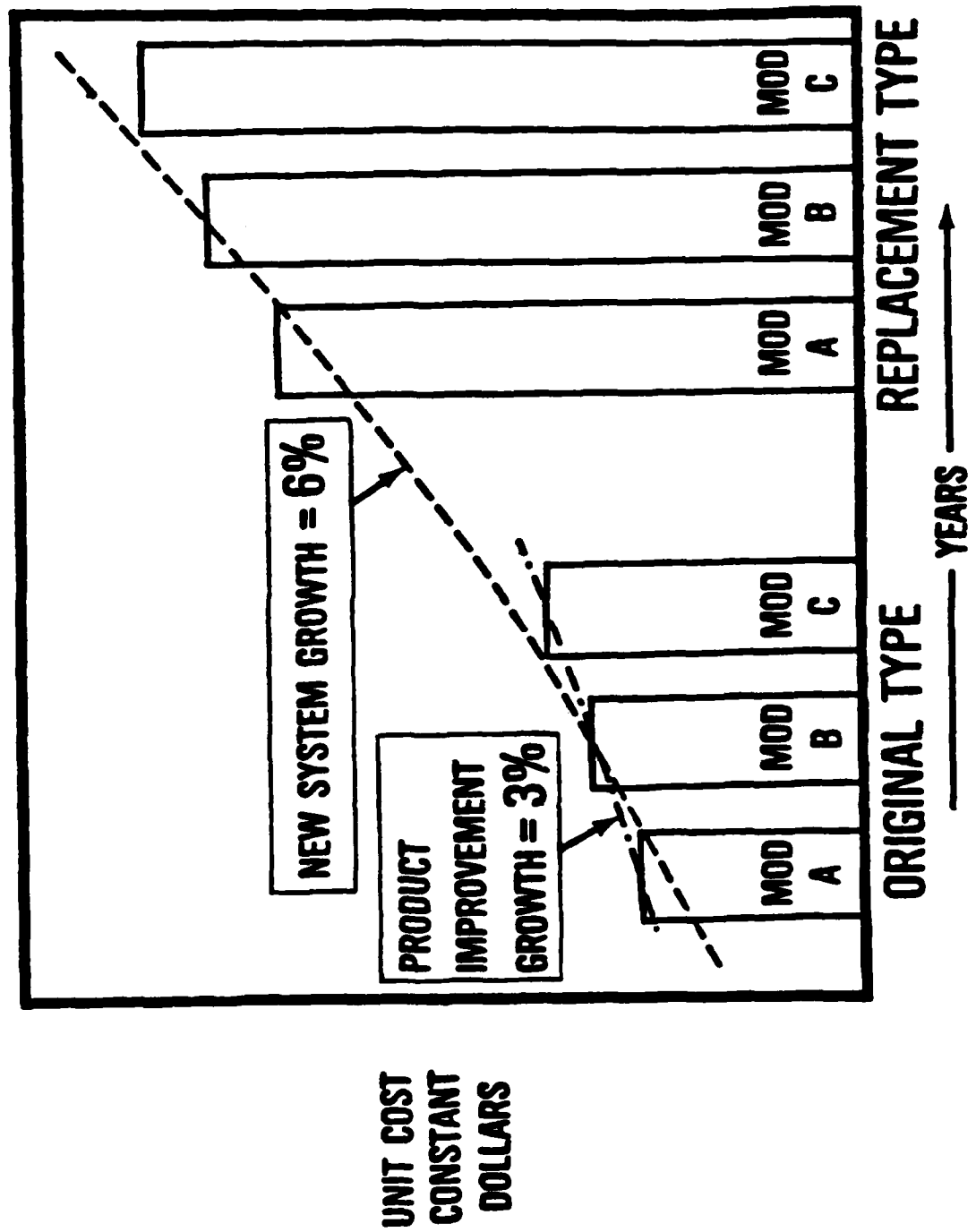
DOD AS A PERCENTAGE OF:



INFLATION INDICES



MODERNIZATION COST GROWTH



rate of 6 percent. What that tells us is that we will probably opt more for the 3 percent side of things, and we're going to live with more modifications and modernizations of things we have in hand.

(See chart No.6) As regards ownership, this chart shows total dollars there, but it's roughly 50 percent of the Navy's total obligational authority that goes to cost of ownership. That's manpower costs as well as the operation and maintenance of the equipment we have today, and a few peripheral things that we procure that fit into that category. You can see it's on a steady rise, and that's with a Navy that has come in the last 15 years from roughly 1,000 ships down to 540. The percentage has stayed the same. If we don't see more rapid growth in our top line than what ownership is doing for various reasons, obviously what we're going to put on the margin is going to be more and more modernization because given the unstable conditions that we're living with in the world today, I don't think you'll find any Chief of Naval Operations very eager to turn in any of the ships he has in his fleet today.

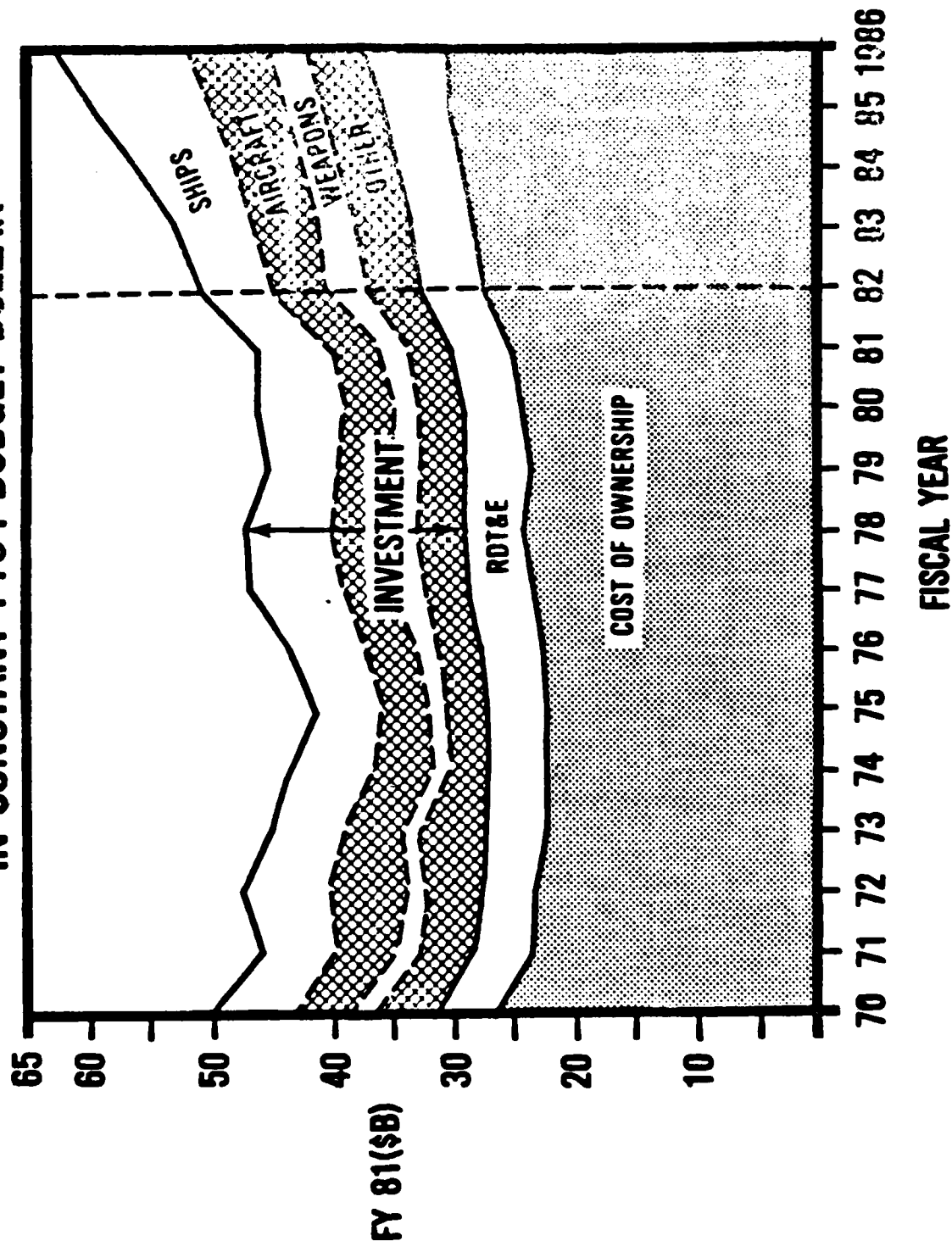
Recognizing those, the strategy that we've been operating on in the Navy runs this way. As you know, we put together a budget now under President Carter's zero-based budgeting concept. We put together a minimum budget, then one at a basic level and then an enhanced level, three levels of budget and when we talk about the margin we talk about everything that's above the minimum. We really are trying to maintain our current force levels in readiness at the minimum level. Therefore, the things that you're interested in, the new kinds of things we're going to procure, tend to be on the margin, therefore they're at risk as we go marching forth to Congress with our budget each year.

Here's our budget broken out in pie-shaped fashion (see chart 7). The budget is around \$54 billion, give or take a few, for the Navy. Here is how it is split up. Primarily general purpose or tactical - you can see that we have preferentially started moving money towards our command and control problem, which I indicated we see as a potential 4th multiplier. Strategic has been knicked a little, but that's not enough to bother anybody. Management and support - part of ownership going up, has to do with energy. The technological base - that's a mandatory 10 percent rise that comes out of Bill Perry's office. They're always pushing us to put more money in R&D and that represents that growth. Advanced technology - those are the kinds of systems you're trying to look at to see if there's a real promise there. We've narrowed down on those.

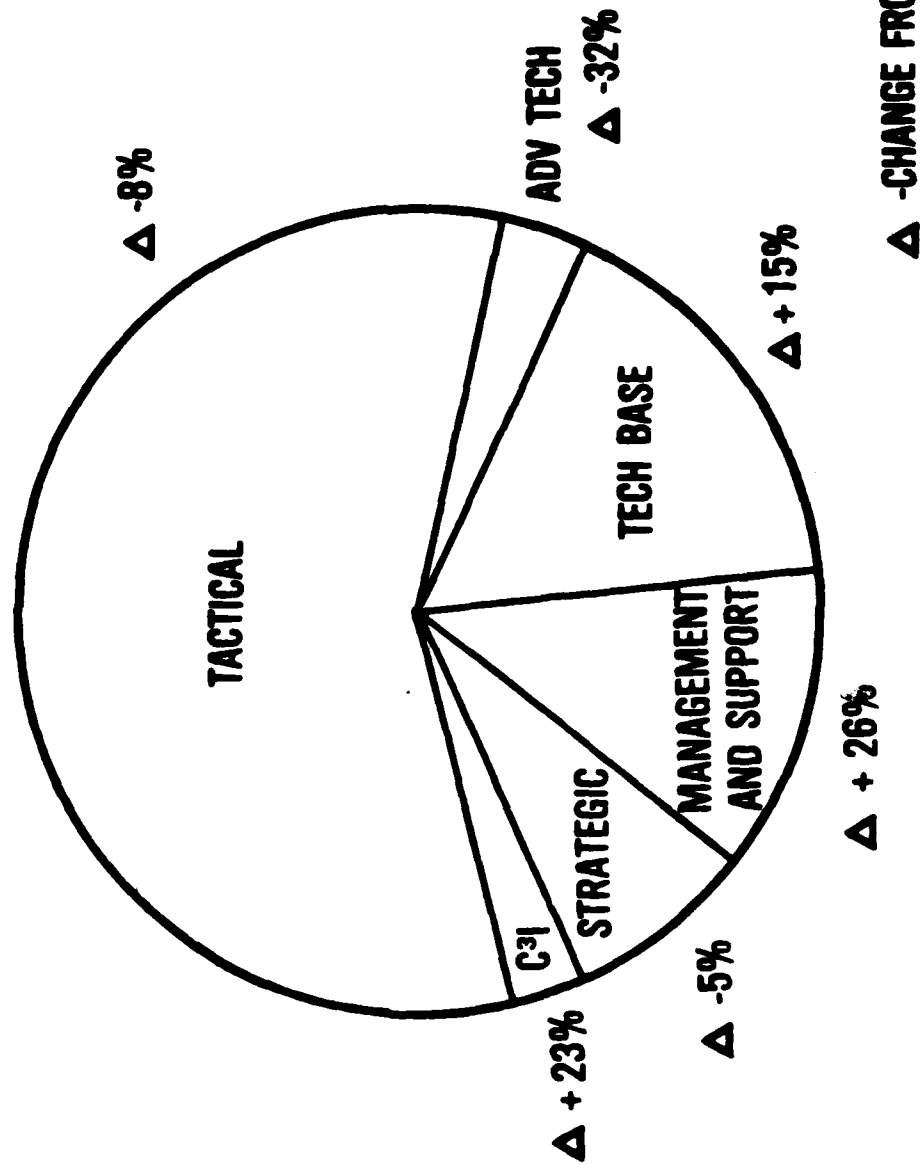
Looking at it another way, just at the R&D portion now, it's a similar picture, different scale on the ordinate, pointing out that in constant dollars it's had a general positive slope. (See chart 8) It's positive with the exception of the last few

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NAVY TOA (BLUE DOLLARS)
IN CONSTANT FY81 BUDGET DOLLAR



FY 81 NAVY RDT&E BUDGET



R&D BASIC TECHNOLOGY

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CHART NO, 8

	FY81 \$ (M)	GROWTH IN FYDP (%)
<u>ANTI-SUBMARINE WARFARE</u>		
UNDERSEA TARGET SURVEILLANCE	43	9
UNDERSEA WARFARE WEAPONS	26	+ 11
<u>TARGETING</u>		
C ² TECHNOLOGY	29	+ 13
SURFACE/AEROSPACE TGT SURVEILLANCE	29	NONE
<u>ELECTRONIC WARFARE</u>		
ELECTRONIC DEVICES	27	+ 10
COUNTER MEASURES	27	+ 10
<u>MODERNIZATION</u>		
SHIPS/SUBS/BOATS	41	+ 7
AIRCRAFT	34	+ 17
NUCLEAR PROPULSION	45	+ 8
<u>TECHNOLOGY</u>		
DEFENSE RESEARCH SCIENCES	37	+ 50
HIGH ENERGY LASER	52	+ 40
STRIKE WARFARE WEAPONRY	36	+ 11
ELECTRONICS	26	+ 15
MATERIALS	28	+ 10

years out there, when it's been on a downward trend and we've reversed that. It bottoms out about 1983 and starts going back up. So we are looking to keep our R&D healthy.

(See charts 9 through 14) What you're seeing on the next slides are the dollars that we have in the budget for FY 81 against generalized categories. The far right hand column then shifts over into percentages. If you see a percent plus, and most of them will be a plus, if they're not better than about 10 percent, then there probably isn't any growth over the five year program. We've already taken account for what we believe inflation will do. We've extracted that out. So that represents growth, but my own feeling is that we've probably underestimated inflation by about 10 percent over the five year program. Therefore, if you don't see big numbers, there probably isn't growth. It's a simple calculation. Did the number out in '86 look bigger than the number in '81.

Perhaps of special interest to this audience is the Tactical R&D (chart no. 12). Here you see how we have constructed this fairly graphically when you look at the F-18, it zeros out. That's because it's complete, so obviously you would see a downturn. We're anticipating a new cargo on-board delivery aircraft, or COD. Particularly growth in VSTOL. We're still holding a wedge there, to get a VSTOL perhaps, but an aircraft development program in any event started again for the tactical side of the house. The other one is ASW standoff weapon. A great deal of interest is given the Alpha submarine that the Soviets have put to sea to improve our capability in ASW standoff. The tactical R&D continues, the Tomahawk program comes to an end, a new medium-range air-to-surface missile, which we're doing jointly with the Air Force, is growing. Quite a bit of growth shown in the tactical reconnaissance. It's pretty easy to increase 4. What that has to do with is a follow-on to the TARPS program, Tactical Airborne Reconnaissance Plod System, which is on the F-14. That tactical surveillance system should have an "I" in front of it for "integrated" surveillance system, which, as I indicated earlier in the generalized statements, we're really looking to expand that battle space, get control of a broader area, be able to identify ships and aircraft in a real time mode. That program is just getting off the ground. The other one is the Stand-Off Jammer Suppression. I don't have a definition of that program at this time, but that's where we're looking to what is the solution to take care of that problem. We might highlight the A-6 upgrade. That has to do with a standoff capability for the A-6, which is our medium bomber, all-weather bomber that we have on our carriers. The integrated/area AAW is the new follow-on AAW system, complimentary to EGIS, just in the definitional phases and you can run your eye down. I wouldn't attach much importance to some of those big drop-offs in programs that usually, as I already indicated, are phasing out.

R&D ADVANCED TECHNOLOGY

	<u>FY81 \$ (M)</u>	<u>GROWTH IN FYDP (%)</u>
<u>MODERNIZATION</u>		
SHIP	20	100
AIRCRAFT	28	-9
<u>TECHNOLOGY</u>		
OCEAN ENGINEERING	16	+ 12
ELECTRO OPTICAL	11	NONE
<u>ORDNANCE</u>		
MISSILES	16	+ 20
EXPLOSIVES	3	+ 93

STRATEGIC R&D

	<u>FY81 \$ (M)</u>	<u>GROWTH IN FYDP (%)</u>
FLEET BALLISTIC MISSILE SYSTEM/UPGRADE	148	- 82
TRIDENT (TRIDENT I AND SUB)	78	- 25
SUBSYSTEMS	20	- 42
SECURITY	48	- 4

C³I R&D

	<u>FY81 \$ (M)</u>	<u>GROWTH IN FYDP (%)</u>
NAVSTAR GPS	22	NONE
SIGINT COLLECTION		
SPECIAL ACTIVITIES	74	- 37

TACTICAL R&D

110
CHART NO. 12

<u>MODERNIZATION</u>	<u>FY81 \$ (M)</u>	<u>GROWTH IN FYDP (%)</u>
F-18	135	ZERO OUT
VCX	3	+ 1130
SHIP DEVELOPMENT	53	+ 36
DDGX COMBAT SYSTEM/DESIGN	51	NONE
CVX	0	+ 170
SUBMARINE DEVELOPMENT	35	NONE
VSTOL DEVELOPMENT	20	765
LAMPS MK III	101	ZERO OUT
OTHER	31	6
	<u>429</u>	<u>+ 33</u>
<u>ANTI -SUBMARINE WARFARE</u>		
UNDERSEA SURVEILLANCE		
ASW STANDOFF WPN	19	+ 600
ADVANCED LIGHT WEIGHT TORPEDO	79	+ 12
SIGNAL PROCESSING		
SUB TACTICAL WARFARE SYSTEM	88	- 30
SUB SONAR IMPROVEMENT	72	NONE
SUB ADV COMBAT SYSTEM	38	+ 10
OTHER	81	- 28
	<u>450 (APPROX)</u>	<u>30</u>

TACTICAL R&D (Cont'd)

111
CHART NO. 13

	<u>FY81 \$ (M)</u>	<u>GROWTH IN FYDP (%)</u>
<u>STANDOFF WEAPON DIVERSIFICATION</u>		
TOMAHAWK	134	ZERO OUT
MRASM	22	+ 250
VLS	22	+ 36
	<u>178</u>	<u>- 40</u>
<u>TARGETING</u>		
OTH TARGETING	19	+ 10
TACTICAL RECONNAISSANCE	4	+ 1425
TACTICAL INFORMATION (JTIDS)	31	NONE
TACTICAL SURVEILLANCE SYSTEM (TSS)	0	+ 380
OTHER	115	- 34
	<u>169</u>	<u>+ 237</u>
<u>ELECTRONIC WARFARE</u>		
AIR	23	NONE
SURFACE	23	+ 130
ASPI	29	- 76
SOIS	11	1156
OTHER	9	- 16
	<u>95</u>	<u>+ 140</u>

TACTICAL R&D (Cont'd)

112

CHART NO. 14

MISCELLANEOUS	FY FY81 \$ (M)	GROWTH IN FYDP (%)
NON ACOUSTIC SENSORS		
A/C ENGINE	89	+ 24
A-6 UPGRADE	8	+ 450
E-2	20	- 30
INTEGRATED/AREA AAW	37	+ 400
MINES	36	+ 55
MINE COUNTERMEASURES	34	+ 72
DAMAGE CONTROL	24	+ 33
SM-2 IMPROVEMENTS	64	- 79
TGT SYSTEMS	45	- 13
DD-963 AAW MOD	67	- 85
SURF LAUNCH WEAPONRY	30	- 46
TRAINING DEVICES	92	- 51

Turning back to the total Department of the Navy budget here is the breakout in the various categories. (See chart no. 15) There is roughly a \$50 billion total and you can see how it breaks out, for aircraft procurement, ship construction and the like. If you look at it by mission areas (chart no. 16), you can see nearly two-thirds goes to General Purposes forces using the outside ring and you can see the kinds of figures in terms of dollars that are applied on an annual basis. Aircraft procurement (chart no. 17) - still well below what we need in order to get up to that magic number of 330; mostly going to combat aircraft and that's where we're getting roughly half of what we need. Then you can see another big chunk, roughly \$2 billion goes to modifications of existing systems and spare parts to support what you have.

Looking at our aircraft procurement picture (chart no. 18) with a little bit of history and a projection of the future, you can see we've only been buying around 100 aircraft. In 1979, we were actually budgeted for less than 100, as well as 1980. Congress added some more aircraft. The final figure for FY 81 we haven't plotted yet because this only has up through January data. I expect that that little drop-off will level and actually go up a little bit. You can see in the out years we project, about 1983, that we start getting well. That remains to be seen.

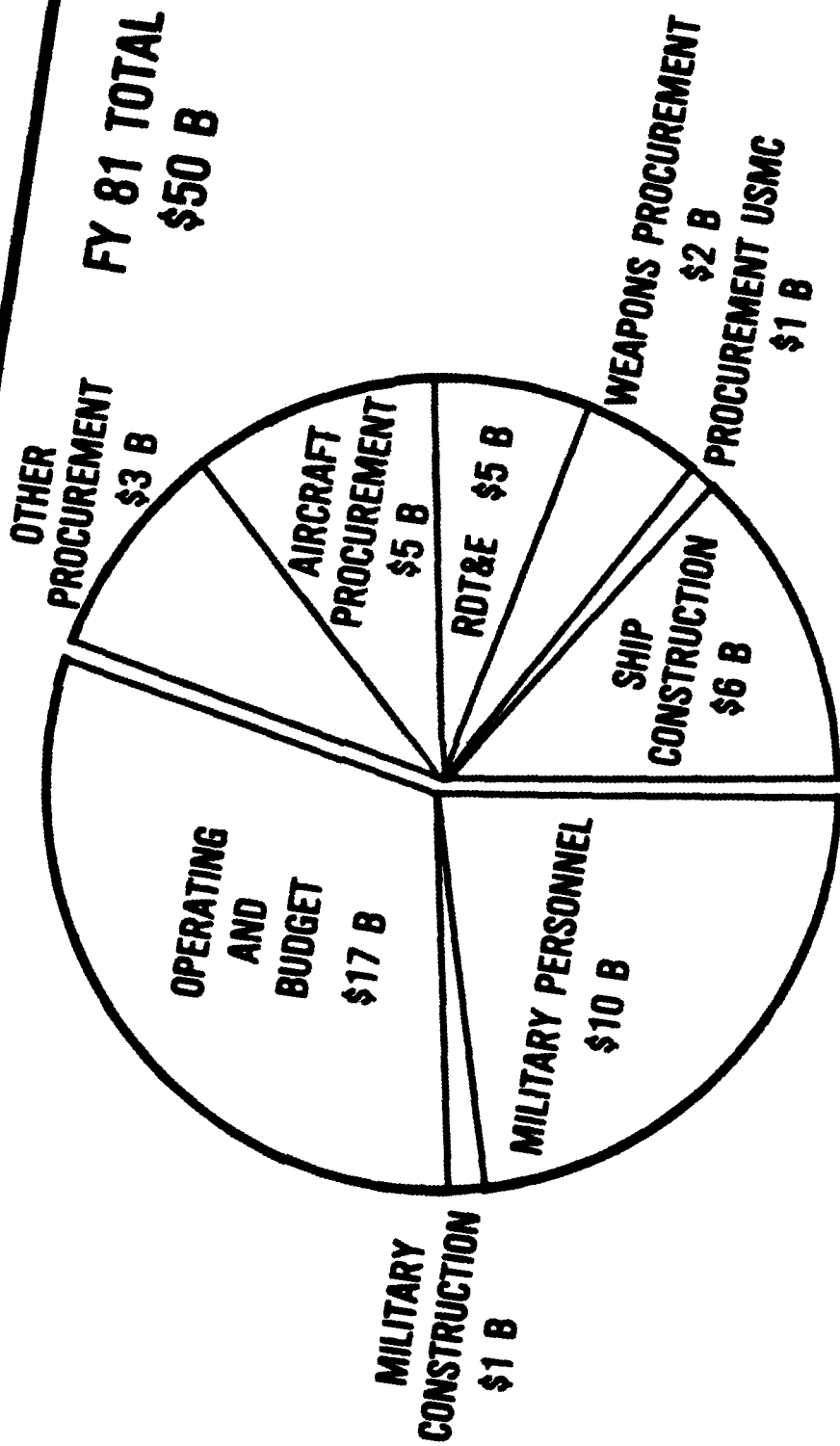
Aircraft modifications (chart 19) - quite a bit of that going on because that's where it looks like we have some pay-off and we can do it at a lower cost. We're going to make things last longer. Fairly healthy growth over the FYDP years.

Aircraft spares (chart 20) - the brackets around the initial spares are just showing you they are non-additive. We're putting more in. We've been criticized frequently for not providing adequate spare support for our aircraft. We think we've put just about every dollar in there that we can possibly identify.

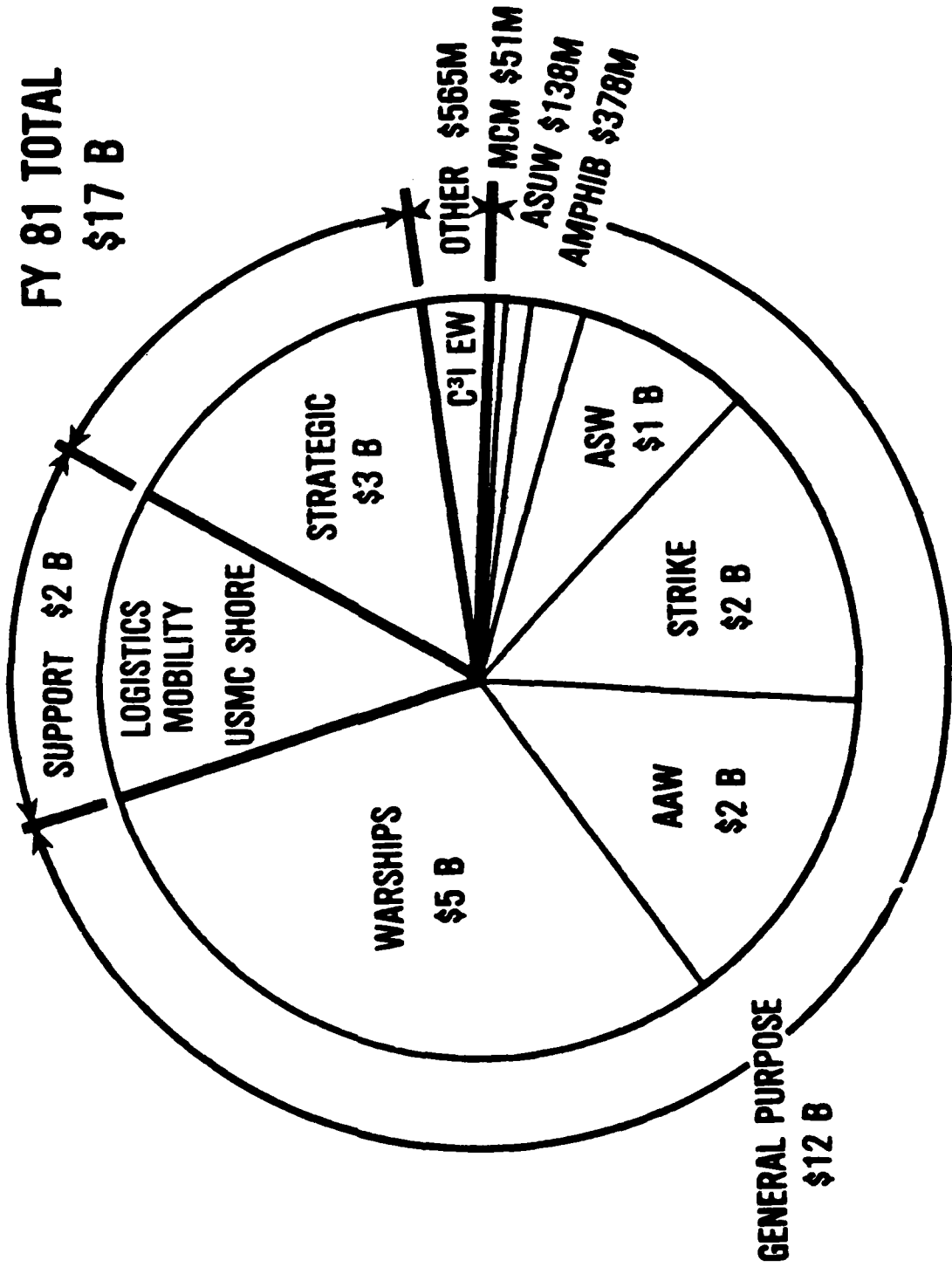
I'd like to turn now to shipbuilding (chart 21). It's getting better and as you see (chart 22), it purports to get up to the kinds of numbers that we're looking for. But we have to make sure that we take into account the fact that much of the numbers here in the yearly years are made up by a - - - The TAGOS, we're buying hopefully up to 12 of those and putting them to sea. They represent a very useful adjunct to the force, but they're not combatant. They don't help us with that 540 number that I've mentioned. And the TAK is part of the rapid deployment force and that's an added-on mission to the Navy as well, so if you adjust those numbers they come back down below that 17 to 18 we've been looking for.

DON BUDGET

114
CHART NO. 15

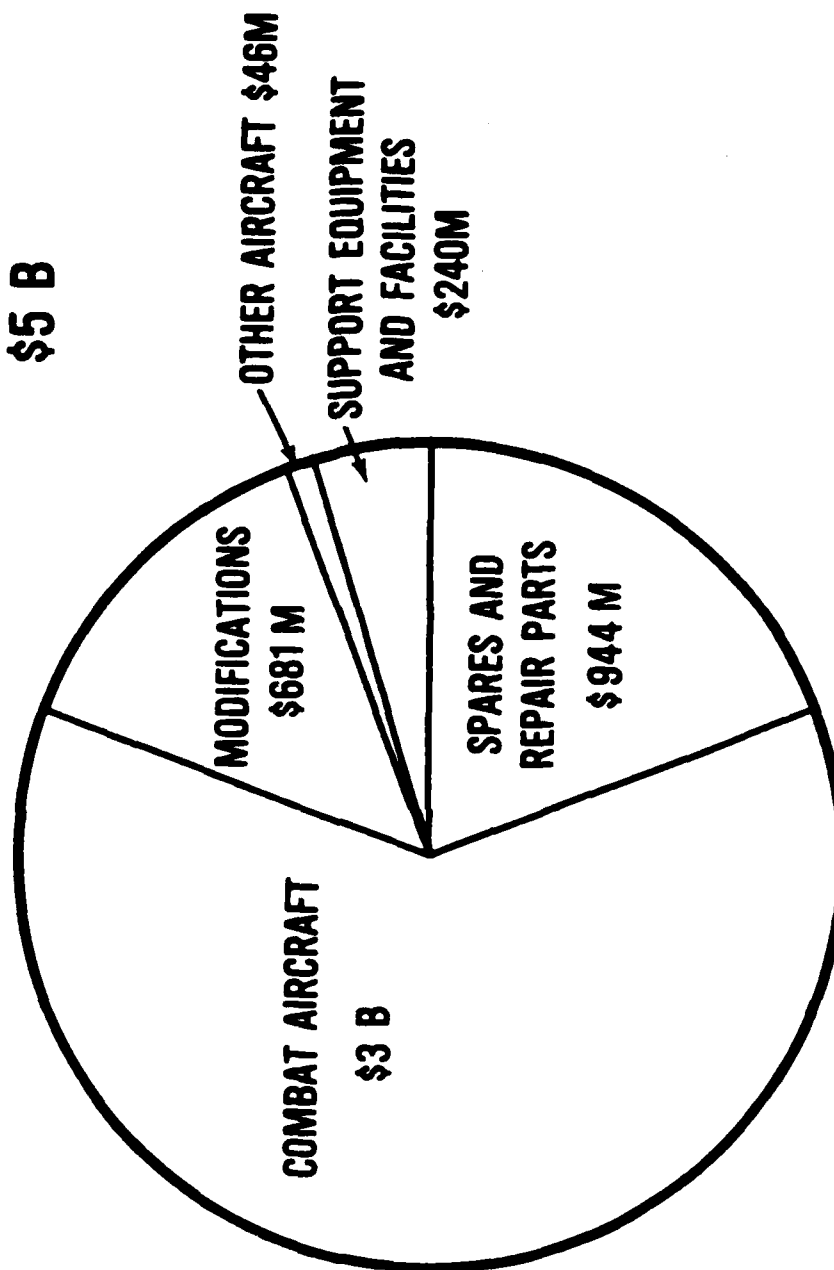


INVESTMENT BY MISSION AREA

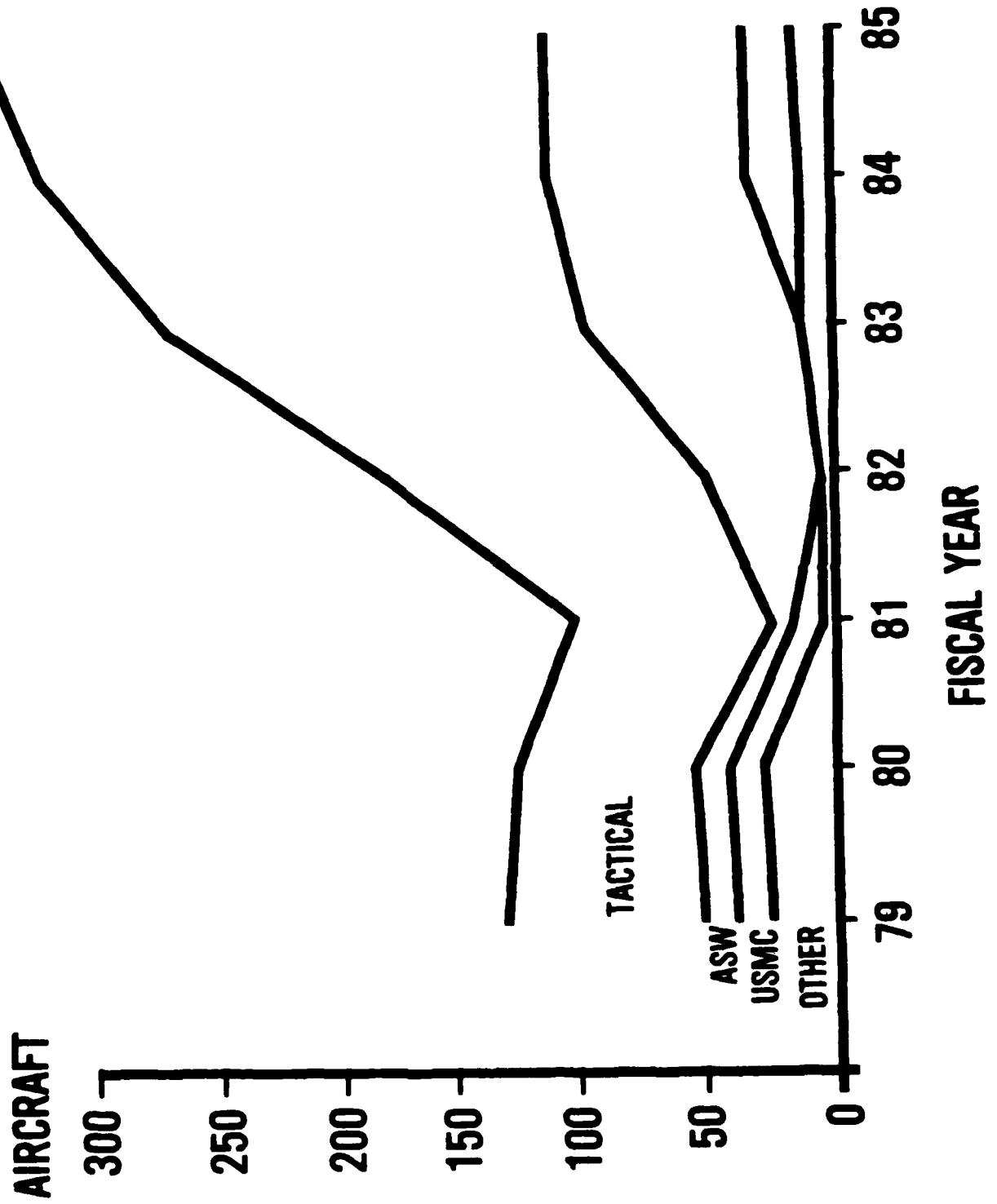


FY 81 DON AIRCRAFT PROCUREMENT

**FY 81 TOTAL
\$5 B**



AIRCRAFT PROCUREMENT



AIRCRAFT MODIFICATIONS

TYPE	FY81 \$ (M)
A-6	95
H-46	94
P-3	93
A-7	66
EA-6	46
F-4	58
F-14	44
FC-130	31
E-2	75
H-2	13
C-135	24
OTHER	77
	<u>687</u>

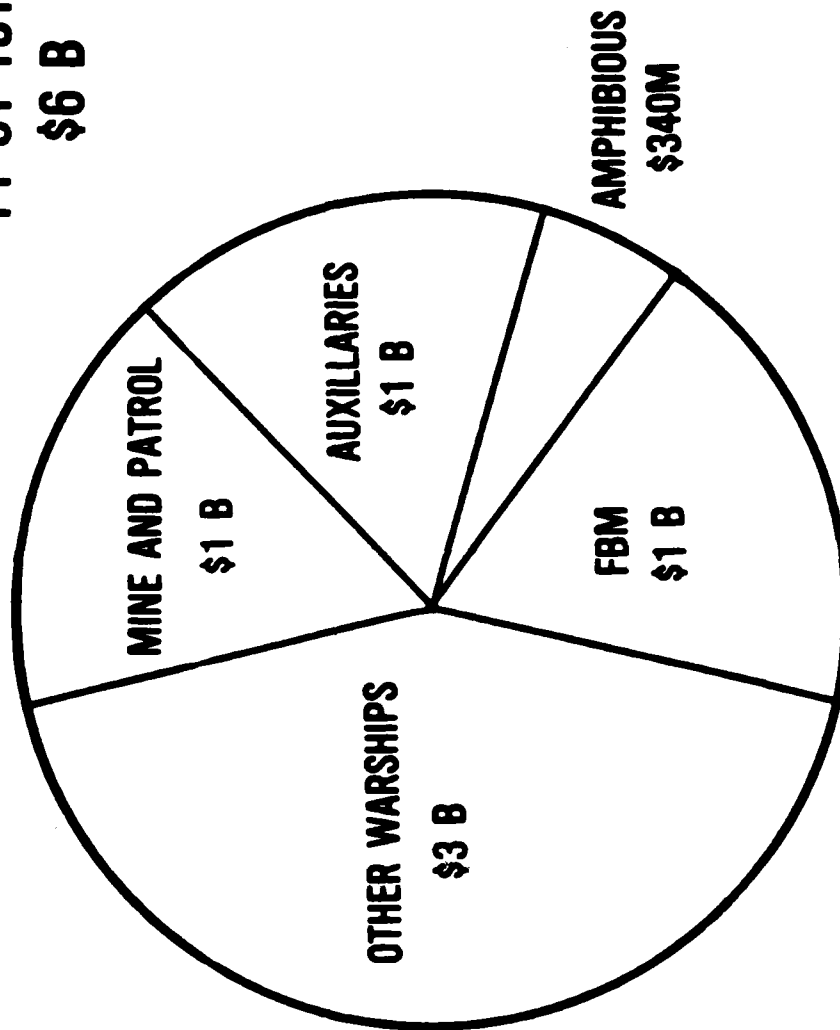
FYDP GROWTH - 57%

AIRCRAFT SPARES

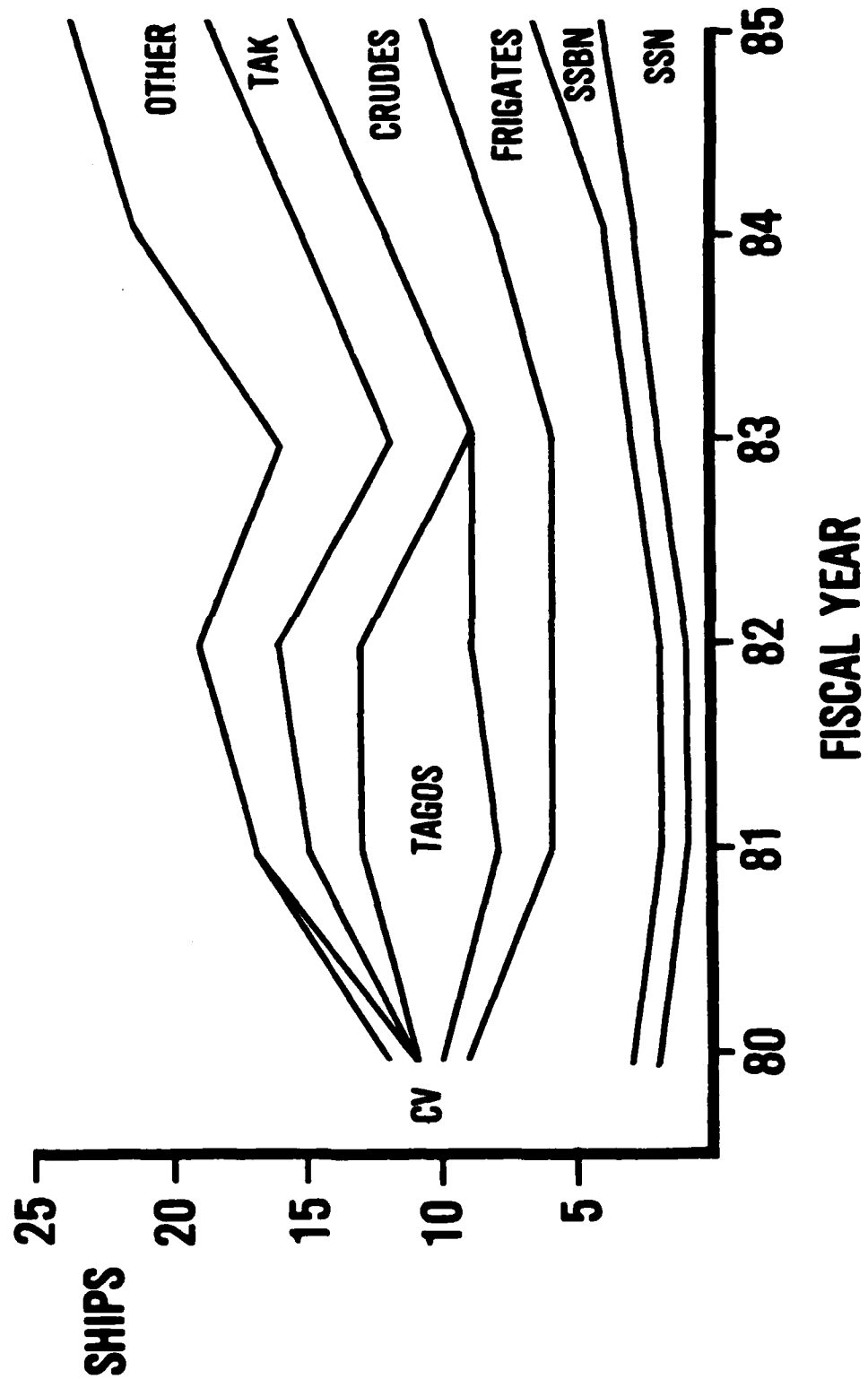
	<u>FY81 \$(M)</u>
INITIAL SPARES	459
A/C	(188)
MOD SPARES	(77)
COMMON SUPPORT EQUIPMENT	(180)
OTHER	(12)
REPLENISHMENT SPARES & REPAIR PARTS	<u>495</u>
	954
FYDP GROWTH - 31%	

DON SHIPBUILDING PROCUREMENT

**FY 81 TOTAL
\$6 B**



SHIPBUILDING PLAN



Weapons procurement (chart no. 23) - we're down by about \$2 billion in overall weapons procurement because I'll show you what our real sustainability or war fighting posture is (chart no. 24). If you read those block this way - the left hand ordinant is 81 and it goes to 86. At the top is the inventory objective that the Fleet Commanders feel they need in order to carry out their strategy of those various types of weapons. Then the line indicates where our inventory position is today. The dark portion shows how fast we're modernizing our inventory. You can see, most of them slope up toward the right hand corner, indicating we're always going to be well in those out years, those magic years just beyond tomorrow. One wonders about that. But in any event, we are in pretty good shape out there in surface-to-surface missiles. That represents Harpoon. We come down to air-to-air missiles, we're doing fairly well there. That represents the phase-in of the Sparrow, 7-M version, the 9-L 9-M for the Sidewinder IR missile, and Phoenix. Air-to air missiles, we're coming in a little slower with our standard missile upgrade and you can see the Sonobuoys position. It is one of our better pictures.

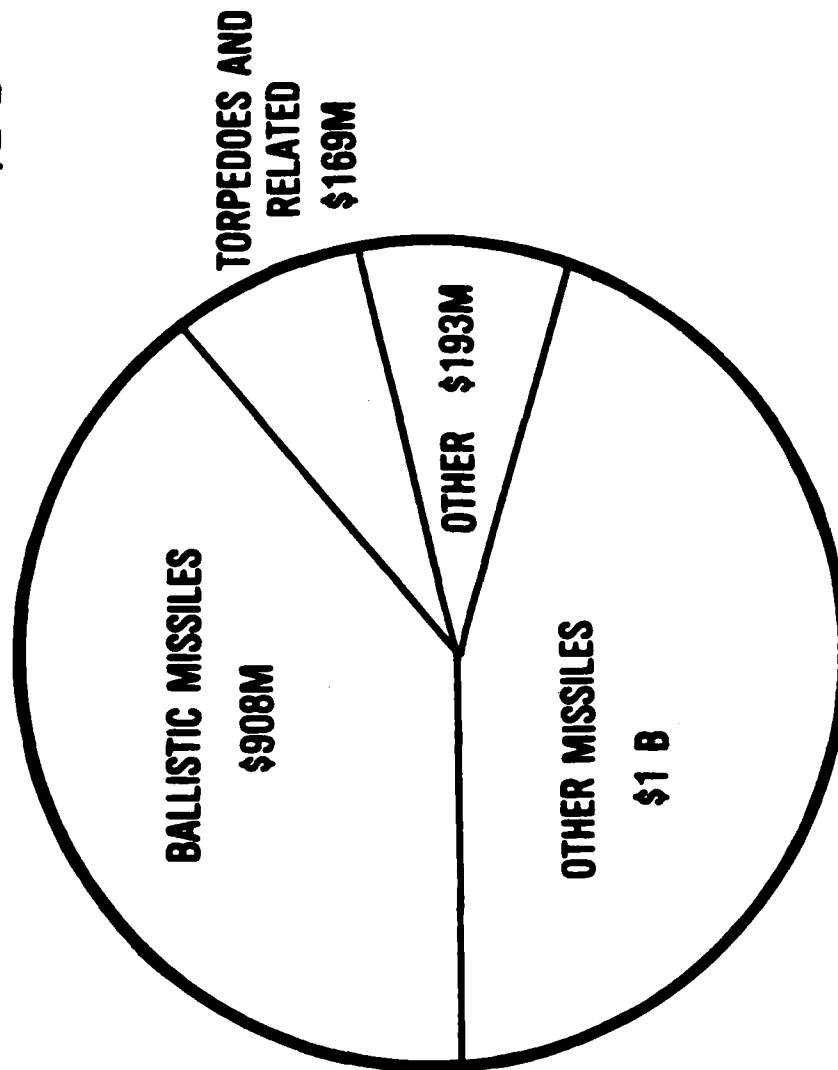
In other procurement (chart no. 25), another one of the major budget categories. You can see the breakout here. They're indicated by budget activities - communications and electronics is where we buy our radios and com equipment. The trends overall in this budget category (chart no. 26), positive because this is part and has an application to ownership costs so we made that a positive. The big chunk in civil engineering, they're running out of bulldozers. You can't go out and fix Diego Garcia unless you have a new bulldozer, so we're fixing their rolling stock.

The Marine Corps, which was billed as something we would cover (chart no. 27), roughly 10 percent of the Department of Navy budget goes to the Marine Corps, \$5 billion, give or take a few. Here is there procurement projection, pretty low. They are very slowly modernizing. The trends (chart no. 28) are positive for them in the outyears if we get the real purchasing power of the dollars that are projected out there. Support vehicles are picking up some of the equipment that the Army has already shown you, because Army procures for the Marine Corps, but in the Navy, we buy most of their weapons and we buy all of their aircraft and, of course, the amphibious ships to get them to war. So the Marine Corps has more money in support of it than is shown on this.

I'd like to end with a slight commercial. Some of the presenters have talked about personnel problems. Our position in the Navy is that if we pay them enough we can probably hang on to the skilled technicians we need. Now the purchasing power that the military man has lost since 1972 is somewhere in the neighborhood of 17 to 20 percent. That's purchasing power and

FY 81 WEAPONS PROCUREMENT

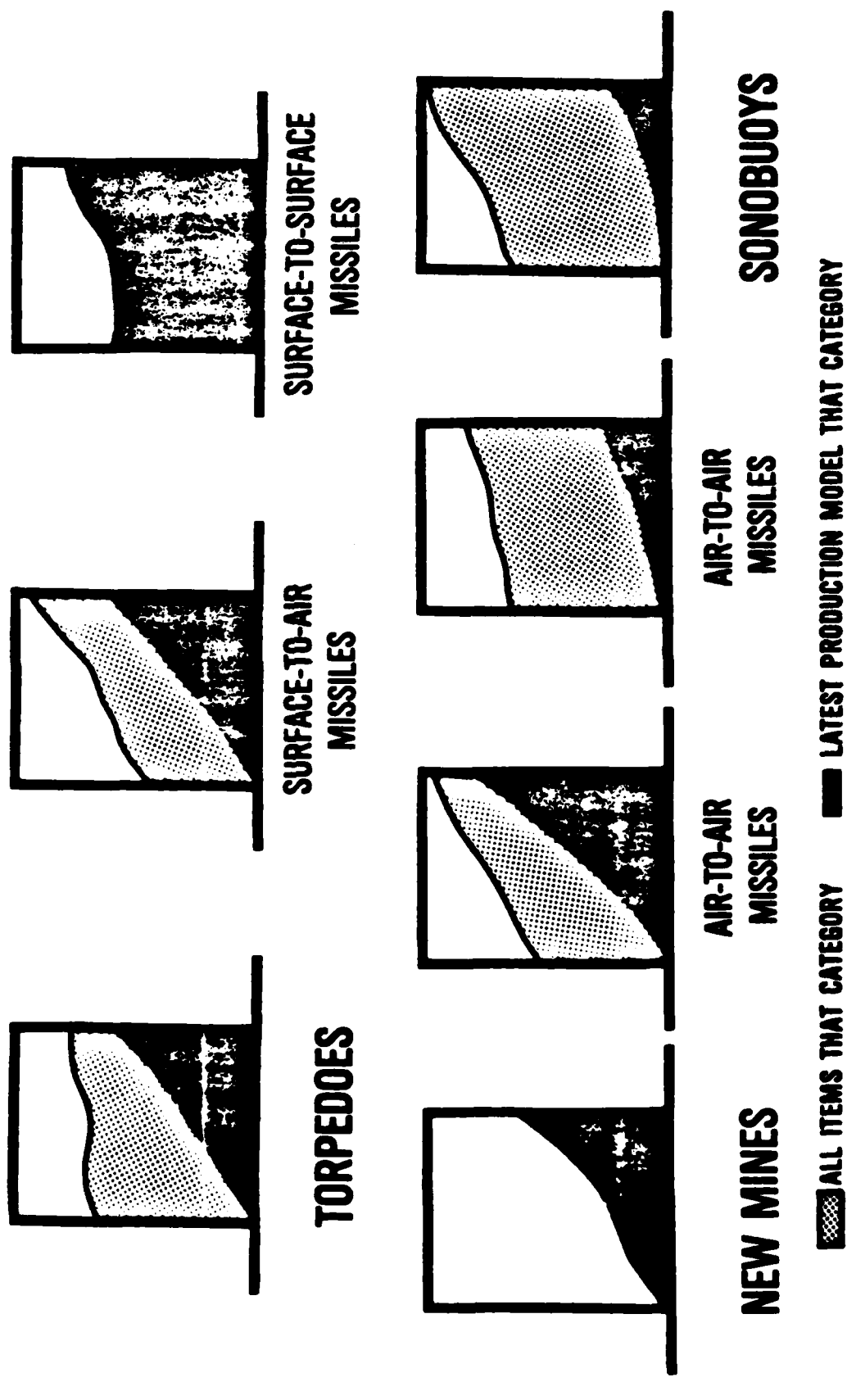
**FY 81 TOTAL
\$2 B**



ORDNANCE INVENTORIES

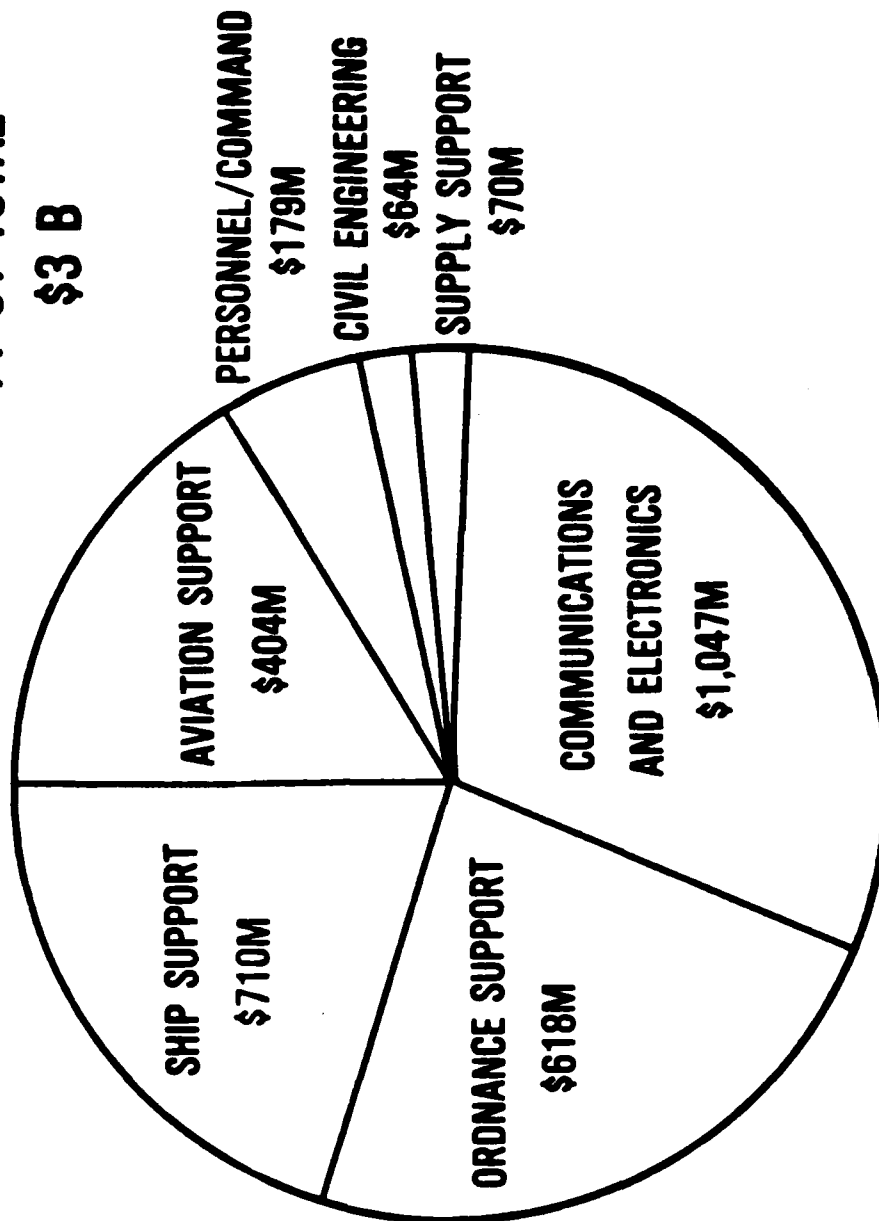
124

CHART NO. 24



OTHER PROCUREMENT

**FY 81 TOTAL
\$3 B**

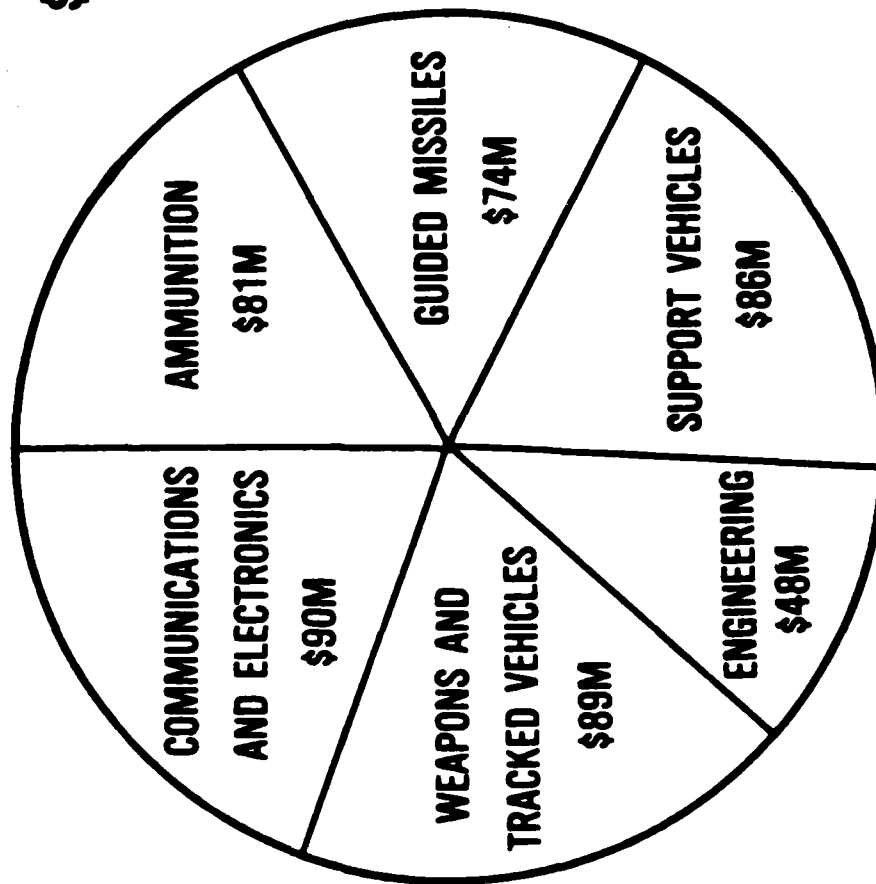


OPN TRENDS

	<u>FYDP GROWTH (%)</u>
COMMUNICATIONS & ELECTRONICS	+19
ORDNANCE SUPPORT	+12
SHIP SUPPORT	+14
PERSONNEL/COMMAND	+32
CIVIL ENGINEERING	+205
SUPPLY SUPPORT	+11

USMC PROCUREMENT

FY 81 TOTAL
\$ 1/2 B



USMC TRENDS

FYDP GROWTH (%)

COMMUNICATIONS & ELECTRONICS	+ 38
WEAPONS & TRACKED VEHICLES	- 14
SUPPORT VEHICLES	+ 198
AMMUNITION	+ 166
GUIDED MISSILES	- 81
ENGINEER/OTHER	+ 306

in compensation, that equates closer to 21 or 22 percent. The 11.7 percent pay raise that's been voted and appropriated by the Congress and supported by the President helped. The Nunn-Warner Fair Benefits package, which the President also has supported, will help even more. And we're moving forward in the right direction. We proposed about a three-step fix because we thought the total amounts of money were perhaps a little bit too much to bite off in any one year, so we're going to have to continue to push compensation.

What it really boils down to is the final slide (chart 29). These are the kinds of shortfalls that we're looking at, across the board in all the major categories. As I showed on that trend slide, if anyone still has the notion that the Department of Defense enjoys very heavy investment from the federal exchequer, I think that I have sufficiently brought it to your attention that that simply is not so. It's down to 5 percent. It is inadequate to maintain a defense establishment of the size we have today. The American public is going to have to take a stand on whether we need a defense establishment of this size, whether it needs to be a ready, confident, capable force in order to carry out the national objectives of the United States. It's that simple. The budgets won't support it. The projections look good, but they're undergirded by an inflation projection which doesn't match today's reality, so if the economy doesn't get healthy, if inflation doesn't go down, our purchasing power will come back to you in two years and tell you the same sad story. We want to get better. The trends look good. But we're not there, and in fact, we're in a "going out of business" curve today and have been for a long time.

Thank you very much.

ANNUAL NAVY SHORTFALLS

SHIPBUILDING	\$1-\$2 BILLION
AIRCRAFT PROCUREMENT	\$1-\$2 BILLION
ORDNANCE	\$1-\$2 BILLION
PEOPLE	\$1-\$2 BILLION
	\$4-\$8 BILLION

Allen C. Sheldon

Our next speaker is General Roger Peterson, Director of Program Integration, Office of the Deputy Chief of Staff, Research, Development and Acquisition, Headquarters, U. S. Air Force in Washington.

Brig. Gen. Roger Peterson

Thank you very much. I want to welcome all of those who aren't Washingtonians to our favorite city to talk about a subject which I think is of great importance to each and every one of us. I'm going to try to change my briefing from that which I originally planned in order to sanitize our those points that I think have been amply made by the prior speakers.

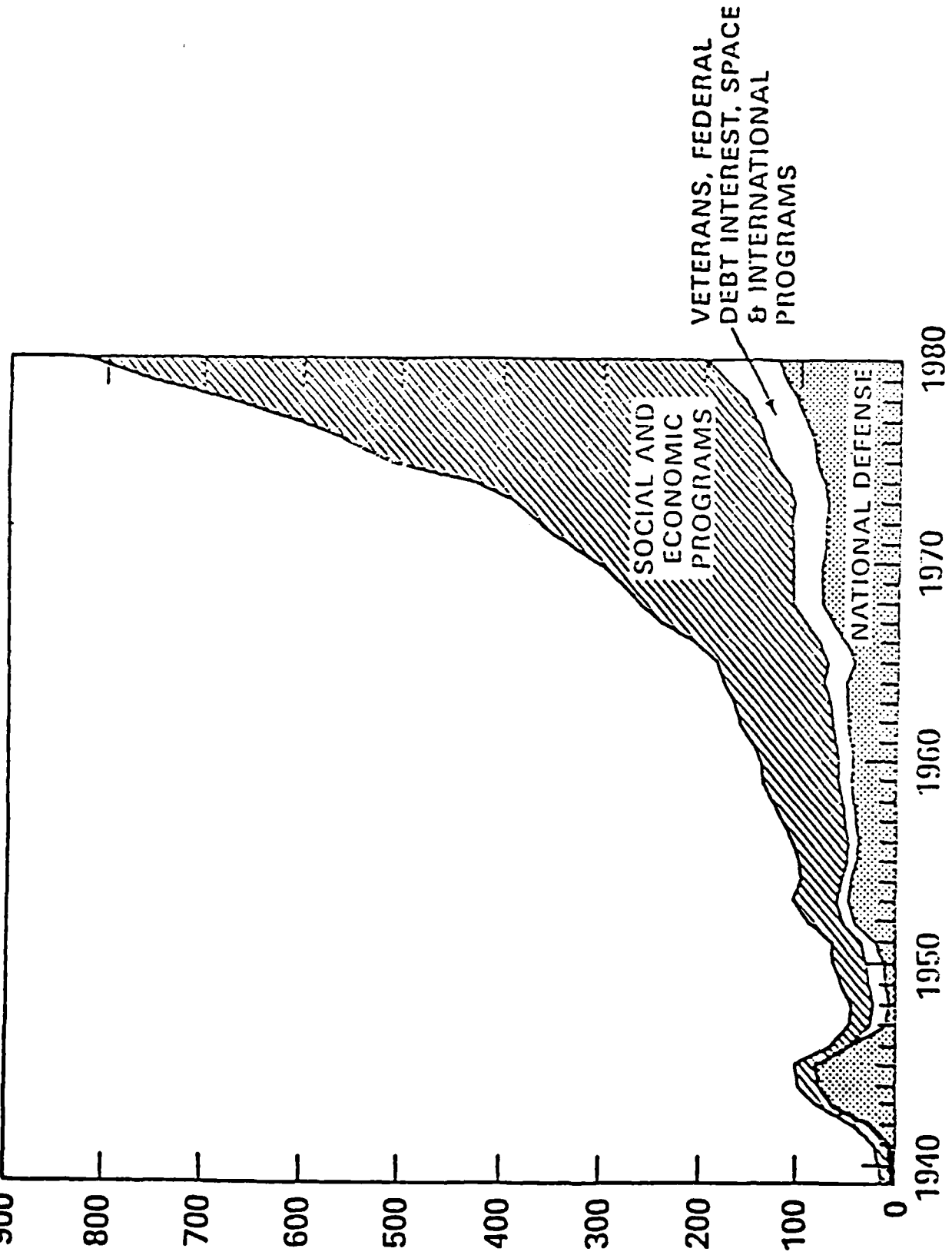
Being last on the agenda has both advantages and disadvantages. The advantage is I can determine what the others have said and tailor my remarks. The disadvantage is that I may have to sanitize too many of my remarks. But at any rate, I am delighted to be here and I'd like to talk about the Air Force side of the investment picture.

In order to give you a perspective, if you will, on where the Air Force is today and where we hope to go in the future, I'd like to back up and perhaps summarize some of the comments that have already been made here today by just reviewing very quickly some of the national trends in terms of where we're going budget-wise.

Much of the discussion we've had from the podium today has been centered on the budgets, how many dollars are available, and what is available is not enough. Well, if what we have today isn't enough, the question, of course, comes up, what is the right amount and what is the practical realities of attaining those kinds of dollar levels. It's that kind of a question that I'd like to begin with today before I go into the details of the Air Force budget, by once again reviewing very briefly the national trends, the DOD trends, and then focus on the Air Force.

Looking at this chart (see chart 1), which was published by the Office of the President, Office of Management and Budget about a year ago, this is a chart which shows all U. S. spending. This isn't just Federal spending, this is all spending, both at the state and local levels. What this chart shows you rather dramatically is that growth, of course, taking place in very recent times has been in those programs which are familiar to all of us and those are the economic and social programs. This chart reflects the basic shift in priorities that has taken place in recent times, a shift that was brought about at the request, generally, of our public. Most of us

NET U.S. PUBLIC SPENDING (FEDERAL-STATE-LOCAL) (\$ BILLIONS)



are familiar with the fact that national security involves more than just guns and ships and airplanes. That national security involves the health and well being of our country, certainly its economic health is an important national imperative. And it is these national imperatives during the 60's that received priority attention as ill-evidenced by where we put our dollars. We have a tendency to blame the Congress of the United States. It isn't the Congress that makes these fundamental decisions - it's the American public. What this chart shows is that back in the 50's and 60's, particularly back in the 50's, over half of our budget was dedicated to the defense of our country. Subsequently, while focusing on some of the national imperatives, chief among them, of course, being the current one and that is the fuel crisis, we have shifted and have put more and more of our emphasis on these other programs.

What's in this chart, also, is inflation. These dollars that you see on this chart are inflated dollars, they move up.

The next chart is the exact same chart but it takes inflation out, converts these dollars into constant dollars. And when you convert into constant dollars, you can see that the real growth that has taken place in these programs is also relatively dramatic. (See chart 2)

It should be noted that the programs we're talking about in the upper portion of this slide, the social and economic programs, are largely programs which come about by public law in the form of entitlements. This means that a sitting congress does not have altogether the prerogatives and freedoms to adjust those particular programs. Once those laws go on the books, the person becomes eligible for those entitlements, they are paid out. Those are dollars that are paid out. What that all means is that it limits the flexibility of the existing and future congresses into how they can adjust future budgets. The point is that if you have growth in entitlements in terms of your population, growing and moving into higher and older age groups, therefore achieving entitlement to Social Security, they will be receiving it regardless of what the Congress does. It is also worthy to note that the largest single share of controllable items in the Federal budget are in the Department of Defense budget, which means that if a future President or a future Congress decide that they want to balance the budget or constrain spending in some form, the largest place that they can make a move is in the Defense budget, because of these controls.

(See chart 3) The point of both of the previous charts is that if we're looking for some massive growth in the defense budget, some dramatic turn-around, the chances and probabilities are slim that we're going to see any great dramatic turn-around. We're going to see some real growth.

NET U.S. PUBLIC SPENDING (FEDERAL-STATE-LOCAL) (BILLIONS OF CONSTANT FY 1972 \$)

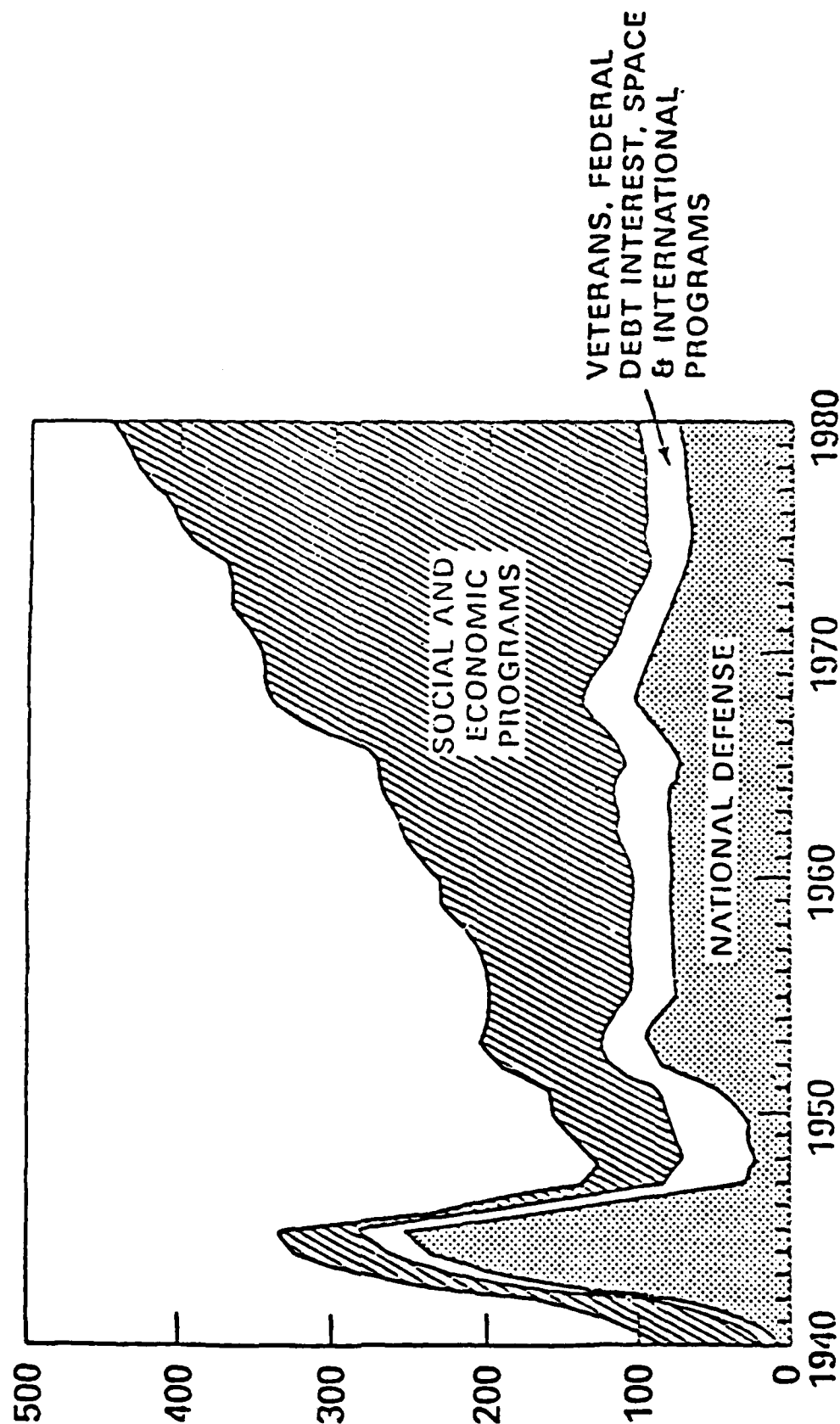
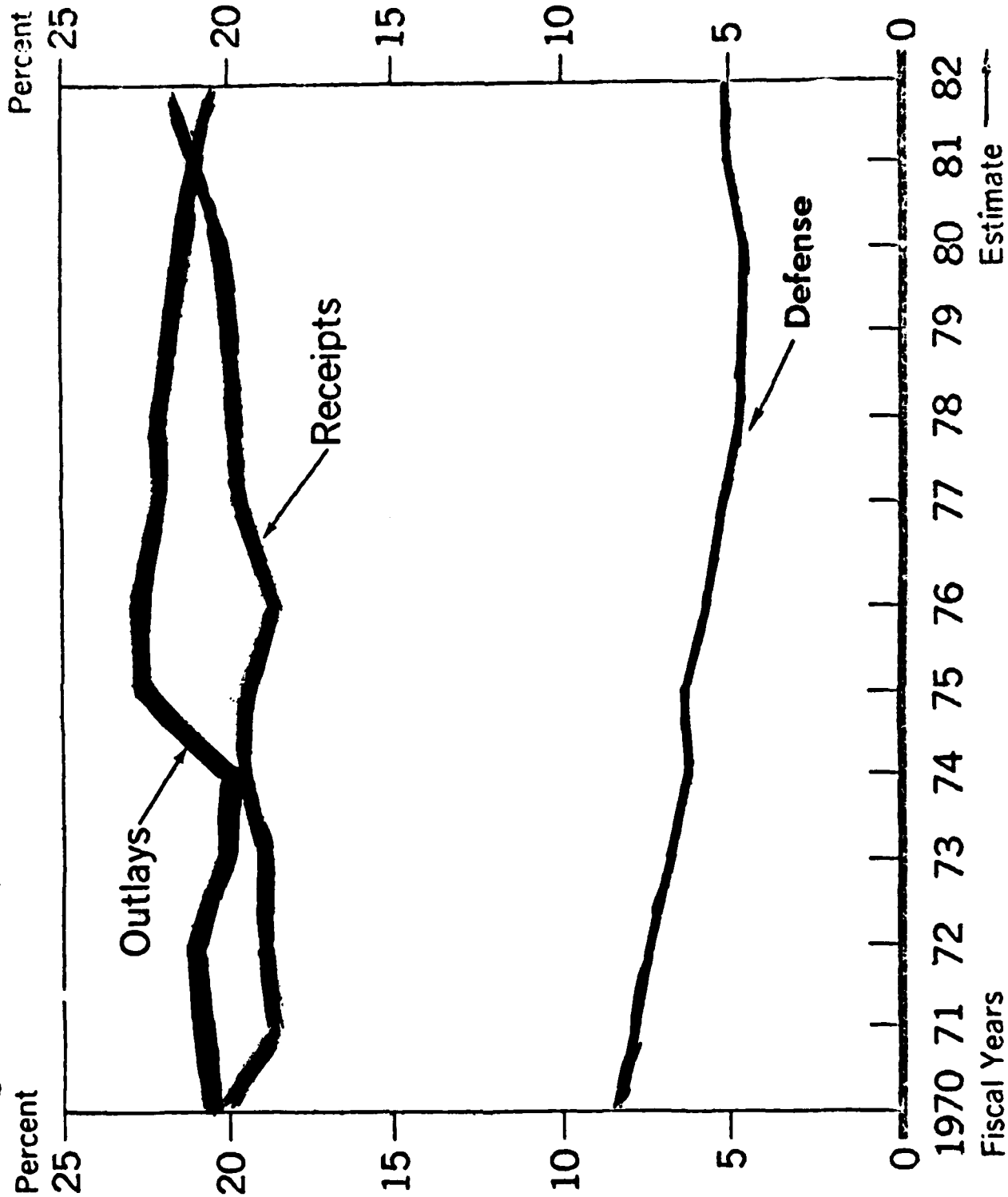


CHART 3

Budget Outlays and Receipts as a Percent of GNP



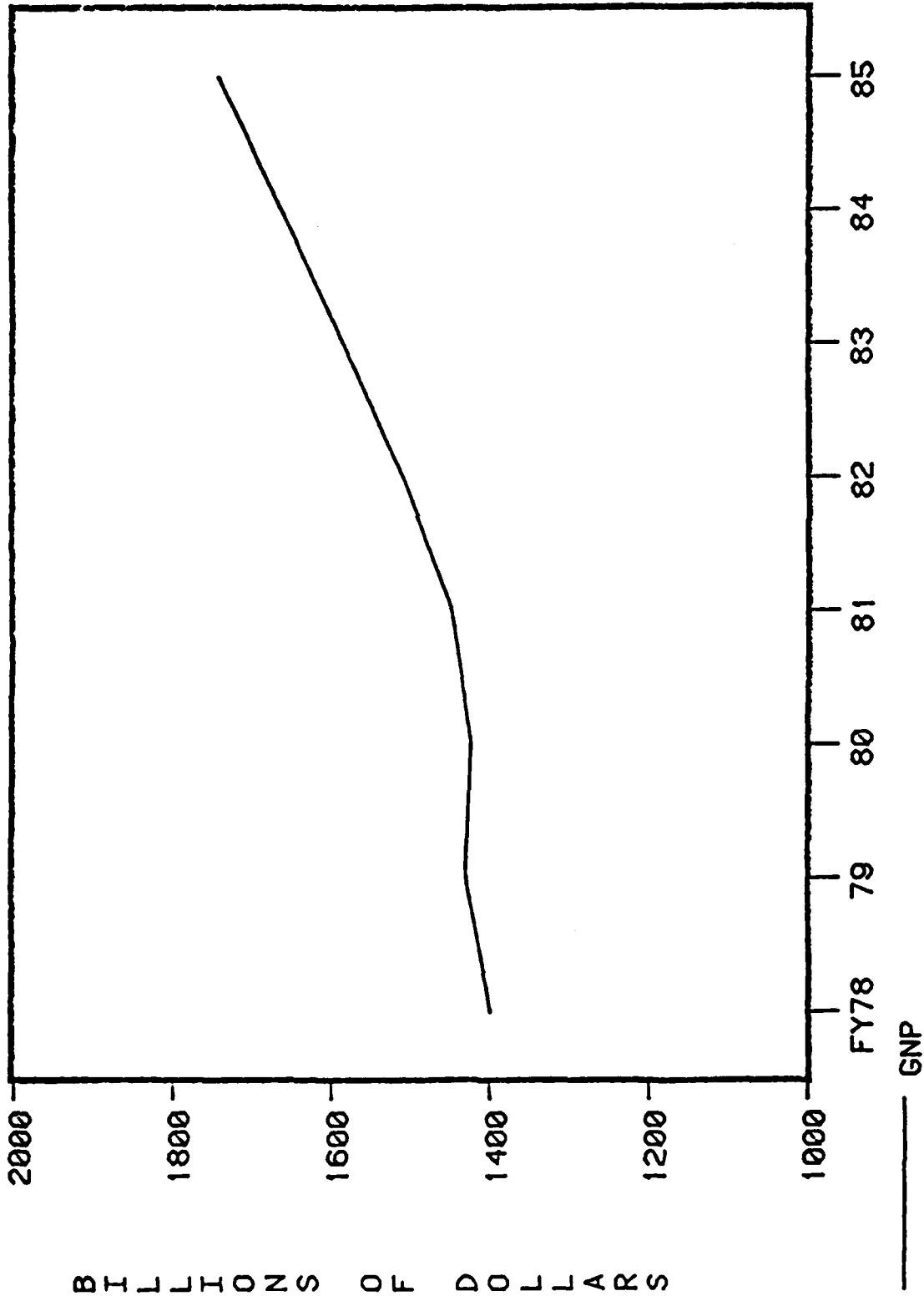
(See chart 4) This particular chart was interesting. It was also published by the OMB in a book called, "Budget Brief" at the beginning of this year. This chart shows that over time about 20 percent of our gross national product in our country is dedicated to our Federal budget. It also shows on this same chart that over time that portion of our gross national product which was dedicated to defense has declined from around 8 percent back in 1970, it was higher prior to that, down to about 5 percent. And it has held relatively constant since that time. In fact, between 1980 and 1981, we are forecasting a very slight increase in the percentage of the gross national product which is dedicated toward defense. What this chart tells us is that if our country, our gross national product, is relatively stagnant, it isn't moving in a vigorous fashion to real growth, it says that we can expect our budget levels, if they stay around 20 percent, to also be relatively stagnant with very little real genuine growth. And if our defense budgets are to stay around 5 percent in a languishing, stagnant economy, it says that the opportunities for real growth in the defense budget are, in fact, limited. So on two counts, then, we've seen that the opportunity or probability or likelihood of a dramatic change in the defense budget is not necessarily there. What this chart also tells you, though, if you look at the next chart (see chart 5) which is a projection of where the gross national product is going to go in future years, it says that if our country does, in fact, come out of the present economic doldrums and move toward economic health, and in fact does once again gain a meaningful growth in its gross national product, we can expect increasing defense budget - not because we necessarily have a larger share but because the share of the gross national product is remaining constant percentage-wise but growing with the growth in the GNP. What this chart tells you, then, is that it's just as important to us soldiers as it is to the American businessman that our economy in fact does gain economic health and once again move toward a vibrant future because that's the way we can afford not only the economic benefits to all of our citizens, but also increase the defense posture of our country.

(See chart 6) Now moving to a totally different subject, once having looked at where we're likely to get the dollars and how many dollars we're likely to get in a very generic way, real growth at a constrained fashion, it says that once DOD gets the dollars, then they divvy them up amongst the services. It's a problem associated with the allocation of the resources. This is the way the resources have shaken out in the recent past and also the way the FYDP distributes the resources within the Department of Defense percentage-wise. You'll notice that at the top, the DOD line appears to grow. This growth in prior years is accounted for by the fact that many of the defense agencies picked up resources and responsibilities that were formerly contained within the services, such as the Defense

CHART 4

GROSS NATIONAL PRODUCT PROJECTIONS

(Constant FY 72 Dollars)



FISCAL YEAR

SOURCE: THE BUDGET OF THE U.S. GOV'T.
DATE: FY 1981

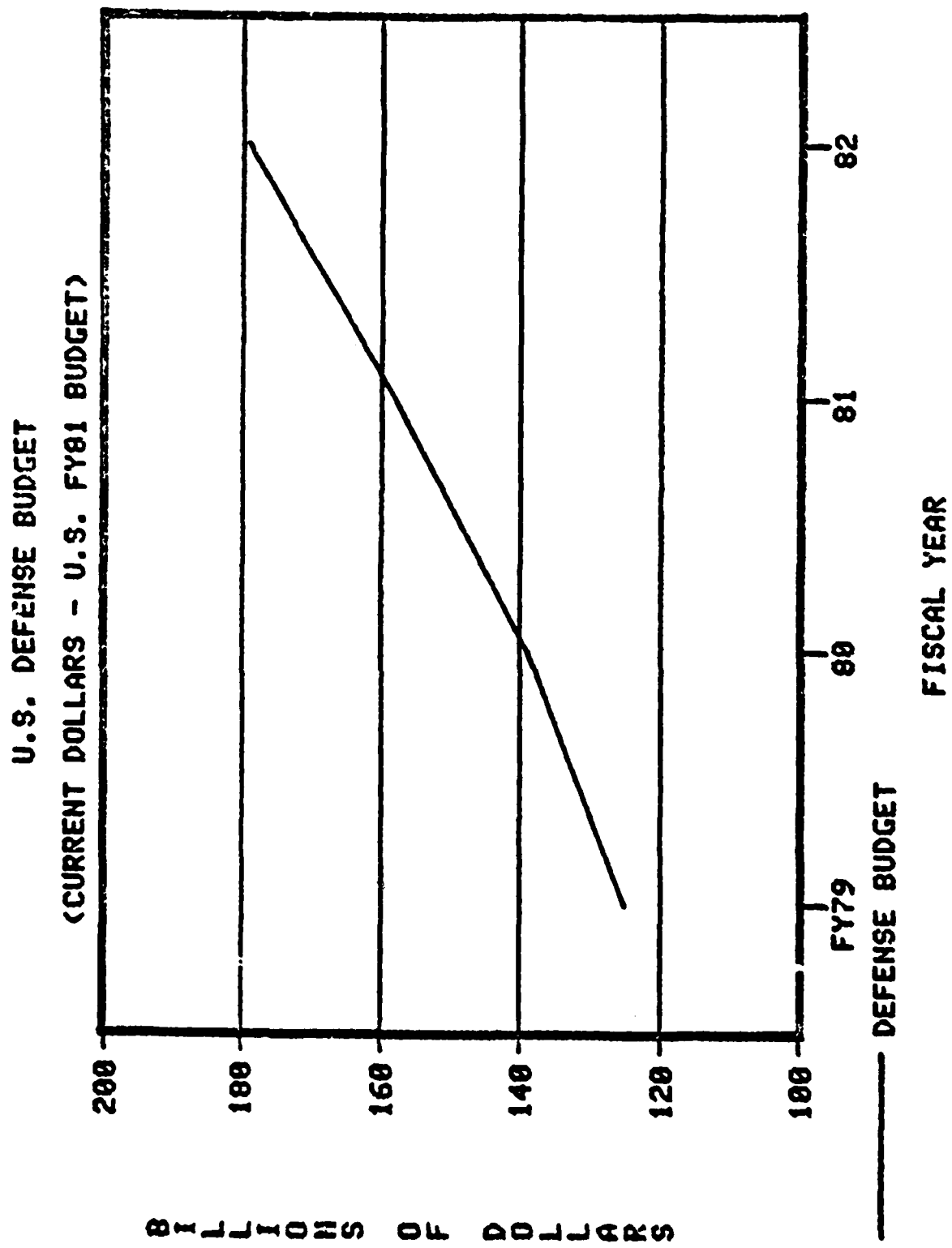
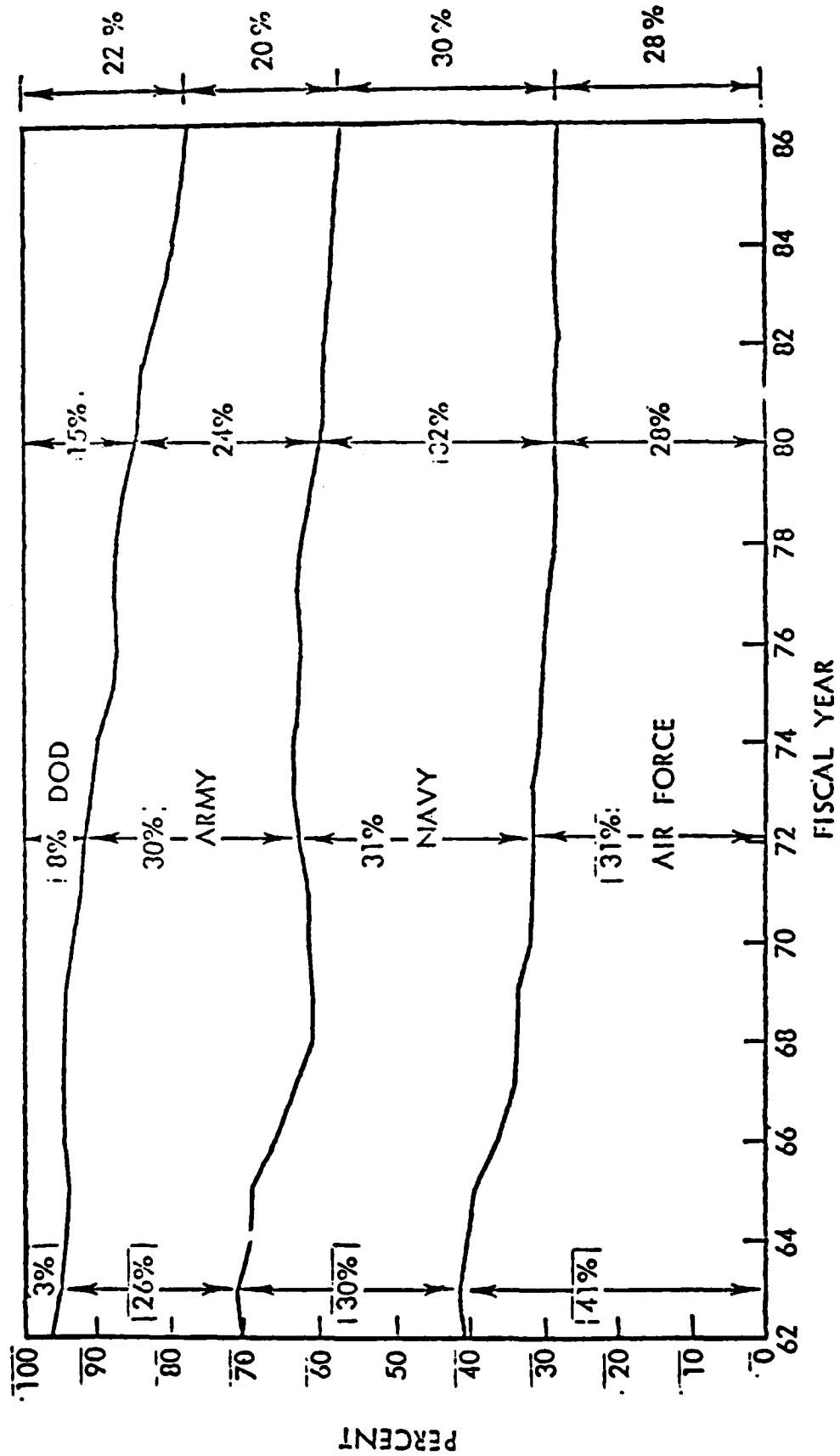


CHART 6

BASIC LEVEL DOD TRENDS

FY 62 - FY 86

(% BY SERVICE)



Supply Agency, Defense Communications Agency and others. But in the future, of course, that growth is not accounted for by that. It is accounted for by a larger share of resources having to go to pay retirement and also, up in that particular growth area, between 15 and 22 percent, is a statistical share reserved for future pay raises, etc. But what it does show is that the relative share for the other services does, in fact, alter over time. So this is the other problem facing decision makers in the Pentagon. It's not only the total number of dollars that are likely to become available, but once having attained those dollars, how are those dollars distributed amongst the competing missions within the Department of Defense.

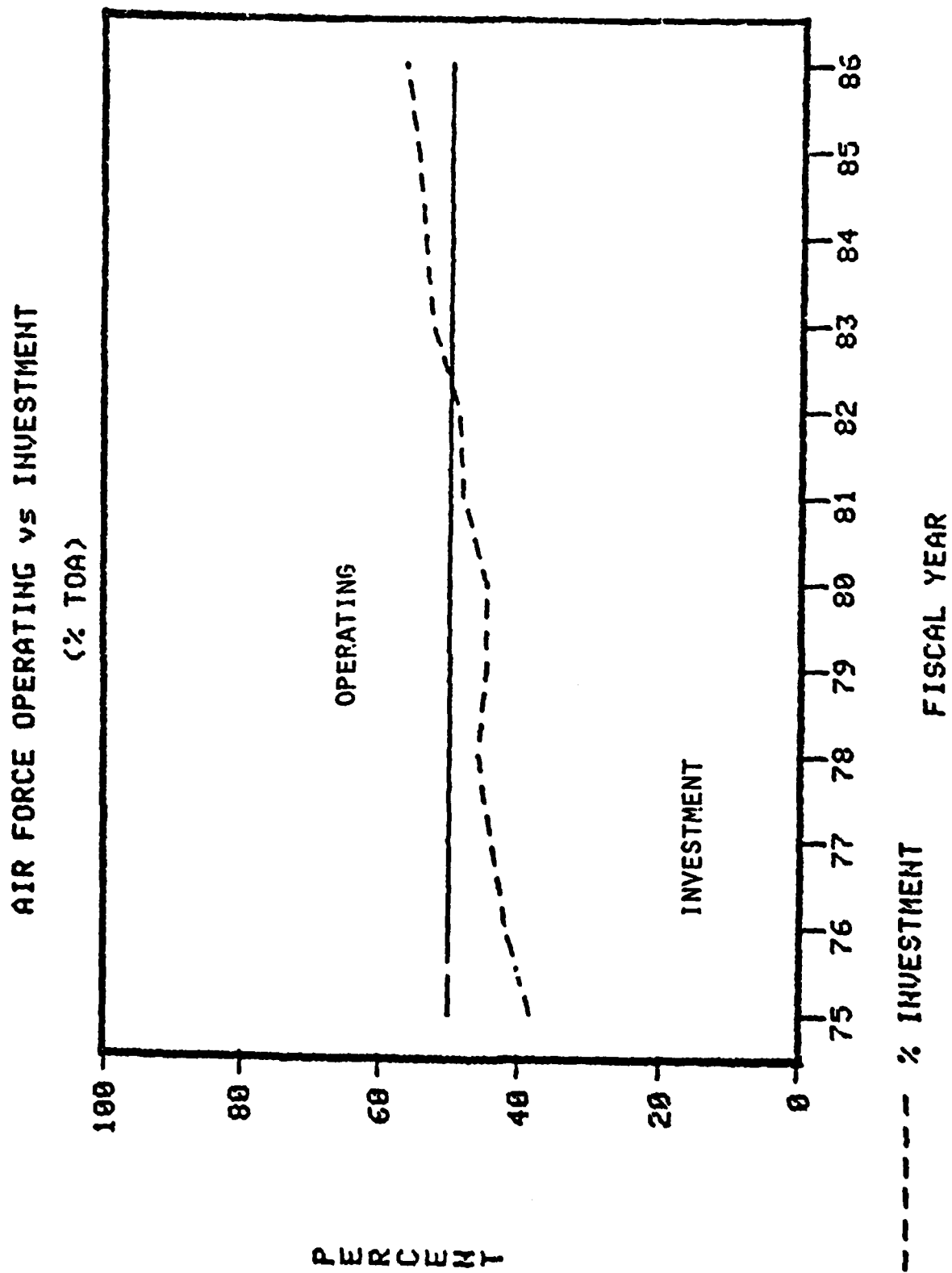
Moving from the total picture of the country down to the DOD, now moving more specifically to the Air Force, in our near term, at least, this is how we propose to lay out our TOA, '80, '81, '82. (See chart 7) I must give you a footnote at this point. You all know that budgets are dynamic documents, that when you look at a budget at a point in time, it is good for that point in time, but subsequently, through adjustments in it, such as amendments to the budget or later subsequent congressional action, one can characterize the budget slightly differently in total dollars. So I have picked a point in time, right, wrong, or indifferently. This is the President's budget that he submitted in the early part of this year, and it has not been adjusted for all the actions that have taken place subsequently, so if you try to match these numbers up with something you have in your pocket or notebook, they don't quite match. The reason I did this is because the differences are not significant for those areas that I will be briefing to you today. What this tells us is that in the area of operating, we're spending a lot of money in the Air Force in our O&M account and it's growing rather significantly and it continues to grow in the out years. This is because we are translating into reality dollars in budgets for those points that were made earlier today about the emphasis being in the defense budget on current readiness, maintaining the current posture of our services to be able to have them fly and fight right now, rather than worrying as much about the future. Military personnel, you notice, goes down in '82 and the consequence of that, of course, is not because we expect a pay cut, but because we are converting some of the manpower slots we have in the Air Force from uniform slots into civilian slots. Therefore, the funding moves from MilPers up into the O&M account. But the area that I'm going to focus on for the remainder of this afternoon is on the Investment account, because that's the area in which you are predominantly interested. I'm going to talk a little bit about the R&D and talk about what growth it's going to enjoy or not enjoy, and where it is going, and then go on to the other accounts as I have shown there. (See chart 8)

AIR FORCE TOTAL OBLIGATION AUTHORITY

(\$ IN B THEN YEAR)

	<u>FY 80</u>	<u>FY 81</u>	<u>FY 82</u>
<u>OPERATING</u>			
O&M	21.39	23.15	24.94
MIL PER	12.01	13.25	15.79
	9.38	9.90	9.15
<u>INVESTMENT</u>			
R&D	18.53	22.53	27.36
A/C PROC	5.03	7.09	8.10
MS PROC	8.06	8.55	9.47
OTHER	2.18	3.04	3.92
MILCON	2.63	2.97	4.19
	.61	.93	1.63

CHART 8

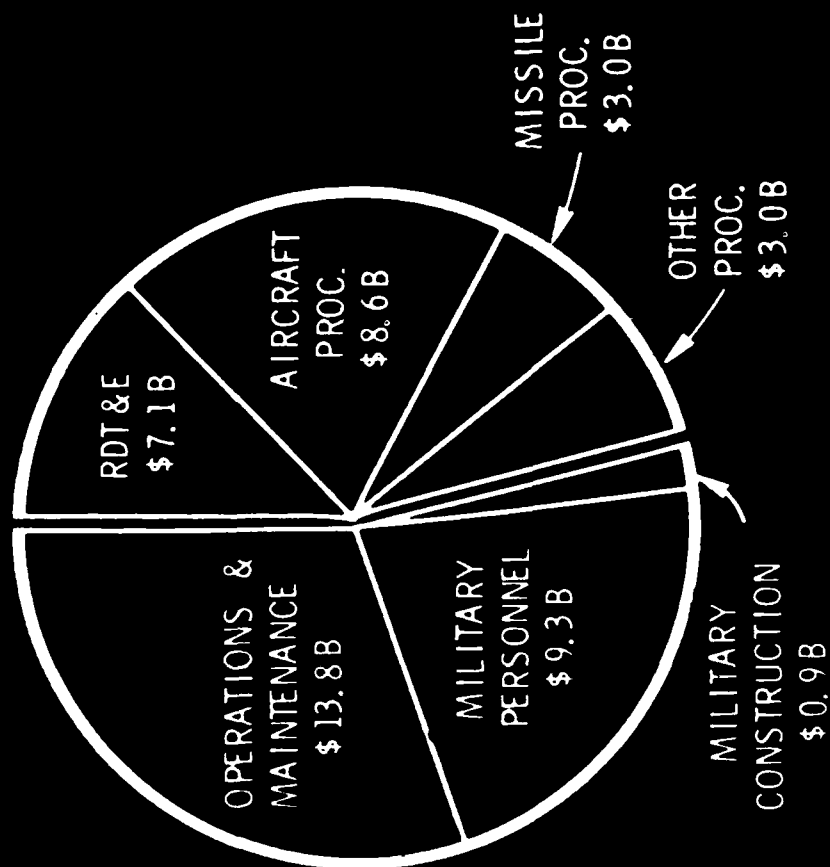


(See chart 9) Looking at the pie, this is the same chart as the previous chart, except drawn in a pie shape and shows you the relative shares of each of the accounts. If you put the Mil Pers and Operations together, you can characterize that as the operating account. If you put the others all together, that will be the investment side. We've been plotting in recent years to see exactly what share of our total resources we in the Air Force set aside for our future Air Force in order to provide for the capability of tomorrow to be able to fly and fight and meet the threats that we forecast in the future vs. those that we have facing us now. It is purely happenstance. We do not plan to have a 50/50 cut of the pie, but that's about the way it turns out. And what we have shown here, plotted from '75 to '80, you can see that the trend on the investment side has been moving slowly upward. If you take this same chart and move it back a number of years, you can see where the operating side of the Air Force was gaining rather dramatically, and the Air Force made a very sincere and conscious decision, immediately following the Vietnam war, that we had to trade off forestructure in order to keep from eating up the future money on our investment side. That conscious decision was painfully made and we did, in fact, reduce our forestructure very sizeably. Since that time we have held our forestructure relatively constant, but the way we have been able to maintain a growth in investment in through "efficiency" which means in some cases just arbitrary raw-downs in numbers of people or dollars that you have set aside for your operating side. You can do that for a while and then it begins to catch up with you and that's literally what has happened to all of the Services. It has caught up with us and our operating readiness was not where it should be and therefore this year we had to turn that around by making a conscious decision and you can see the 79-80 line kind of goes down. (See chart 10) There's another phenomenon associated with this chart. If you plot this chart each year in your FYDP, each year we have the euphoric thought that out in the future we're going to be able to move investment higher up the ladder at the expense of the operating side. In other words, find the operating economies and efficiencies such that we can invest more and therefore get more bucks to the bank in the future. The only trouble is, that line always seems to move. In other words, it's a line of optimism that never genuinely materializes when you actually get to that year.

(See chart 11). The question frequently comes up, "What's the balance of RDT&E vs. what you're buying. Do you have some dramatic swings in it?" The answer to that is no. We have once again a happenstance chart. This is not a chart that we sit around a table at the beginning of our budget year and say "What are we going to put in for R&D vs. procurement." This is a chart we plot after we've done our action. What this says is that you spend about 40 percent of your investment dollar on Research and Development of new systems and about 60 percent

USAF BUDGET FY 1981

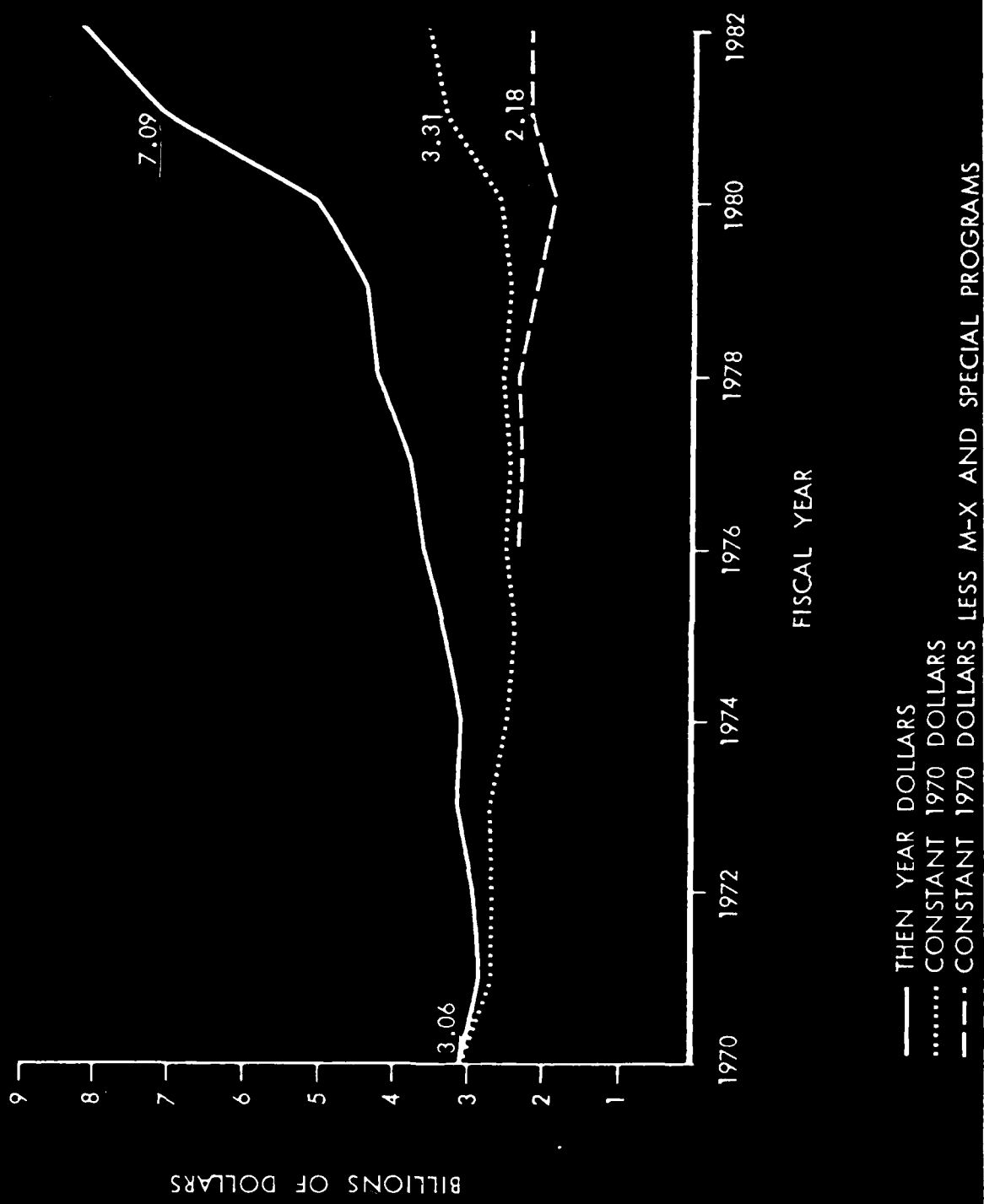
\$45.7 B



37

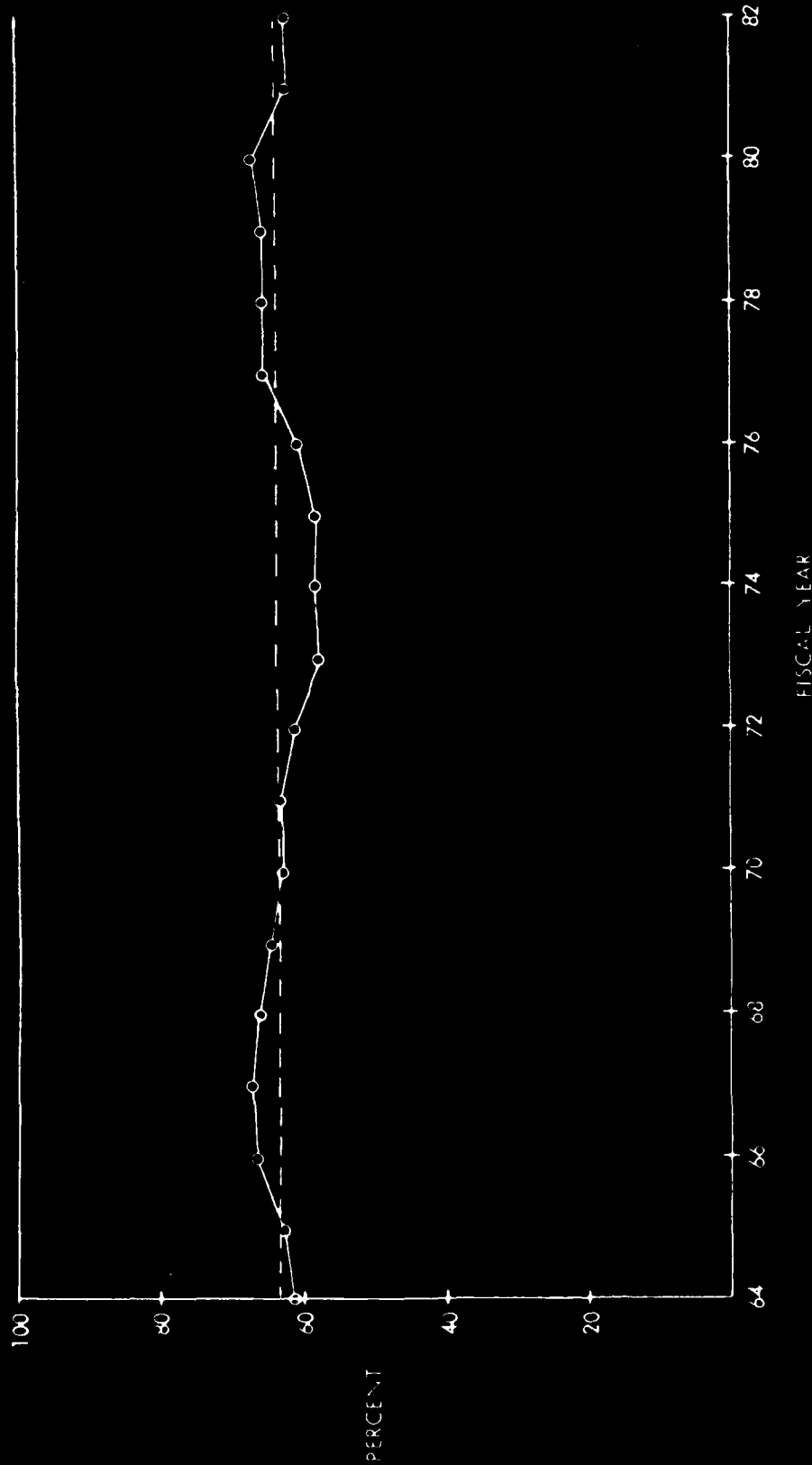
RD&E TRENDS

US AIR FORCE RD&E BUDGET



35

THE INVESTMENT BALANCE



comes out in buying actual hardware. The reason we made this chart this year was to see if we were doing something that people commonly accused us of and that is that we're doing a lot of research and development, but not buying anything. This chart says we're doing about the same as we've always done. Whether that's good or bad, I'm not prepared to debate.

(See chart 12) Let's take a look at our R&D budget specifically in the Air Force because it gives you an indication of the kind of systems and the kind of effort that you can expect out in the future years. What this chart tells you is that in 1964 we spent in the Air Force about \$3.6 billion in R&D. And it says in 1981 you expect to spend about \$7 billion. Pretty nice growth in current dollars. But if you take that line and convert it to 1964 dollars, as represented by the dotted line, you started out in 64 with \$3.6 billion, you're now down to \$2.85, which says that you're losing ground in R&D in the Air Force and that's true in real terms. In the very recent time, we're showing some real growth and that difference between the top line and the bottom dotted line is MX. What that says is you've got a single system that's coming on of such national consequence and priority it's going to demand those kinds of resources. But if you take that program and set it aside and look and see what's going on with the rest of your R&D, it says that the rest of your programs are not enjoying any real growth at all. In fact, they're coming down.

Looking at the pie, there's \$7 billion and you can see the division among the mission areas that we used in the Air Force. In strategic offense there is the MX. Of that \$2.1 billion in R&D, about \$1.6 billion of that is the MX missile system itself.

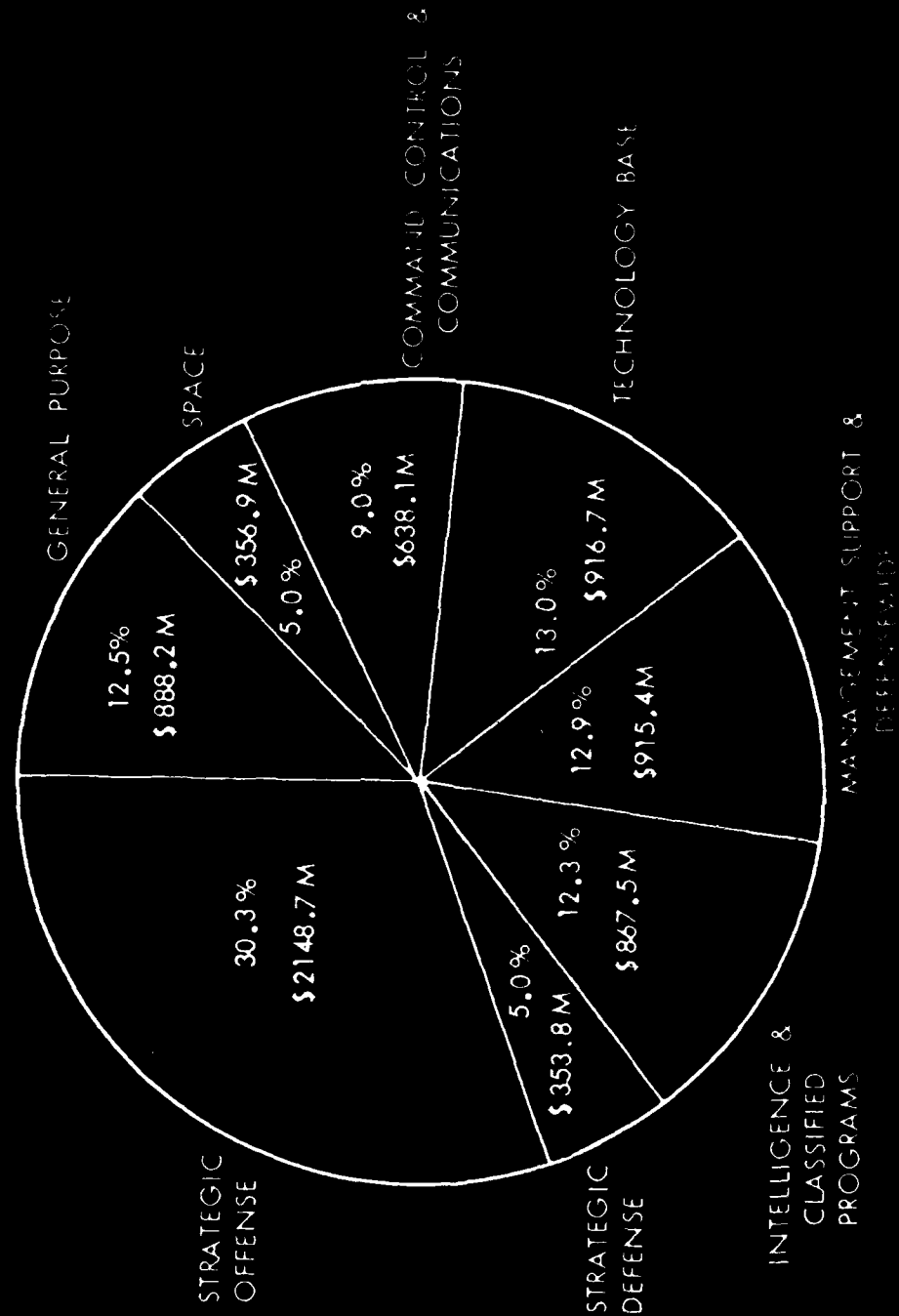
(See chart 13) I'd like to talk about the defense area. I've talked about the offense area just briefly. The defense area is the top line of current dollars, the dotted line represents the constant 1978 dollars. It gives you some sort of a feel for the current dollars we're going to be investing in these areas and the constant dollars, the kind of growth you can expect. Where's it growing? (See chart 14) We're talking about a \$7 billion account with \$353 million of that being invested in R&D and strategic defense. Nine percent is going into air-to-air and CONUS OTH radar and joint surveillance systems. Small money. And the consequence of that, of course, is that it wasn't very long ago that the Department of Defense made a decision about our investment area in being able to intercept air threats. Seven percent for missile threat. And of course the big dollars in here are the space systems, 59 percent of our R&D dollars in the strategic defense going into the space programs. And then \$25 to the support system which is the communication system.

CHART 12

AIR FORCE RDT&E BUDGET DISTRIBUTION BY MISSION AREA

FY 81

TOTAL - \$7.09B

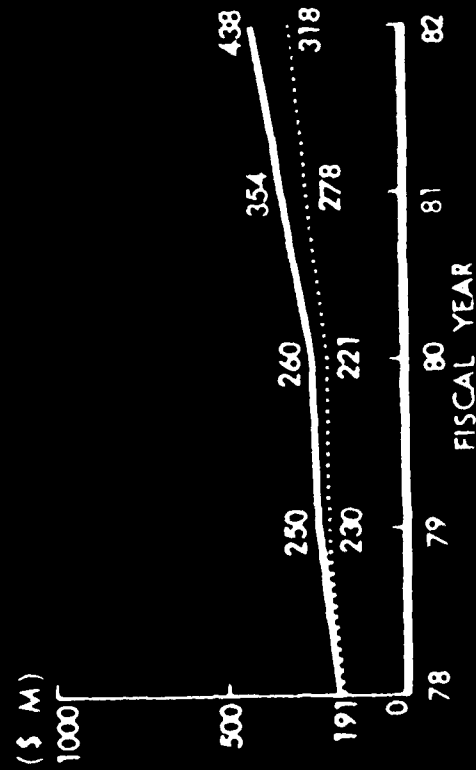
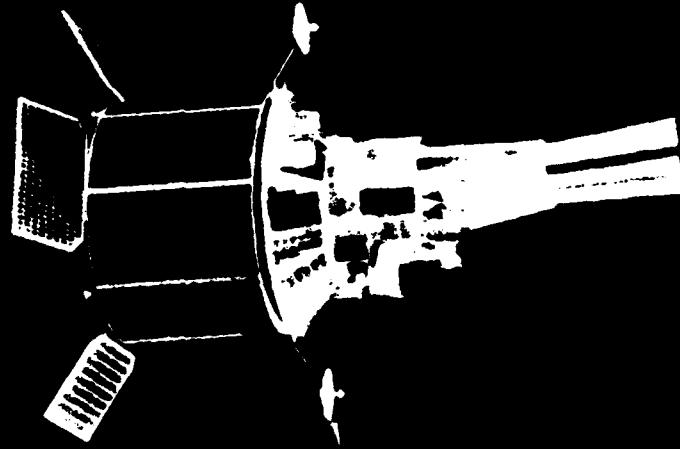


27

RD&E TRENDS

STRATEGIC DEFENSE

FY 1981 - \$353.8M



MAJOR BATTLE PROGRAMS

STRATEGIC DEFENSE

FY 1981 - \$353.8M

9% AIR

CONUS OTH RADAR

\$12.1M

JOINT SURVEILLANCE SYS

\$ 9.7M



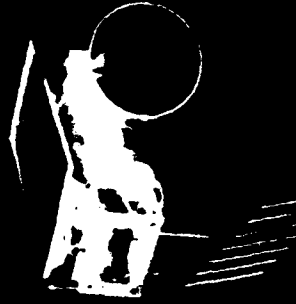
7% MISSILE

MISSILE SURVEILLANCE TECH

\$12.2M

BAL MSL EARLY WARNING SYS

\$ 9.1M



59% SPACE

SPACE DEFENSE SYS

\$110.4M

SPACE SURVEILLANCE TECH

\$44.3M

SATELLITE SYS SURVIVABILITY

\$33.3M



25% OTHER

DEFENSE SUPPORT PROGRAM

\$72.9M

(See chart 15) Let's take a look at strategic offense. Here's \$2.1 billion - that will be \$2.7 in 1982. (See chart 16) The big driver in here, as I've already pointed out is the MX - \$1.55 billion. The rest of it is relatively modest sums. Only 20 percent of our dollars here are going to be air-breathing. What isn't shown here is, of course, the new bomber and that's dollars that aren't in these budgets. The big dollars aren't here, dollars that the Congress is now, in their current markup, working to provide.

(See chart 17) General purpose forces have had their ups and downs in R&D because some of our systems have matured. It doesn't necessarily mean that you don't have meaningful, useful, productive requirements. It's just that you have a system that's now maturing in R&D, now going into production. You take those R&D dollars and use them for other important priorities within your service.

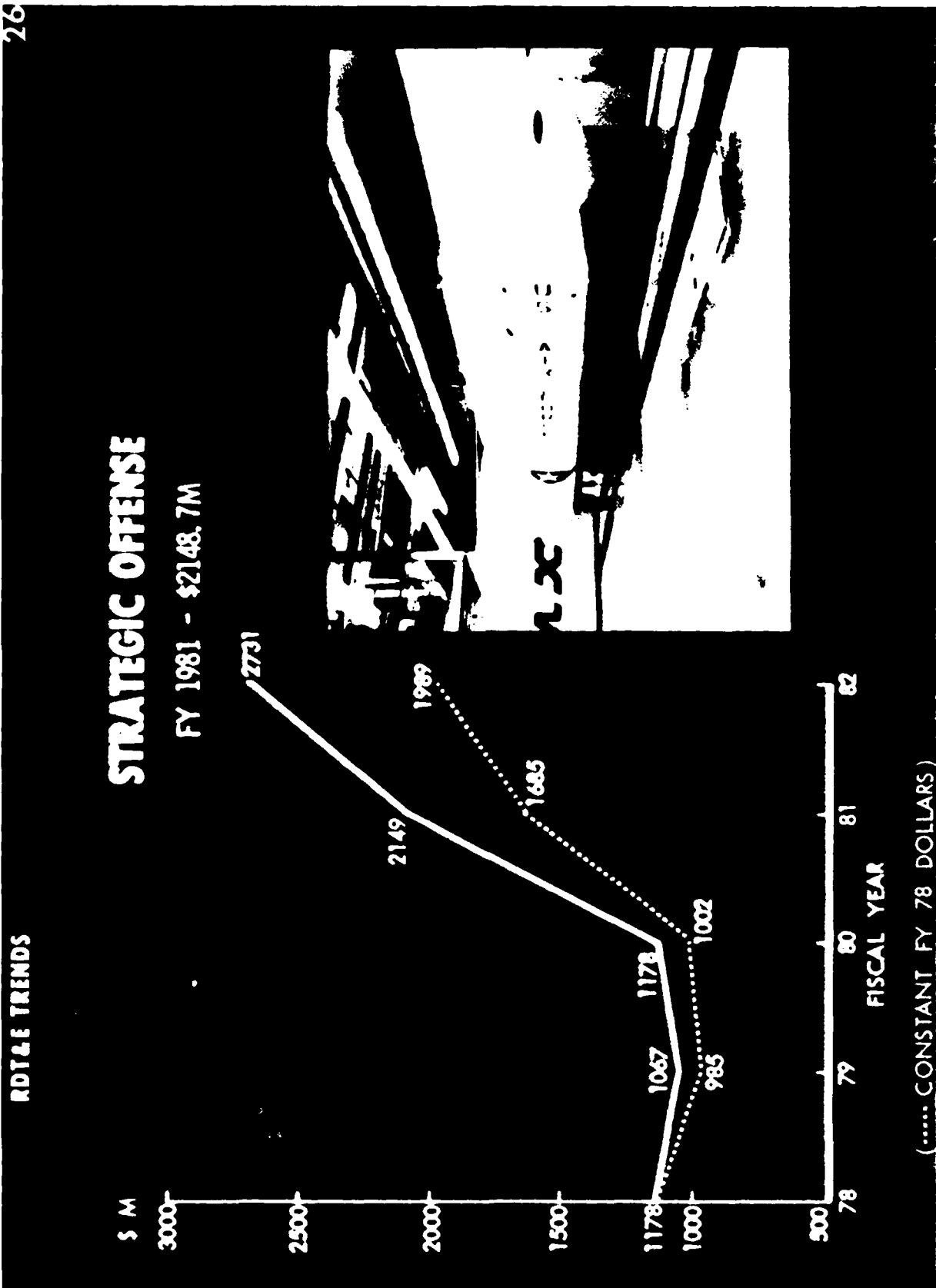
(See chart 18) Taking the general purpose forces and breaking it down, once again \$800 million of the \$7 billion account. We have 39 percent of our dollars in R&D go for air-to-surface attack devices and weapons, 21 percent go to counter-air and then down at the bottom we have mobility - C-X, which is another important program. And the procurement dollars, I'll show you later, for C-X aren't in this program. And they are very large dollars.

As I going along through these slides I'm pointing out some very large programs that we have yet to accommodate in our budget, in our future budgets. One is a new bomber and the other is the C-X in the total dollars. We have some R&D dollars in the near term, but not the big procurement dollars yet.

(See chart 19) Space - important mission. Not a whole lot of dollars go into space, an area that is quite contentious because this is part of the problem you have of trying to defend a program that has enormously high potential for the future, trying to measure it against current programs that provide you immediate payoff. And sometimes those programs that have high potential have to consequently suffer in those kinds of hard, tradeoff decisions. Is that wise? That's a question I'll just turn to you. Seventy-four percent of our money we spend on launching systems or getting ready to launch systems.

(See chart 20)

(See chart 21) Command, Control & Communications - \$638 million goes in this area - we're talking R&D only, not procurement yet. (See chart 22) Here's how that kind of money is split up for those kinds of programs. Admiral Kollmorgen mentioned a very important program; the NAVSTAR GPS is important to both the Air Force and the Navy in terms of its ability to provide



MAJOR ESTIM PROGRAMS

47

STRATEGIC OFFENSE

FY 1981 - \$ 2148.7 M

80% LAND BASED ICBM

M - X	\$ 1551.0 M
MINUTEMAN	\$ 48.3 M
ADV BALLISTIC REENTRY SYS	\$ 110.9 M

20% AIR-BREATHING

AIR-LAUNCHED CRUISE MSL	\$ 108.4 M
ADV CRUISE MISSILE TECH	\$ 13.9 M
B-52 SQUADRONS	\$ 142.4 M
PROTECTIVE SYSTEMS	\$ 71.1 M
BOMBER PENETRATION EVAL	\$ 30.7 M
CRUISE MSL CARRIER	\$ 30.3 M
ADV STRAT AIR-LAUNCHED MSL	\$ 25.7 M

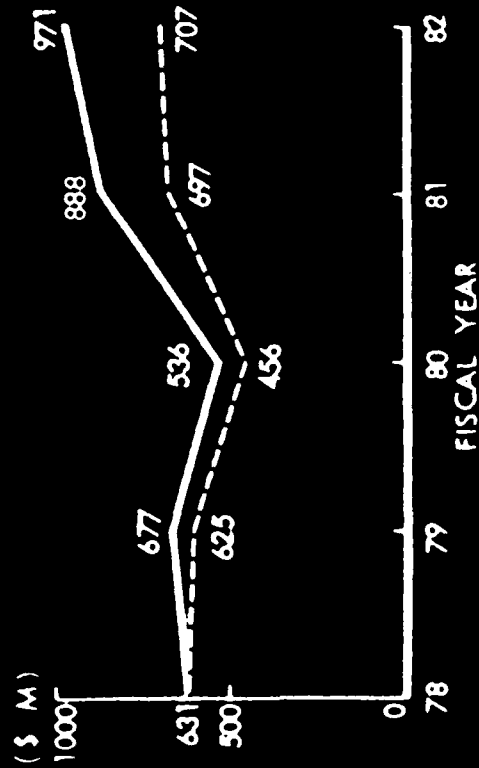


29

ROT&E TRENDS

GENERAL PURPOSE

FY 1981 - \$ 888.2M



-----CONSTANT FY 1978 DOLLARS



51

GENERAL PURPOSE

MAJOR DATA PROGRAMS

FY 1981 - \$ 888.2M

39% AIR-TO-SURFACE ATTACK

NIGHT ATTACK PROGRAM

\$74.8M

MAVERICK

\$40.3M

ADV ATTACK WPNS

\$25.1M

21% COUNTERAIR

F-16

\$42.3M

LOW ALTITUDE AIRFIELD
ATTACK SYSTEM

\$56.0M

17% DEFENSE SUPPRESSION

PRECISION LOCATION STRIKE SYS

\$62.6M

10% RECONNAISSANCE

RECCE EQUIP

\$14.9M

INTELLIGENCE EQUIPMENT

\$16.6M

SIDE-LOOKING AIRBORNE RADAR

\$27.4M

13% MOBILITY

C-X

\$80.7M

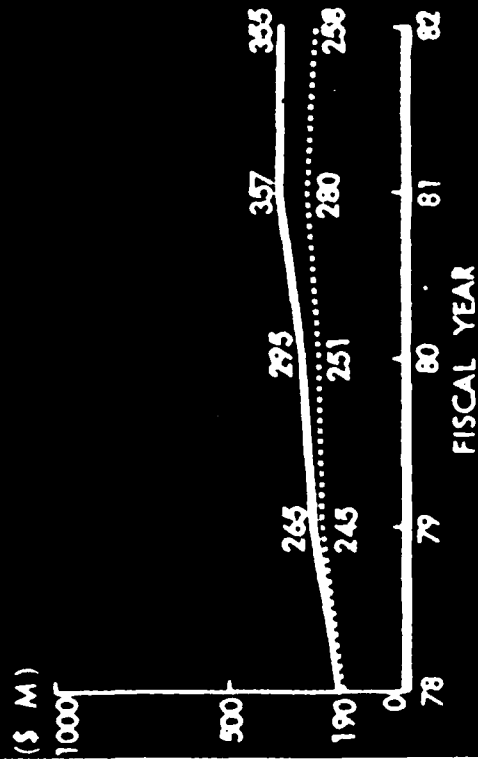


30

ROYAL TRENDS

SPACE

FY 1981 - \$356.9M



(..... CONSTANT FY 1978 DOLLARS)

53

MAJOR ESTIMATE PROGRAMS

SPACE

FY 1981 - \$356.9M

74 % LAUNCH

SPACE SHUTTLE

\$ 230.1M

SPACE BOOSTERS

\$ 29.5M



8 % ORBITAL SUPPORT

SATELLITE CONTROL FACILITY

\$ 14.1M

CONSOLIDATED SPACE OPS CENTER

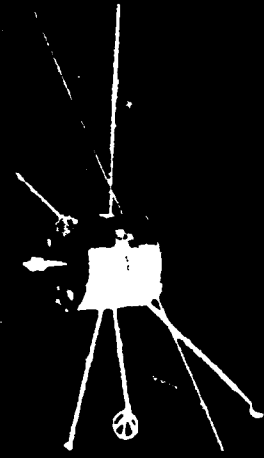
\$ 13.7M



18 % SPACE TECHNOLOGY

SPACE TEST PROGRAM

\$ 53.9M

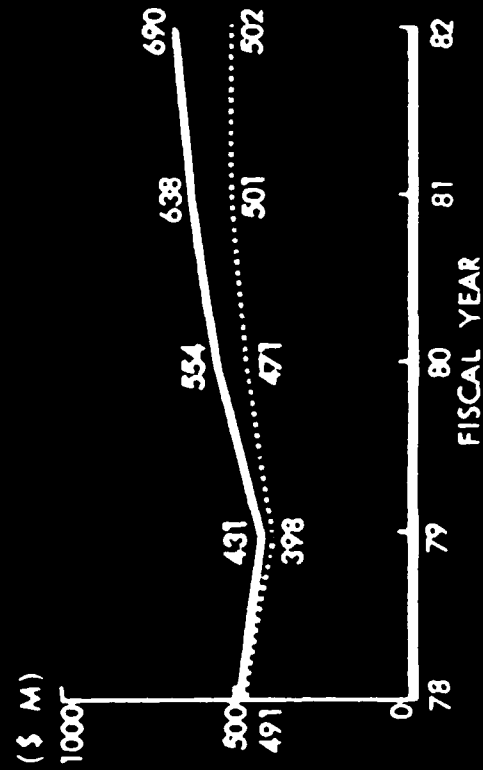


RD&E TRENDS

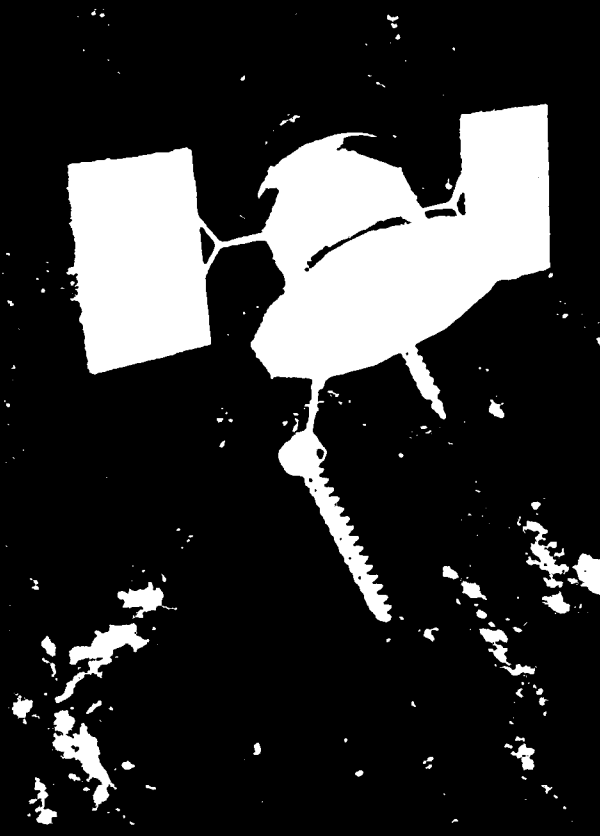
31

COMMAND, CONTROL & COMMUNICATIONS

FY 1981 - \$ 638.1M



(..... CONSTANT FY 1978 DOLLARS)



55

MAJOR DEFENSE PROGRAMS

COMMAND, CONTROL & COMMUNICATIONS

FY 1981 - \$638.1M

26% STRATEGIC

AF SAT COM SYS

\$61.4M

SATELLITE DATA SYSTEM

\$45.3M

SAC COMMUNICATIONS

\$23.1M



37% GENERAL PURPOSE

E-3A

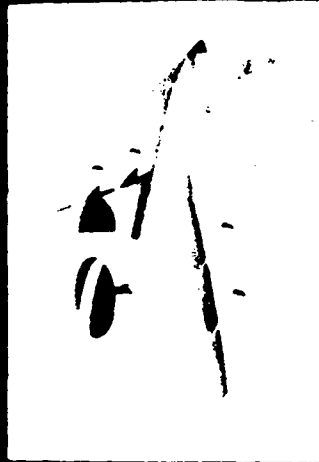
\$65.6M

JOINT TAC INFO DIST SYS

\$71.6M

ADV COM SYS

\$44.6M



37% DEFENSE-WIDE

NAVSTAR GPS

\$126.8M

SPACE COM

\$27.0M

DEF SAT COM SYS

\$21.1M



you with specific location down in the meters. Very important program.

(See chart 23) Technology base - almost a billion dollars in tech base, about 1/7th of the total account. Your tech base is an important area because this is the area that really provides the kind of new technologies which can mean the difference between your having a minor edge to having a significant edge in terms of technology. The United States has long since given up any attempt at trying to maintain numerical equivalents with the Soviet Union. We're dependent on our ability to maintain a qualitative edge. And here's where the qualitative edge comes from. Once again, when you're making the hard, current decisions, it's easy to overlook this area and not fund it. Consequently, it receives increased funding, 10 percent in real growth and many years 5 percent. (See chart 24) Here's where we're putting our dollars. The relative dollars give you indications of the relative importance of the programs.

(See chart 25) Let's talk now only about procurement. Total procurement for the Air Force in both aircraft and missiles is about \$11 billion and General Purposes Forces takes up about 63 percent of it for those kinds of missions that I have shown. The strategic side takes about 15 percent, and the support side about 18 percent, \$2 billion. Space takes a very small amount.

(See chart 26) Look at the aircraft side of it. The reason I show this chart is that there are two important points to be made with this chart. One is that our modification account in the U. S. Air Force has grown rather dramatically. The reason for this is that we're trying to gain the leverage by putting new and upgrade mods on our existing aircraft systems in order to continue to provide the capability, or enhance the capability so they can continue to be a viable weapon system. Key in that mod, of course, is also the B-52 mod to carry the launcher. The spares and repair parts - that particular account is going to be funded in 1981 somewhere in the ballpark of \$1.5 billion. Congress has tried to add around \$400 or \$500 million to that. It's almost \$2 billion now and the reason, of course, is because of the very legitimate concern about maintaining the readiness of our current forces by providing them with sufficient spare parts. Just to give you some idea of how dramatic that growth is, in 1978 that account had about \$700 million in it, so it's gone from \$700 million to \$1.5 billion and we're projecting even higher figures for future years. These kinds of dollars can only come at the expense of other activities if we're talking about relatively constant budget levels or relatively constrained real growth budget levels.

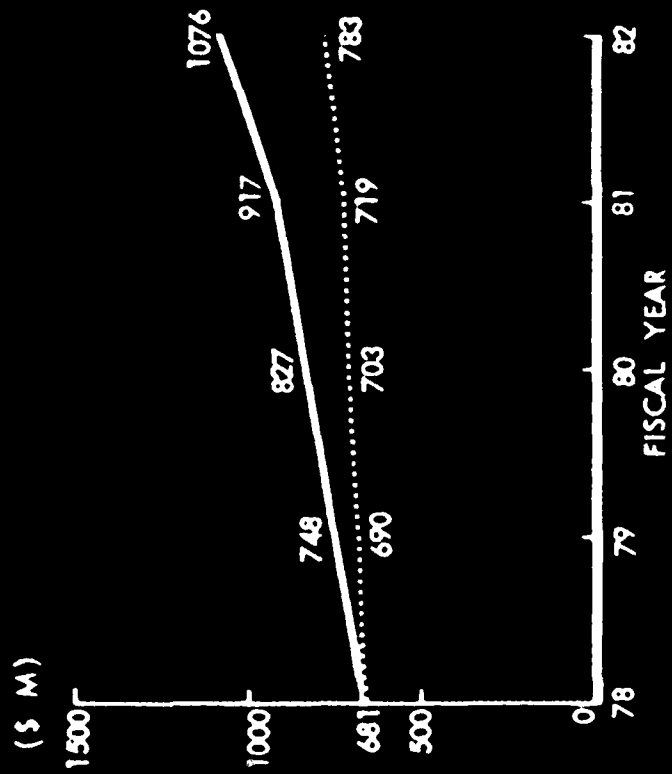
(See chart 27) One of the areas it's come from in the past has been reducing, stretching out the aircraft buys. The

RDT & E TRENDS

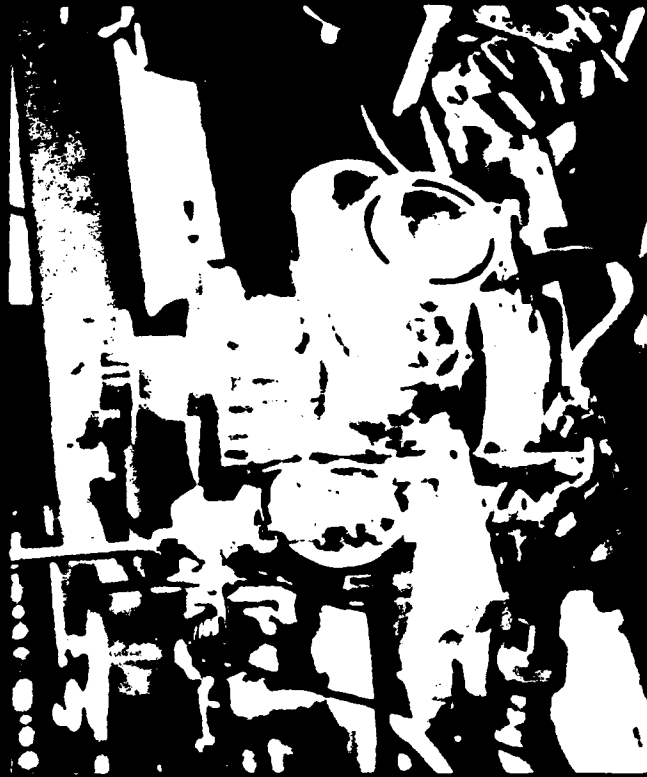
32

TECHNOLOGY BASE

FY 1981 - \$ 916.7 M



(..... CONSTANT FY 1978 DOLLARS)



MAJOR TOTAL PROGRAMS

TECHNOLOGY BASE

FY 1981 - \$ 916.7 M

ELECTRONICS

\$264.8M

WEAPONRY

\$184.1M

PROPULSION

\$159.5M

FLIGHT VEHICLES

\$ 91.7M

MATERIALS

\$ 85.4M

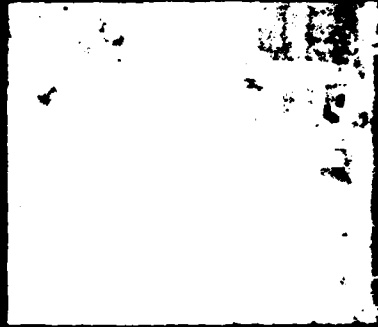
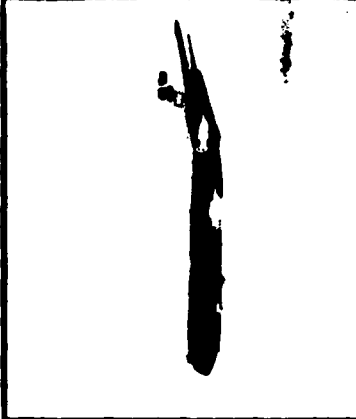
PEOPLE

\$ 74.4M

ENVIRONMENT

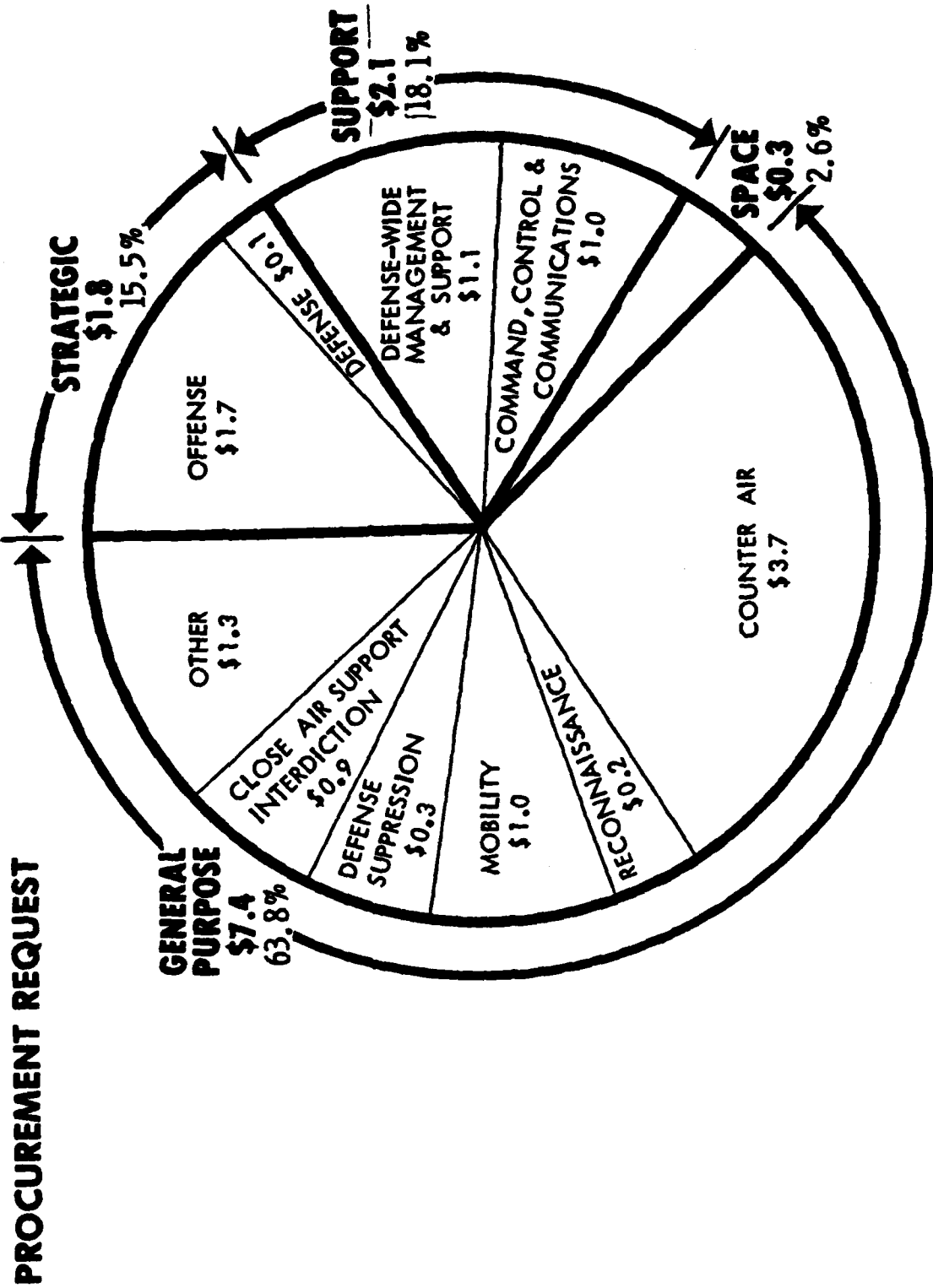
\$ 56.8M

57



**USAF AIRCRAFT AND MISSILE PROCUREMENT
FY 81 BUDGET DISTRIBUTION BY MISSION AREA**

TOTAL - \$11.6 BILLION



63

FY 1981 USAF AIRCRAFT PROCUREMENT \$8,555.0 MILLION BUDGET REQUEST

PROCUREMENT REQUEST

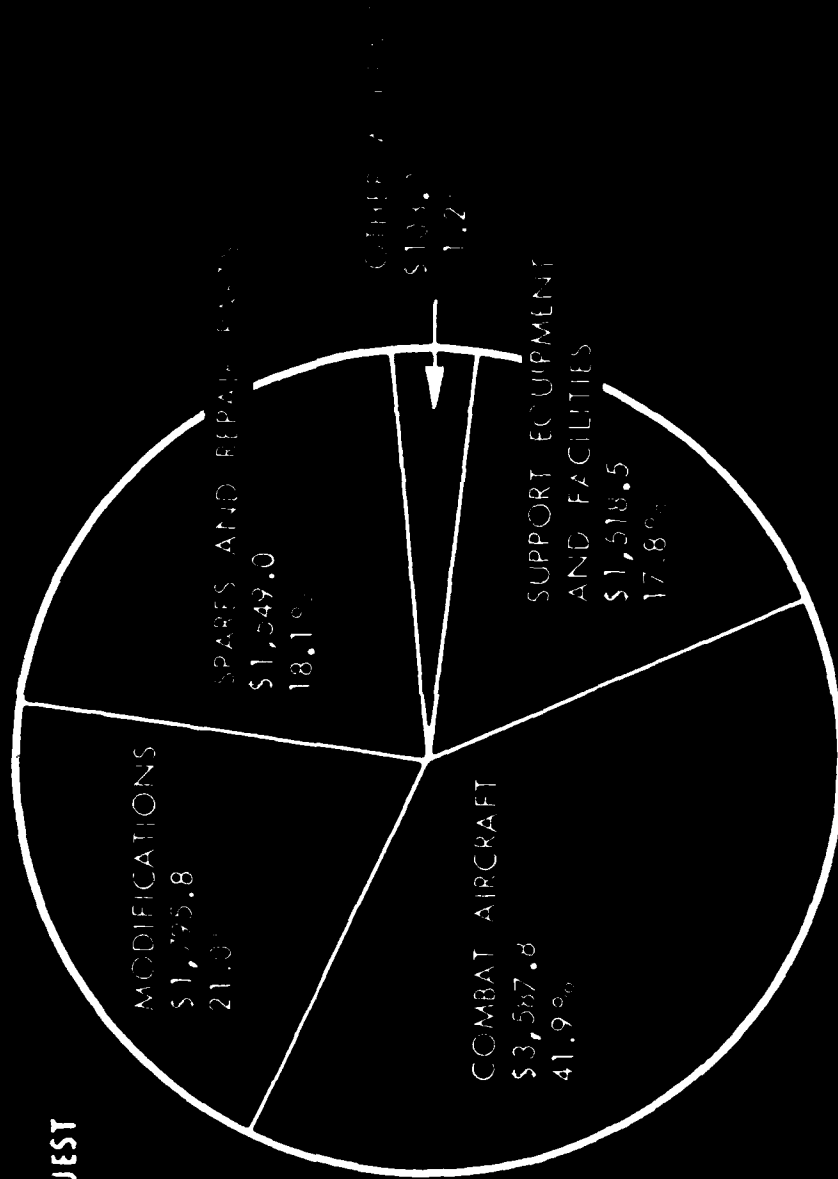


CHART 27

AGE OF AIRCRAFT
YEARS/MONTHS

	<u>AF</u>	<u>AFRES</u>	<u>ANG</u>
FY 64	7/9	11/8	9/5
FY 73	9/0	12/6	14/5
FY 74	9/7	12/10	14/10
FY 75	9/11	12/7	14/7
FY 76	10/5	12/11	14/6
FY 77	11/1	14/1	14/11
FY 78	11/10	15/0	15/2
FY 79	12/3	15/8	14/4
FY 80	12/6	16/7	14/6

-- MORE THAN 25 YEARS: C-121, B-57, T-33

-- B-52 RANGES FROM 18-24 YEARS

Congress of the United States, in its current deliberations on the Air Force's FY 81 budget has authorized increase in aircraft procurement in order to gain some of the efficiencies and economies of better production rates. That's a longstanding debate, whether it's better to have warm production lines or to have airplanes on the ramp. When you're looking for dollars you have to make these hard, very difficult choices. That's the consequence. Our budget was the consequence of making those choices. Those choices reflect themselves in these kinds of statistics that show you the average age of an Air Force aircraft each year - as you can see, it's getting worse and the only way you can turn that around is to spend more dollars in this area or take old aircraft out of the inventory by cutting down your existing forestructure, and either choice is a choice which says we have to degrade the Air Force's defense capability for our country.

(See chart 28) Looking quickly, Attack/Fighter Aircraft. You can see that from 1980 to 1981, looking at the bottom, The F-15 is where we take our reduction, 60 a year down to 30 a year. The Congress has moved that back up and if that's sustained, it will go to 42 instead of 30. What we're doing is going down in buying airplanes and this is a hard choice.

(See chart 29) Other aircraft - not in great numbers. We're talking about the TR-1, which is another version of the U-2 to be used for battlefield surveillance. Then the E-3 - we're talking about very few numbers of airplanes - two and four in 1981.

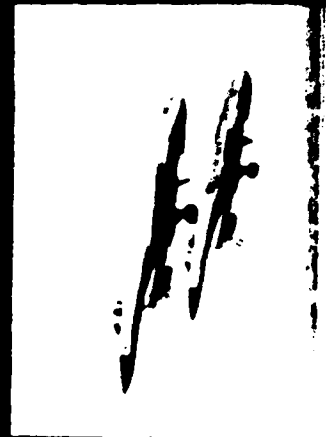
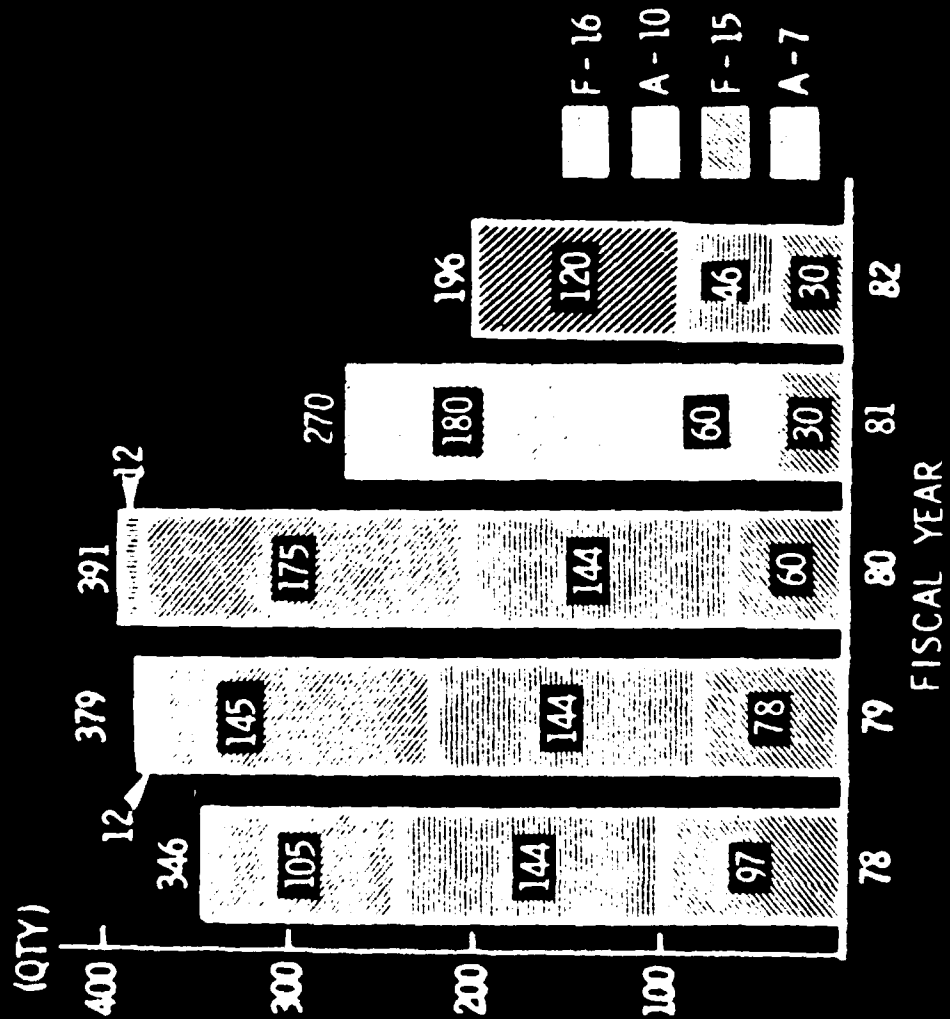
(See chart 30) Tanker/cargo aircraft - again, we're talking six for the KC-10. The dollars that we've seen in our budget here don't include the dollars necessary for the re-engining of our KC-135. We have a large number of those aircraft that provide us tankers. The engines on them were the original engines that were delivered with the aircraft. They're old, they're noisy, they don't provide the performance, they don't have the economics of modern engines in terms of their fuel consumption. Consequently, it makes all kinds of good sense to re-engine those aircraft. The only problem is, that's very costly and it takes a lot of budget dollars to do it and those budget dollars would once again compete with the activities I've already described here because they're not in the budget.

(See chart 31) If you want to look at the future, these are guesstimate charts, if you will - not genuinely specific but it will give you some feel for how we look for the future and the future is not bright in current terms and that's what that chart tells us.

(See chart 32) Modifications - I threw this chart in because once again it goes back to my point - the percent of our budget

PROCUREMENT TRENDS

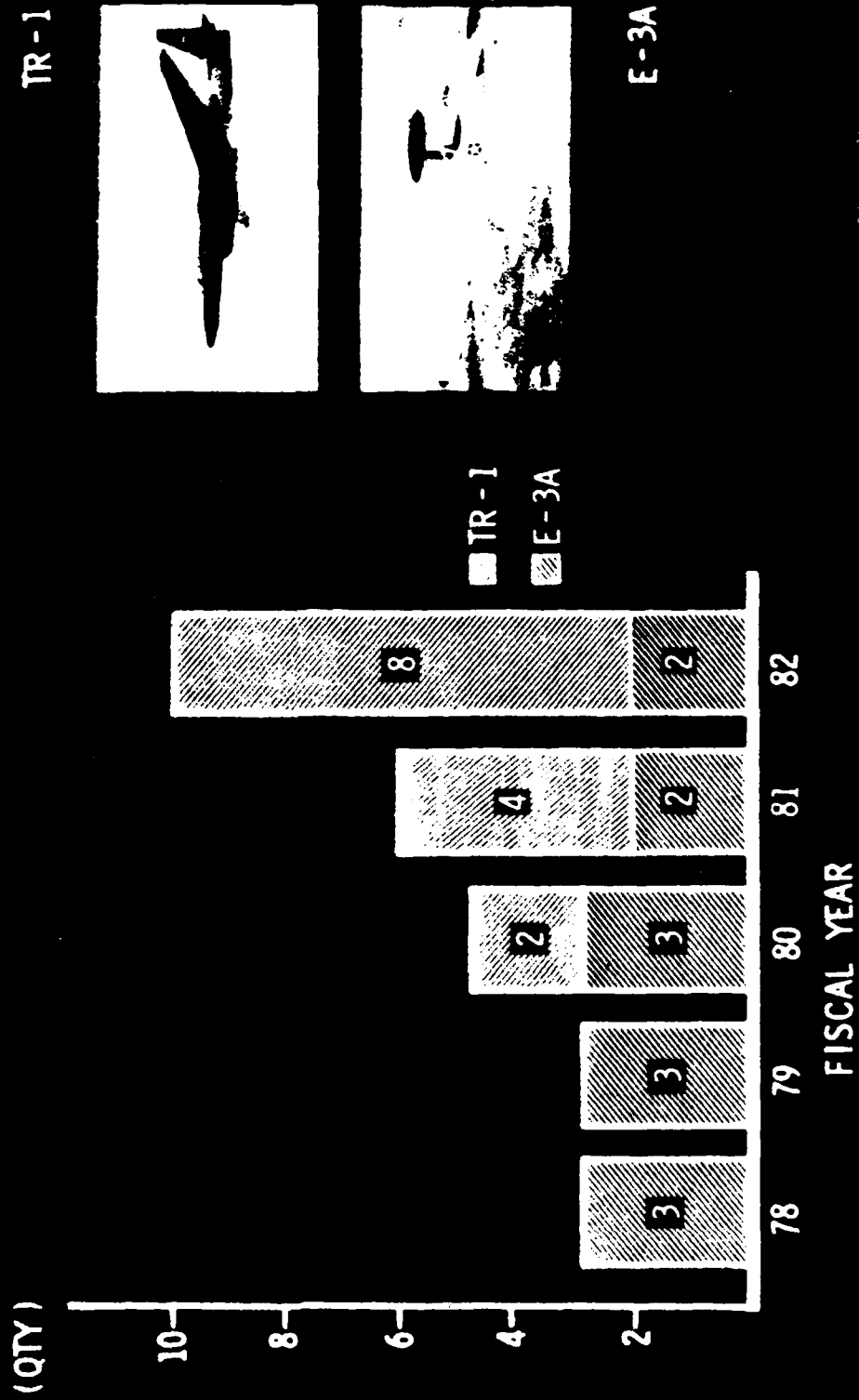
ATTACK/FIGHTER AIRCRAFT

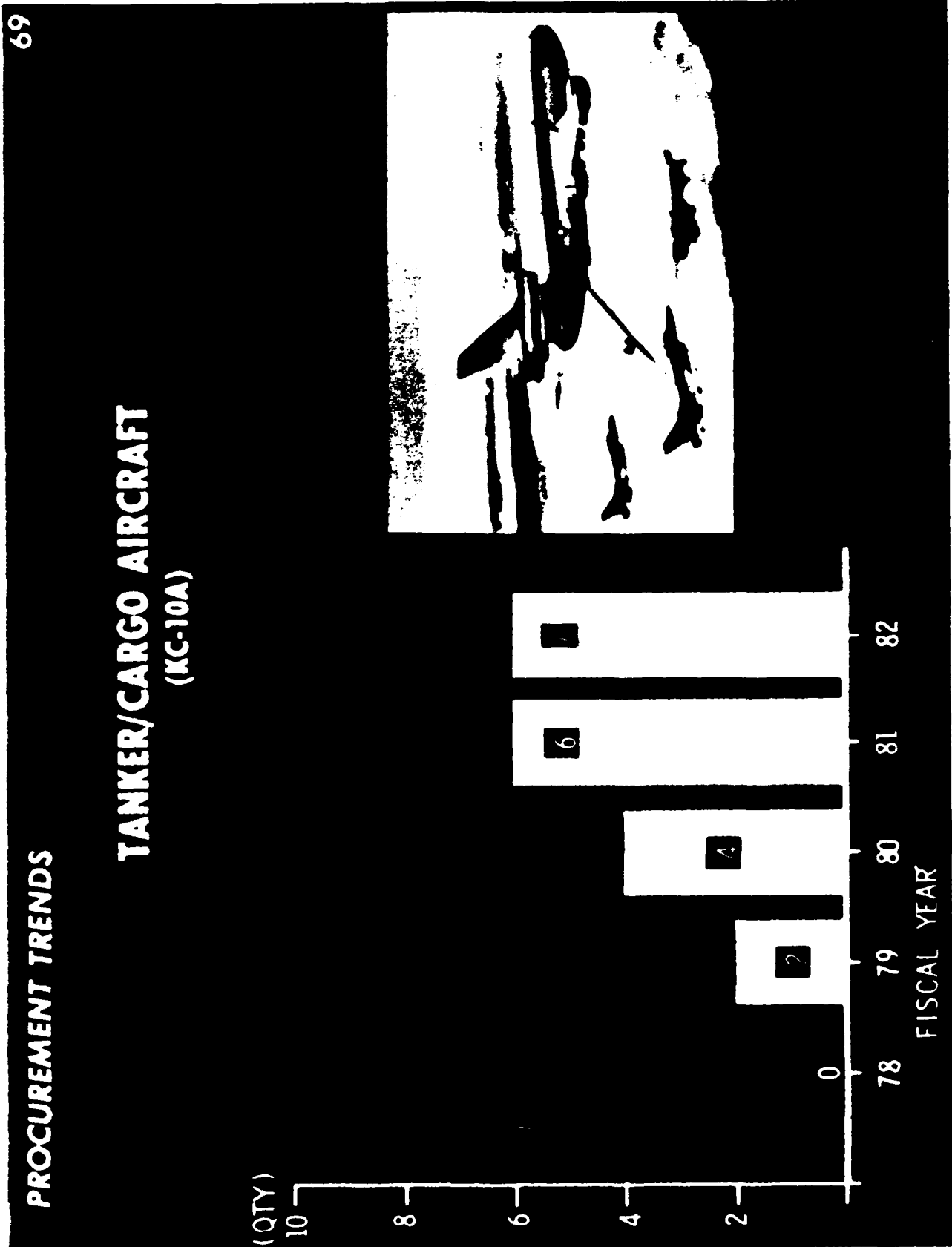


PROCUREMENT TRENDS

71

OTHER AIRCRAFT





AIRCRAFT

	<u>FY 81</u>	<u>FY 82</u>	<u>FY 83</u>	<u>FY 84</u>	<u>FY 85</u>
ATTACK	60	45	45	45	-
FIGHTER	200	150	150	120	120
SPECIAL PURPOSE (COMMAND & CONTROL, AIR REFUELING, SURVEILLANCE)	10	15	15	5	
CX & CTA	TBA				

NEW AIRCRAFT

VS

MODIFICATIONS

(\$ IN MILLIONS)

	<u>FY 75</u>	<u>FY 76</u>	<u>FY 77</u>	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>	<u>FY 81</u>	<u>FY 82</u>
NEW AIRCRAFT	\$1,532	\$2,517	\$3,638	\$3,960	\$4,054	\$3,919	\$3,692	\$3,716
MODIFICATIONS	517	700	685	652	948	1,575	1,796	1,802
PERCENT MODS	34	28	19	16	23	40	49	48

that goes between new aircraft and mods is increasing, meaning that we are using what everyone else is using and that's the technique of the leverage of a mod dollar by providing us with the capability for the future with our existing equipment.

(See chart 33) The missile account shows you that we're spending very few dollars on ballistic missiles in our current 81 budget. Of course, that particular slice of the pie will grow dramatically in the future as we bring the MX system in. And of course, that's the other point. As you're bringing in a system of national consequence like the MX, and you're going to do it once again within relatively constrained budget levels, it means you must bring that new system in at the expense of other systems. So that gives you some feel for the intensity of the competition between the MX and the other systems we've described, systems, for example, that we don't have altogether budgeted for in future years in their totality, such as C-X, next generation trainer, which I haven't even described, or the KC-135.

(See chart 34) Here we have strategic missiles, ALCM, and shows you production figures of where we're going.

(See chart 35) Surface missile, GLCM. That particular production will be growing very rapidly. Once again, those will be commanding additional dollars, too, in order to finish those programs.

(See chart 36) Air-to-air missiles - these are some of the places we had to find a trade-off in order to get the dollars necessary to do the kinds of things where we are growing. You have to find the dollars elsewhere. It doesn't always make good sense. When you look at a program in isolation, such as this one, you wonder how come you're cutting down in AIM-9's and AIM-7's when that's the very thing you need to go to war with. It's true. These are tough choices.

(See chart 37) General Purpose missiles, of course, go to zero because we're finishing off that system and going into production of some new systems.

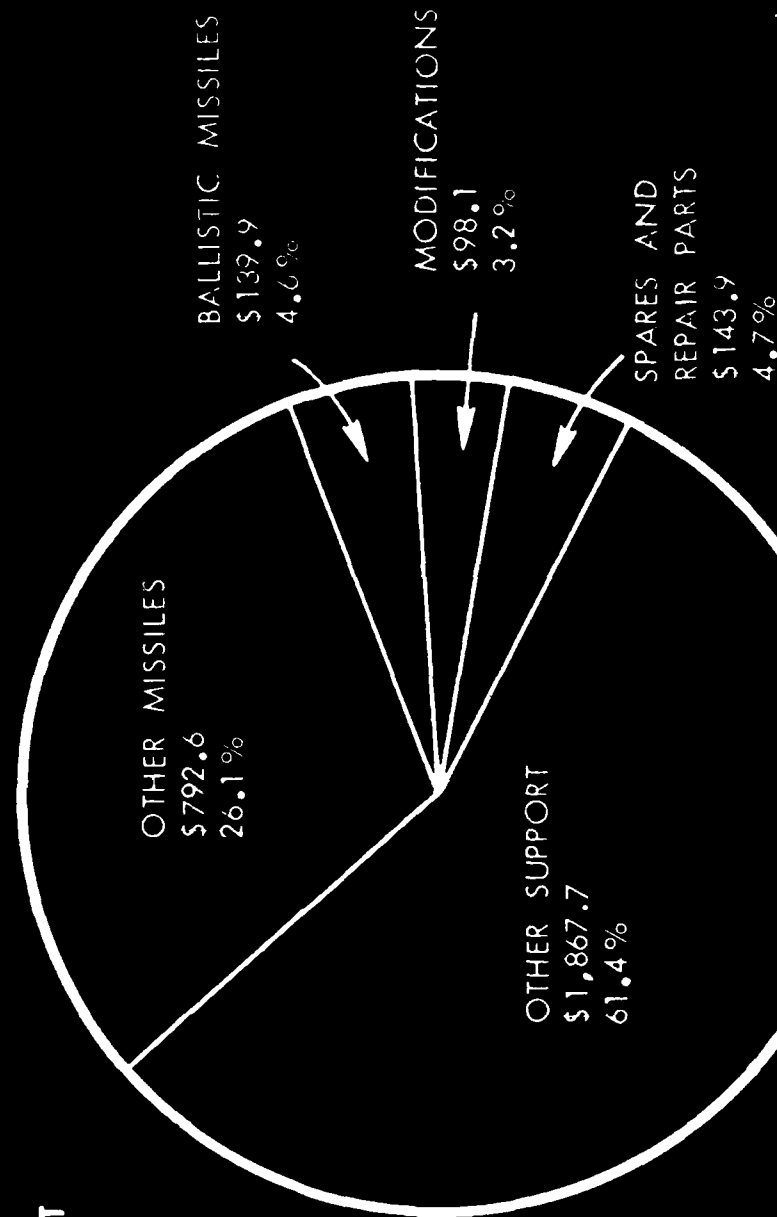
(See chart 38) In missiles, this chart gives you some broad picture of the kind of quantities and the future expression of where they go.

(See chart 39) I won't dwell on munitions. It's sort of a guess estimate of the quantities we're likely to see in munitions. I have included these because I think this will be of interest to you all in terms of what kinds of activities you would see from the Air Force.

81

FY 1981 USAF MISSILE PROCUREMENT \$3,042.3 MILLION BUDGET REQUEST

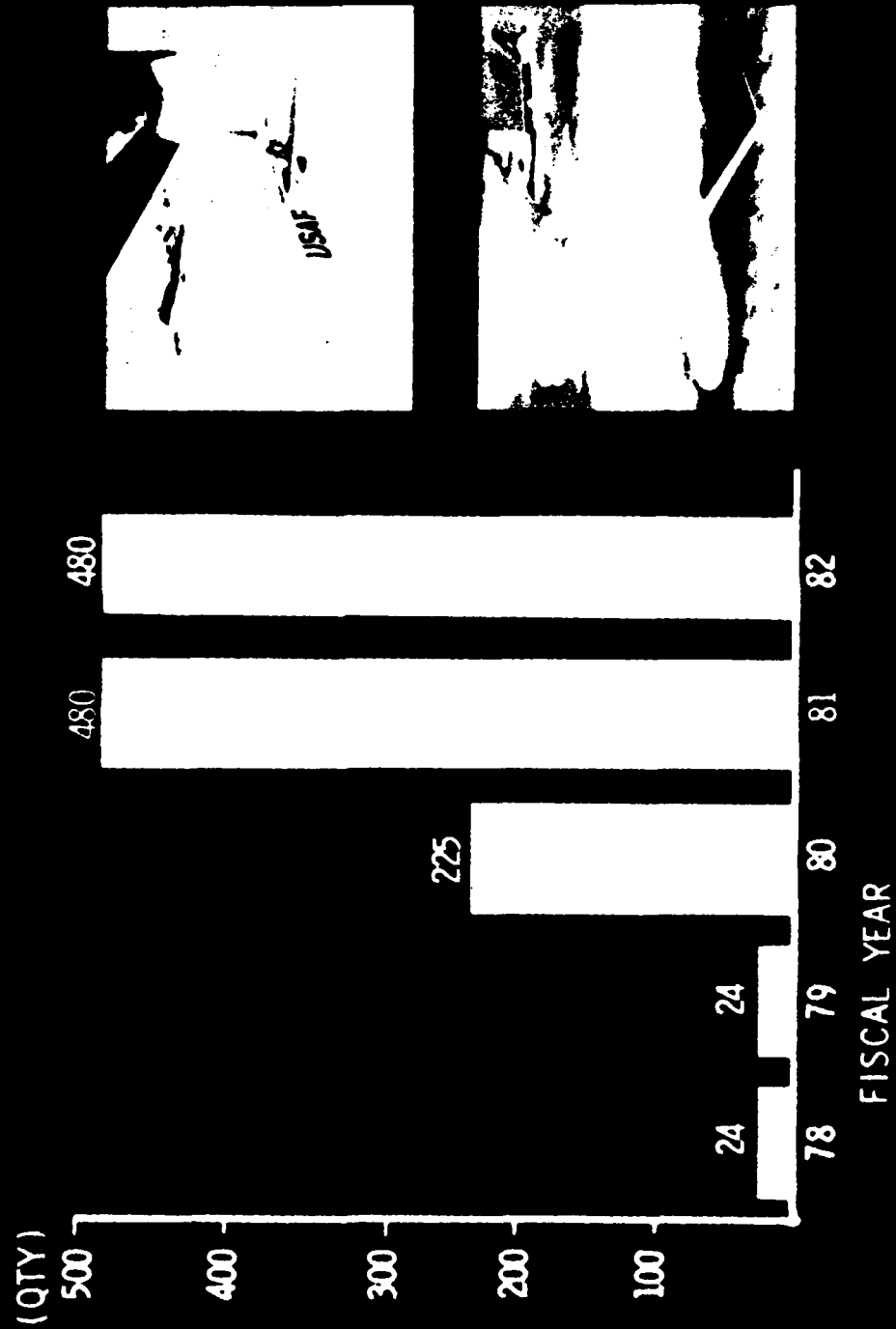
PROCUREMENT REQUEST

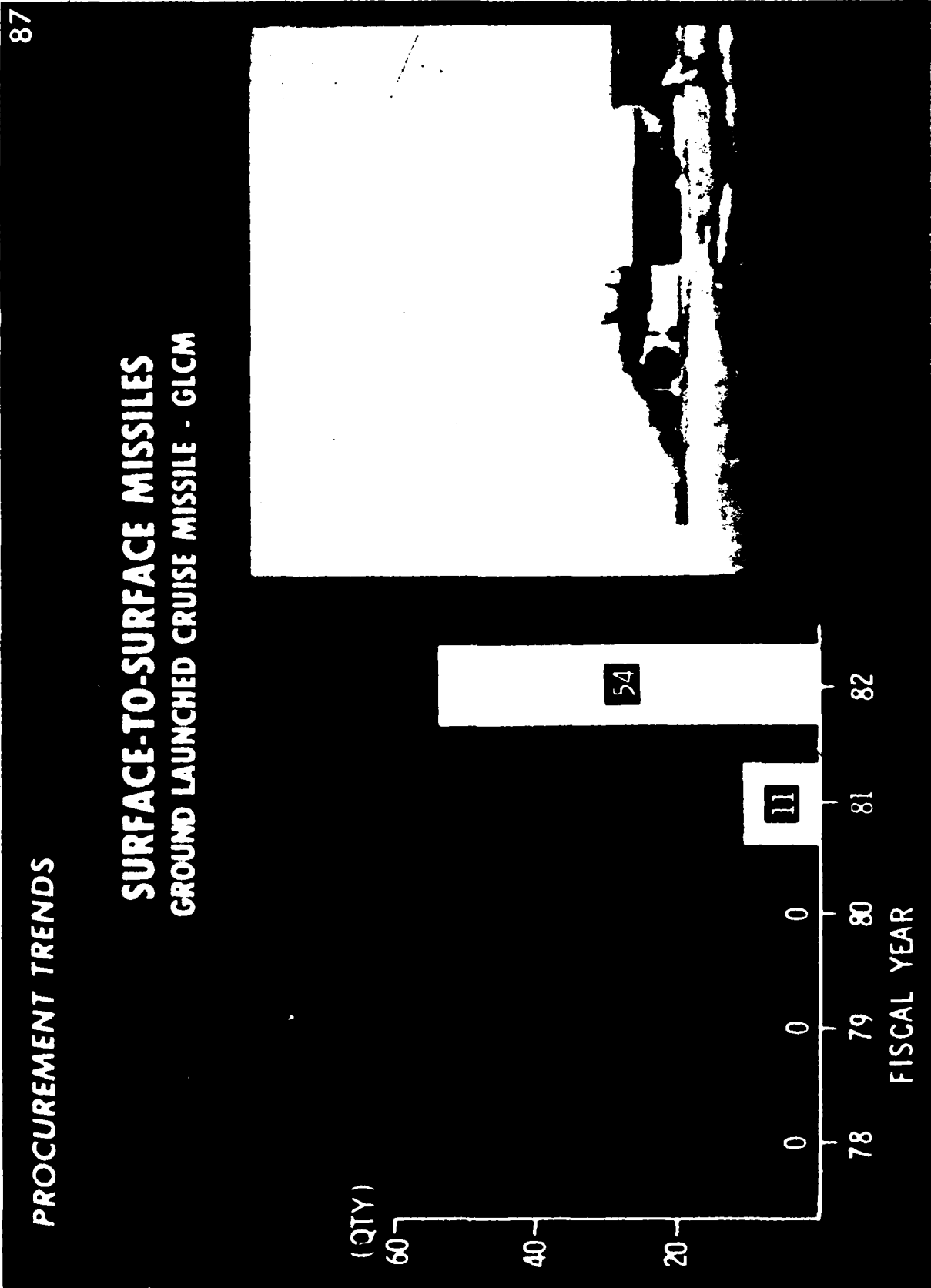


85

PROCUREMENT TRENDS

STRATEGIC AIR-TO-SURFACE MISSILES (AIR LAUNCHED CRUISE MISSILE - ALCM)



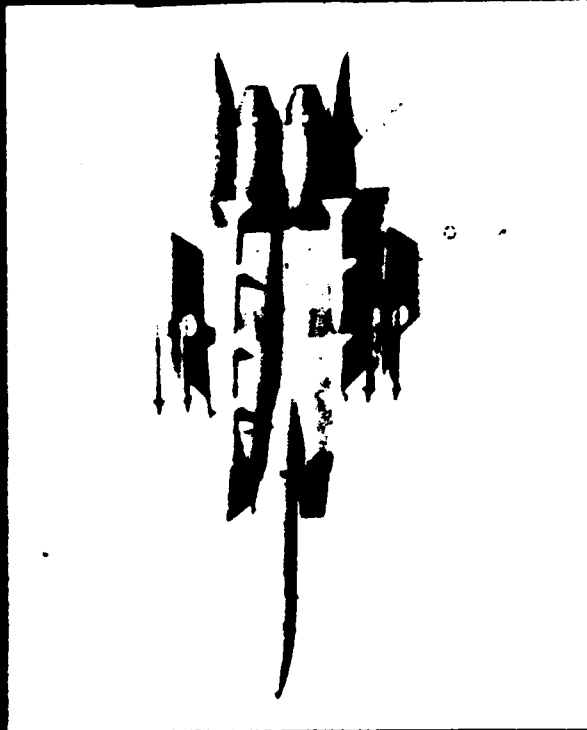
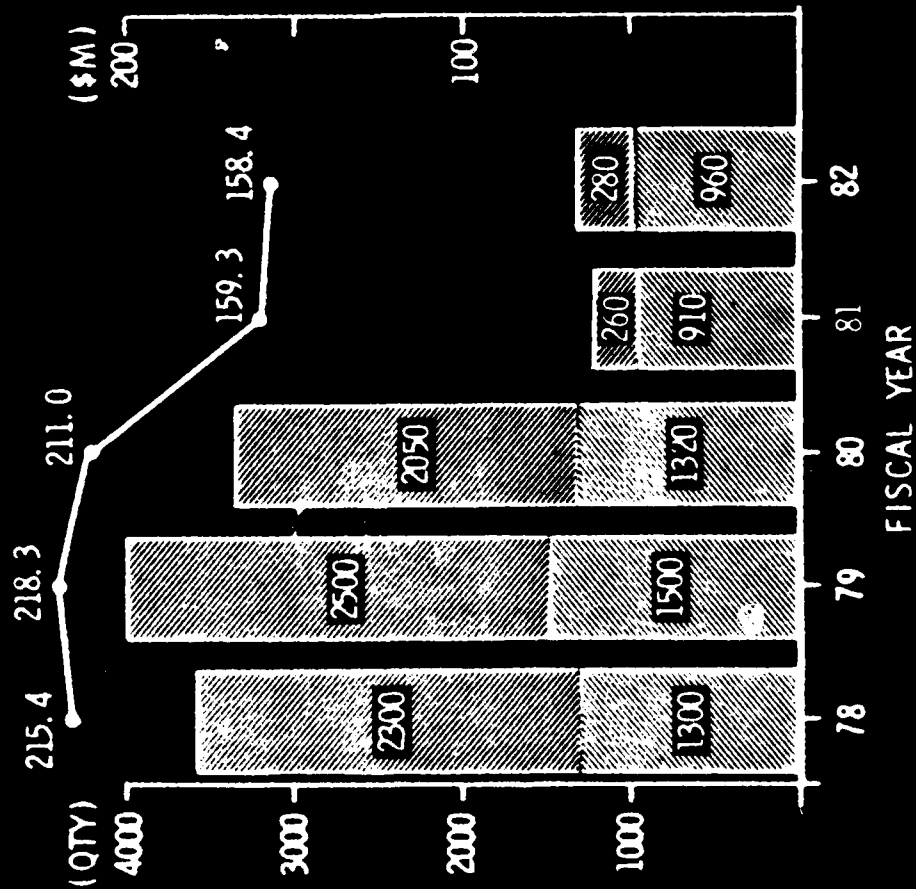


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PROCUREMENT TRENDS

AIR-TO-AIR MISSILES

 AIM-9 SIDEWINDER
 AIM-7 SPARROW



91

PROCUREMENT TRENDS

GENERAL PURPOSE AIR-TO-SURFACE MISSILES

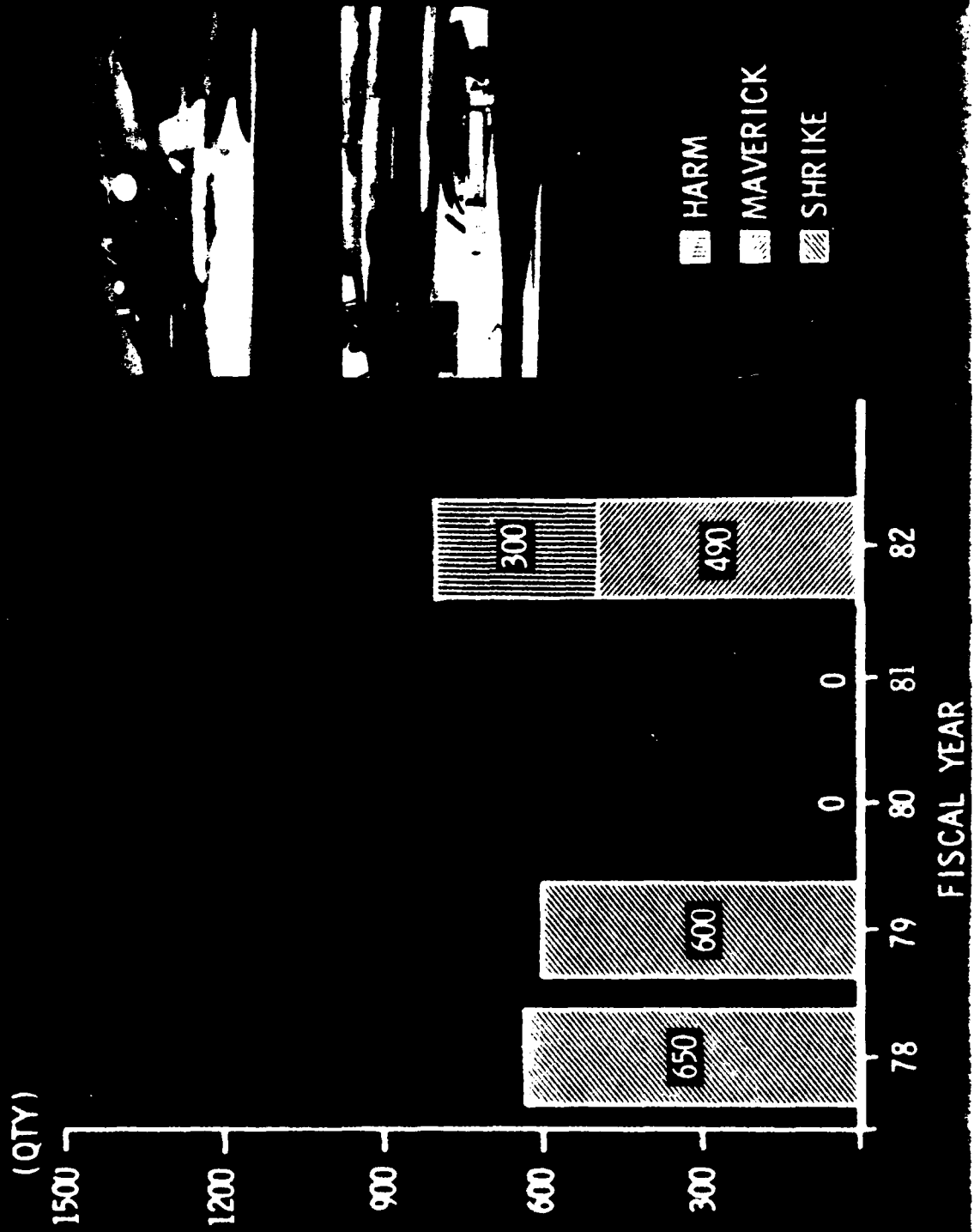


CHART 38

MISSILES

	<u>FY 81</u>	<u>FY 82</u>	<u>FY 83</u>	<u>FY 84</u>	<u>FY 85</u>
CRUISE MISSILES	500	550	600	600	600
AIR-TO-AIR	1200	1200	400	400	-
AIR-TO-GROUND	-	600	4500	7200	7400
MX			10	50	70

MUNITIONS

	<u>FY 81</u>	<u>FY 82</u>	<u>FY 83</u>	<u>FY 84</u>	<u>FY 85</u>
	<u>K = THOUSAND</u>				
AMMUNITION (TRAINING)	6000K	6500K	9500K	9500K	9500K
AMMUNITION	3600K	3600K	3000K	1650K	1650K
AERIAL TOW TARGETS	700	600	800	150	150
BOMBS (TRAINING)	620K	1130K	920K	920K	920K
BOMB COMPONENTS	4K	20K	30K	35K	40K
BOMB KITS					
(PRECISION GUIDANCE)	4K	4K	10K	10K	14K
FLARES	1130K	1150K	1400K	1400K	2200K
FUSE	50K	50K	60K	30K	35K
ENGINE START CARTRIDGES	35K	70K	50K	50K	50K

(See chart 40) Finally, the space programs - this talks about the procurement dollars we spend in these important programs in the space area.

(See chart 41) I've moved through this very, very rapidly and if I've gone by too fast, I apologize to you, but I wanted to hit the highlights, point out some of the key points on each of these charts. I'm back to the C-X program, a very important program to us in order to provide the kind of mobility necessary to get our forces into these parts of the world where they are necessary to support our colleagues in the Army and to get them there, to the Navy to provide them with the necessary logistics in order to keep them afloat, etc., and we require an aircraft of this capability. It's one that we're looking at closely. We have an RFP in production and this one, we hope, will materialize into a very viable system.

(See chart 42) Of course we have the M-X. I won't have to say much more about that. You're all familiar with it in other forms. I won't go into the details of it, but of course, this is going to be an important program to us and it's going to have to come on at the consequence of some real tough decisions in terms of financing, because it's going to require a lot of big dollars.

The Congress feels very strongly about a new bomber, as does the Administration. We're going to look for a new bomber and of course the dollars for that aren't in this budget. They've got to come from somewhere.

I have other programs - the next generation trainer, which is one that we're looking at but haven't got funded.

The conclusion is, I believe, that we can genuinely look for real growth in the defense budget. We can expect larger defense budgets. That "larger", however, is a relative term. I believe that the "larger" is going to be constrained. It won't be any dramatic change in what we're talking about here today. It won't dramatically solve our problems. The tough choices are still going to have to be made and we're going to have to do some smarter things with the investment dollars we have. The emphasis we have now in the Air Force is looking pretty hard at what it is we're doing in these areas to make sure we're getting the kind of pay-off we need. We're going to have to get increased R&D and investment dollars, not only because of larger defense budgets but hopefully as a result of attaining economy in our operating side. We need a greater emphasis on systems that operate at lower cost and that's where industry can genuinely help us, by bringing us on systems that require less O&M in their life cycles and certainly personnel and manpower in order to maintain them.

SPACE PROGRAMS

FY 81 PROCUREMENT BUDGET REQUEST

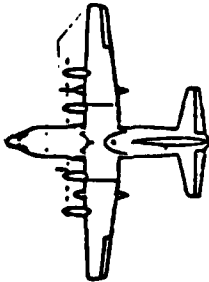
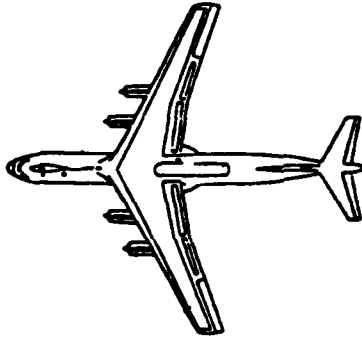
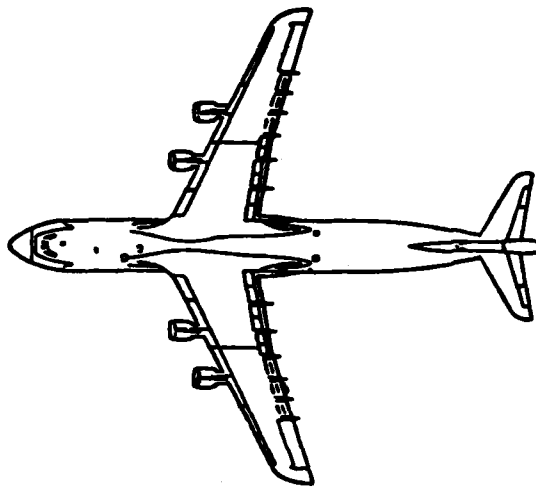
\$509.3M

- SPACE SHUTTLE \$131.1M
- SATELLITE DATA SYSTEM \$ 93.8M
- DEFENSE SATELLITE COMM SYSTEM \$ 93.1M
- SPACE BOOSTERS \$ 66.8M
- DEFENSE SUPPORT PROGRAM \$ 51.9M
- DEFENSE METEOROLOGICAL SATELLITE PROGRAM \$ 42.7M
- COMSEC \$ 15.7M
- AFSATCOM \$ 13.5M
- LAUNCH SUPPORT \$ 0.7M



C-X PROGRAM

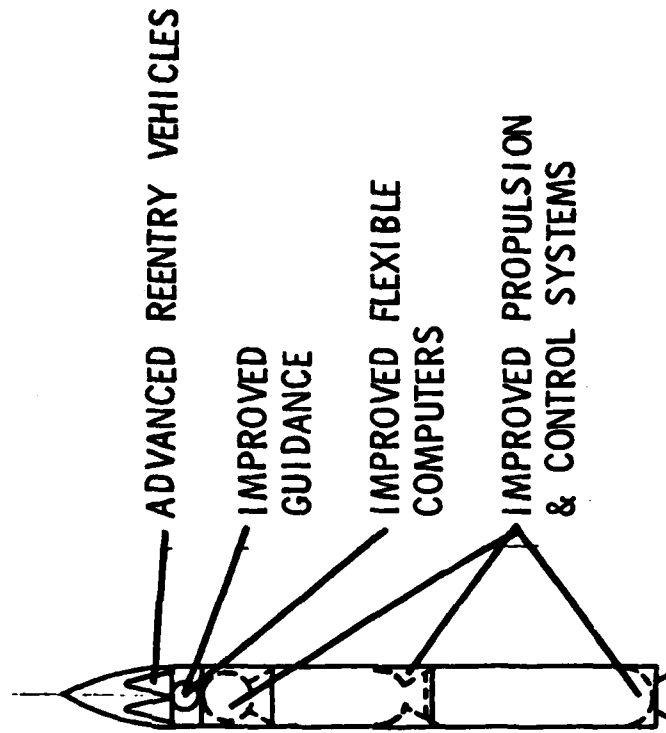
PROGRAM DESCRIPTION

C-130	C-141B	C-X	C-5
		?	

- IMPROVE OVERALL CAPABILITY OF US TO RAPIDLY PROJECT AND SUSTAIN COMBAT FORCES
- RESPOND TO WORLDWIDE CONTINGENCIES
 - INTERCONTINENTAL RANGE
 - HEAVY, OUTSIZE EQUIPMENT
 - OPERATE INTO SMALL, AUSTERE AIRFIELDS
 - EFFICIENT PEACETIME AIRLIFTER
- AIRCRAFT USED FOR INTERTHEATER OR INTRATHEATER ROLE
- PROVIDE MAXIMUM ADDITIONAL CAPABILITY WHEN INTEGRATED WITH CURRENT AIRLIFT FORCE

M-X**PROGRAM DESCRIPTION**

- PROGRAM TO MAINTAIN THE U.S. DETERRENT VALUE OF STRATEGIC SYSTEMS THROUGH

IMPROVED SURVIVABILITY**ADVANCED TECHNOLOGY****DEPLOYMENT AREA CLUSTER****HORIZONTAL SHELTER OR
TRANSPORTER VEHICLE**

I'm proud to have had this opportunity to give you this very, very brief overview of the Air Force portion of the budget. It's not altogether a euphoric story. I regret that. But I think we'll see growth but it will be very modest. It will be up to us to get the most we can out of those dollars that are made available to us.

Allen C. Sheldon

Thank you very much General Peterson. We appreciate your presentation.

If the three presenters will now join me at this table, we've got some questions, rather interesting questions that apply equally to all three Services.

First, do you have the quality of personnel to operate or maintain the equipment coming into the inventory that you've been describing to us.

General Merryman

That's an interesting question. As I told you during my pitch, I just came to the Pentagon last month from where I commanded the Aviation Center and my only experience in the last couple of years has been with the Aviation Center, so my answer is yes. We had the number of volunteers we needed and we had the caliber of people we needed in the Army Aviation part of the Army. I'm not qualified to really tell you or even answer about the rest of the Army, because I really haven't been with that part of the Army in the past three years. But as far as getting sufficient numbers and getting the people of the caliber required within Army Aviation - mechanics, aviators - the answer to the question is yes.

Admiral Kollmorgen

I take the thrust of the question to do with conscription as opposed to the all-volunteer force and are we going to bring in adequate, trainable people, quality people that you can train to make capable of running the sophisticated systems that we've all pointed out that we're bringing into the Armed Forces today and the answer is yes. The people are out there, even though there is going to be a demographic change over the next several years where the 18-20 year old population drops off by about 6 million total across the country for the next five years and then it levels off until we start having more babies again. That has turned around, as some of you know. But the numbers that we need are out there. The real problem, if you happen to pick the Navy as your model, is the retention of those people after they're trained. It takes roughly two years from the time you bring a young sailor on board, be it female or male, before they're really

a productive member of your unit, particularly those who are in the high technically skilled areas. You must retain them at least for another four years after their initial enlistment of four years and we'd like to keep them beyond that. But our goals are retention of that first-termers, when he turns around we'd like to see 43 percent minimum of them stay on in the service. We're not getting quite that. The only solution, given our societal structure and the way our culture is developed, is to pay them enough. And that recognition is slowly dawning. I just hope that the momentum that we have this year doesn't suddenly assuage after November 4, because they'll turn right around and start voting with their feet again and they'll leave. There's no reason for a sailor to stay on and put up with extended deployments to the Indian Ocean for up to periods of 90 days or more, and you've seen that for the first time since 1932 that beer was served aboard a combatant at sea in recognition of the long periods that they're putting in out there. They're going to do it once because it's dramatic, gets a lot of attention in the press, but they won't keep coming back unless they get paid enough to make it worth their while.

General Peterson

I think I could echo the words of my colleagues on this issue. In the Air Force, we've been indeed fortunate in recent times to have a quality of recruits that are really surprising. I don't know whether there's been a recent change in American society or what accounts for it, but in the very recent times, in the last year or so, the quality of our recruits has been quite encouraging. We have a very aggressive program now in acquiring officers by OTS, taking in prior service people and the quality of our OTS graduates is very encouraging. We're getting a lot of experienced people. About 40 percent of our OTS are formerly NCOs who have gone to school and college part time, very turned on people. The problem, I think, in our operating units in the field at the present moment is retaining enough of the middle grades or junior grade airmen who are not the recruits or the newly acquired individuals, but those in a grade or two above that. Those are the ones we're losing and hopefully the pay initiatives which we've just seen recently will take hold and turn that particular statistic around.

Mr. Sheldon

Will the defense budget, as projected by Mr. McIntyre this noon meet the funding required for all three services do to what you projected this afternoon?

Admiral Kollmorgen

The answer is no. As Roger just pointed out to you, very graphically and succinctly, there are programs that are not fully

accommodated in the Air Force budget and the same thing applies in the Navy budget. We will have some tough choices to make: however, if the gross national product continues to grow, as Roger's chart pointed out, and that is an Administration optimistic forecast that is not supported by some other analytical people in the economic arena, one of which Doctor Blond is using as his contractor, DRI, they come up with a more pessimistic outlook. If pessimism sets in, then the 5 percent or 6 percent of the GNP, which is what the outyears of the five-year defense program, 1986 represents about 6 percent of GNP, if that is really a commitment on the part of the Government and the GNP rises, then 6 percent of a bigger number should provide enough resources to maintain about where we are today and modernize. It will not bring on any new, dramatic capabilities. We'll need more than that. In fact, if you want to do it fast, the country is going to have to see a step increase in the defense budget. There's no other way.

Mr. Sheldon

The Soviet Union started an all-out conventional war tomorrow, how long could we fight before ammunition supplies and equipment are exhausted?

General Merryman

It would depend on what kind of a war you're talking about. It depends on how fast they come across and with what they come across. I don't know of any way to answer it, to tell you the truth. We strive to have stockpiles for varying numbers of days for varying numbers of munitions. You'd run out of some before you'd run out of others - some in two months, some in a few days, totally scenario dependent.

Admiral Kollmorgen

I don't think it's a surprise to any of you in the audience that we have been operating, as I tried to indicate in my pitch, under a feeling for at least the last 10 years that somehow war is out there somewhere and not to worry about it too much, it's not going to occur tomorrow. As a consequence, we have fallen prey to that same psychology in developing our budgets. As Roger pointed out, it always looks like your investment is going to get a little bit bigger in those outyears, and therefore you convince yourselves that you can wait until the outyears to solve that problem. I've got to operate today and I'm modernizing about fast enough. Well, part of that wedge in the Navy has always been ordnance procurement. That's why all those funny little charts I showed you were sloping up and to the right. We've had a short war syndrome built in for at least 10 years and we've all fallen prey to it. There's a recognition now, perhaps belatedly, that the Soviets might be serious. And if

they are, we're going to be ready, and we're going to turn that around and we, in fact, are doing that. We preferentially this year, in the overall give and take of the budget process, plugged in about a billion dollars more, plus about 200 million in 1982, back into ordnance procurement to try to speed it up. But we can't do that out in front of what we get from our friends down in OSD, PA&E and OMB. If they don't believe it, won't put up with preferential treatment to the ordnance procurement, you can't do it. So there has to be a recognition that we may be called upon to put up or shut up.

General Peterson

I'd be hard pressed to add any new thought to those comments because I think they apply equally to the Air Force. We have put enormous emphasis in the near term in providing for our current readiness, that is to be able to generate more sorties, if you will, with the same number of aircraft, same crews, same everything, by going in for more spare parts and more supplies, etc. It would be hard to say how long, with any real precision, how long you would be able to sustain a Soviet attack, once again, scenario-dependent, also to what degree your allies would contribute and so on. Very strongly scenario-dependent.

Mr. Sheldon

We have several questions directed at the industrial base preparedness. Maybe we can combine them into one. What can you do to address the industrial preparedness problem, what do you specifically want industry to do, including low tier subs, what long range planning can you do and help us do, and what financial help can you give?

Doctor Blond

Basically, one of the aims of our presentation was to try to give back to industry some of that information on what is the effect on second and third-tier subs from a given defense program. Certainly the defense program that each of these gentlemen has sketched out is something which we would hope to fund in the future which may be funded, may be switched around, and priorities changed from time to time. But what's in the pipeline for the next five years, much of that money is already committed today and is being spent on programs which have already been authorized by the Congress or which will be authorized this year. So that one of the aims of our program is to try to find a conduit of this type of planning information at the industrial level back to industry. So if any of your companies are interested in getting that type of information as put up in the summary table, what I urge you to do is to write to my office, indicate which industries you are particularly interested in. In the back of my handout

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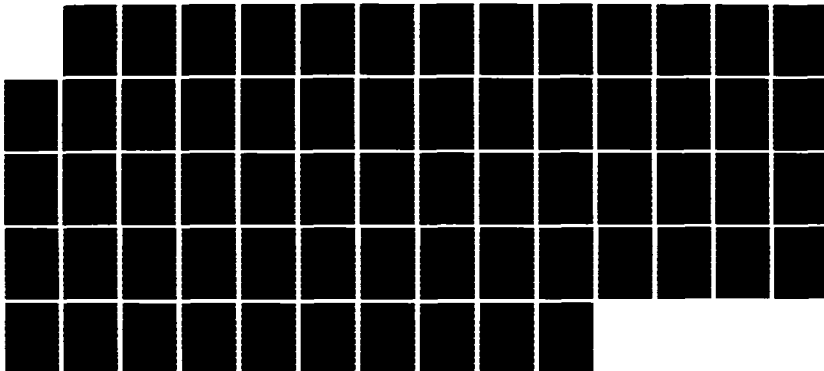
PROCEEDINGS OF THE DEFENSE READINESS AND REQUIREMENTS
SYMPOSIUM HELD AT A. (U) AMERICAN DEFENSE PREPAREDNESS
ASSOCIATION ARLINGTON VA 25 SEP 80

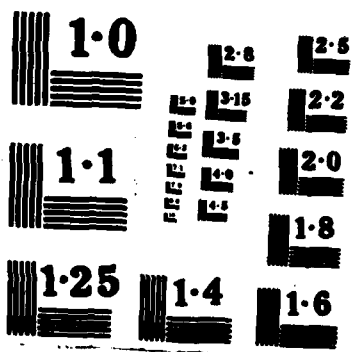
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there's a list of industries which we can provide information on and these are at the commodity level and not at the industry level, so some of your companies may cut across several of these different commodity categories and when we have a final estimate of what our next five years are going to look like and are prepared to issue this to the public, which I hope will be within the next several months, then we will send the information back to you for your particular industry. I think that without adequate capitalization on the part of industry, without some effort to look at the information that's going to come out of the system and see where the bottlenecks are likely to occur, it will be almost impossible to meet any of the production schedules that have been set out in the budget in the planning process. The important thing is that we do not have additional lead times built into our procurement. This adds to the cost of the final products we procure and it adds to the general level of inflation in the private sector, which compounds the problem for the Services in retaining troops because they have to compete against the private sector's wage bill. And so that's basically the aim - to get it to the public, not to keep it inside DOD and to keep it for our own use, but to make it available to all of you.

Admiral Kollmorgen

I'd like to try to approach the problem from just a little different perspective. As I mentioned at the outset of my remarks, from my point of view and I'm sure all of us share this, there's more involved with national security than just the Department of Defense. The economic health and the viability of our economy is important to our national security. So that really says that the defense preparedness, in a large measure, is dependent on how healthy our basic industries are, and that, in a very large measure, is not a problem you attack from exclusively a defense viewpoint. You attack those kinds of issues from a much more fundamental point of view, a point of view of national leadership in being able to, let's say, lead our rail industry into health, such that transportation can become a very strong and viable activity during any national emergency. Our basic steel industry, for example, is to modernize steel such that it can move to higher levels of activity in a very short time in the event of a national emergency. So I guess what I'm saying is one of the solutions to defense preparedness is to have our fundamental industrial economy get back to a position of health. More specifically, I would view that it would be important to do work such as we described here to identify those areas which will be specific bottlenecks, in terms of a national emergency and then to focus attention there. It might be a case where in some instances it might be appropriate to offer greater incentives to specific industries in order for them to develop a capability in this area or stockpile or whatever the necessity is, to resolve that bottleneck. In other cases, that isn't

practical to expect industry to carry such a load on its own. It would have to obtain help from the Federal Government and that would be plans specifically identified where additional incentives would have to be specifically developed for a specific area. Or maybe the government in some cases may have to do as it has done in the past and that is take on a very large responsibility and role in providing equipment and machine tools and incentives for modernizing machinery and productivity, etc., such as in the MANTECH program described earlier. Or in stockpiling materials. I guess that defense preparedness would come in a total range of activity from a very macro level down to some very specific micro planning and I think it's that total range that you're trying to come to grips with, as I would view here, as to what kinds of activity are appropriate for each point in that range.

General Merryman

I'd like to add one thing. If you haven't read or haven't seen the testimony that was given before the HASC on the 17th, on industrial capacity and mobilization by Mr. Harry Gray, Chairman of United Technology Corporation, I recommend it to you. And also Mr. Fuhrman, who testified the same day. There are some shockers in their testimony, shockers to the extent that they are telling us some salient truths that I think we tend to ignore, we in the military and civilian industry and perhaps Congress. For example, Mr. Gray points out that right now the defense industry in this country is working at virtually full speed, full capacity. We're putting out just about all we can right now. And there are a lot of people I know in uniform and out, perhaps, that think that there is a surge capability out there just sitting there waiting. He points out that today it would take 3-1/2 to 5 years to build a new factory of any size to get it to new production, a year to convert that facility, get machines - if you have a factory, it would take that long to convert the facility, train people, get machines in and produce just the first parts - two years to bring it to full capacity. That's if you already have the building. He points out something we learn in the military every day. You can't take someone off a farm or out of a kitchen and expect them, within a few hours, to build an aircraft engine. He points out also that at full mobilization we might be able to squeeze 18 months out of the longest time it takes us to get to full production, but it still wouldn't be possible to build that factory and get the people and get the resources, high technology required, in anything less than 3 years. And he goes on and points out the significant shortage in critical materials that we have in this country, the significant shortage in our shrinking defense industry, pointing out that since 1967, the number of companies involved in aerospace production has dropped by 40 percent, more than 40 percent, from 6,000 companies to 3,500 in the last 12 years. He points out that we continue to move to be dependent

on foreign suppliers for certain items of equipment, and couldn't be dependent, of course, on many of these in case of war. And then he also addresses the shortages of equipment and points out, for example, that his company is the largest user of titanium in the country, but that we don't have any titanium here and although it is plentiful, the process by which it is turned into something useable by the aircraft industry, that capability is not that plentiful.

He sums up in his testimony what he thinks Government should do and it's full of the kinds of ideas we're looking at and it would be very good if you had this, also.

Mr. Sheldon

Is there a mobilization plan in existence which shows who would build what during an emergency?

Doctor Blond

I'm not certain whether they have categorized it as a mobilization plan, but the Federal Emergency Management Agency which took over from the Office of Emergency Preparedness, has a scenario for the mobilization and it requires a certain amount of reduction in private consumption and they have it broken down by several different tiers of private consumption items, giving first priority to defense needs and second priority to industrial based needs for the defense sectors. As far as picking out specific companies as to what you would do during a war, I don't think they do have that and it's quite doubtful that their plan would actually work in any sense of the word. But they do have a plan and they do have people who worry about this plan. One of their problems is that they assume that there is going to be a year to prepare for the war, and then they assume that the war is going to last for 3 years, and no one has told them how long it takes to build any pieces of military equipment and so there's really no realization of the problems involved. They are now starting to work on a shorter war scenario and I'm not so certain that they'll come up with anything better than they came up with before.

Mr. Sheldon

Here are a couple more follow-on questions to that general line of questioning. Has a list of commercial substitutions for military equipment been prepared?

Admiral Kollmorgen

I think the tenor of the question is are we on a quasi-wartime footing and I think clearly, to you and the kinds of responses that we have given is that we are not. We haven't

taken it seriously up until now. That has been pervasive across all the planners within government that are concerned with military preparedness. We just haven't taken it seriously.

Mr. Sheldon

One last question along these lines, will the provisions of the defense priority system be enforced to ensure filling of military orders or will commercial orders be used to support surge production. You just said you're not really sure you're looking for surge production. Do you have any plans in your Services in regard to using the DX system?

Doctor Blond

During a wartime situation, there's no question of military priorities. Even during the preparatory year, military priorities would be starting to replace private consumption priorities. The real question is that the technology of most of the pieces of equipment that we are buying is so much greater than it had been during World War II, that it is questionable whether you can convert a toaster manufacturer into a producer of high-quality radar guidance equipment or something like that. The conversion ability within the economy is not exactly the same. They do have a substitution matrix to some extent for raw materials that would be required for a certain size production during the mobilization. That says that so much cobalt substitutes for so much something else. As far as taking private consumer items and making them military equipment, I've never seen any plans for that.

Mr. Sheldon

One last general question and then we have some more specifics for each Service. How can DOD perspective or needs be presented to the general public more effectively?

General Peterson

I think that it is incumbent on all of us, not only in the military but those who are associated with defense issues to be well informed on these issues and be able to articulate them at every opportunity. I think that the defense industry has done quite well in this area in terms of the quantity and the volume of publications which are produced in our industry. And the service magazines and the service associations, I think, have just done a fantastic job in terms of being able to articulate. I think the general public and Congress is much more aware of defense issues now than it has been in any recent time. Perhaps that's accounted for by the fact that we have more people out giving speeches on defense issues, or perhaps the events of

the world have forced a fundamental interest in defense matters because they have become more important, more imperative. And I would judge that much of what I was trying to point out that in recent times the American public has made these decisions about national priorities. I would judge that those same individuals are now reassessing where defense lies and would therefore advocate greater defense budgets. Whether you can do it in competition with the other things they've already established that I've mentioned, or whether they're going to do it in a very dramatic fashion is a good question. Bottom line - I think to continue to do the kind of activity we're doing right here and that is coming to grips with these issues, discussing them openly and critically, and evaluating them and carrying home the message that we believe is important.

Mr. Sheldon

We have some specific questions for you gentlemen individually. The Air Force - do you expect the F-15 to get funding beyond 729 aircraft?

General Peterson

That's looking in the crystal ball and it's a tough one because there's a lot of competing systems, hard judgements are going to have to be made. My guess is yes. My guess is that it will be because you'll never have an aircraft with greater capability or lower cost than that aircraft, never again in the history of the United States will you ever have an aircraft with that capability at that cost. You might have some time in the future aircraft, obviously, with greater capability, but not at that pricetag. We're talking in real terms, now, not some current year dollars, but real dollars. I think the capability, the fundamental logic of that aircraft will be such that it will demand funding and go to higher levels.

Mr. Sheldon

Navy - Admiral, can you give us the build rates per month projected for the F-14, F-18, AVAB and the new trainer for the next five years?

Admiral Kollmorgen

I'm sorry, Senator, but I'll supply it for the record. The F-14, the Congress gave us 36 this year. I can't remember what they supplied for long lead. I suspect that's a little bit on the high side, but it will be numbers along those lines that we'll have to look at on a year-by-year basis. The F-18 is growing - 60, I believe, in FY 81 with long lead for 72 or about that number, with the opportunity to grow that up to

some number like 108. If we can get the kinds of money that are currently projected out there and the purchasing power of those forecast dollars holds up. The AV-8B is undecided. The new trainer is just being looked at at this time, so I can't tell you exactly what the build rates will be for that. We haven't even decided whether we're going to go into R&D. If you're referring to picking up some more T-34C's, those are already in the budget. It seems to me Congress authorized 45 for FY 81.

Mr. Sheldon

There's a second question about the AV-8B. Do you expect it to receive production funding?

Admiral Kollmorgen

I can't answer that question directly. It's a decision that clearly is going to have to be made at some point in time. Congress has supplied the bulk of the remaining R&D money to finish it's development and I believe that authorized another 4 preproduction aircraft and the decision to continue that production line will have to be made within the next 12 months or a little more. The Marine Corps is very interested in it. The Navy is less enthusiastic, only because we just flat don't have the kinds of money to go out and buy that aircraft and also bring along the F-18 at reasonable numbers. If the money is provided to buy the AV-8B, then I suspect that it will go into production. But it's a decision we'll have to grapple with again in the development of the FY 83 budget.

Mr. Sheldon

Another question which really applies to all three of you. What rate of inflation are you using for 81 to 85?

Admiral Kollmorgen

Those get adjusted every year and I don't think it's fair to criticize the developers of those indices. They tend to be less than what we're currently experiencing in today's marketplace. I've been wrestling for nearly two weeks now to pull together a story that every layman can understand, and that includes me, as to just what is the affect of not budgeting for inflation. But clearly, no administration is going to go out in front and predict that double digit inflation is going to stay with us for the next five years, when they're working very hard to take the necessary economic steps to bring it back down again. So as a consequence, we are going to continue to live with the phenomenon where we project getting a little bit better economically. Roger has said it more eloquently, that really one of the fundamental problems the country has to solve is getting back on its economic feet. And then we'll all benefit.

Mr. Sheldon

This question is for the Army. The five-year plan requirements of selected items that have been identified - have you been able to identify similar mobilization planning requirements and if so, what time frame?

General Merryman

Not to the same extent. The question is a good one. I left the Pentagon six years ago and just came back last month and I cannot recall six years ago ever hearing a discussion on the subject. I have been back now nearly two months and I have already sat in on several discussions on the subject. During the next two months, the highest levels of offices in the Army will be dealing with the subject. As you recall, I told you about MOBEX, which is going to be conducted in October. We have the Army Commanders' Conference coming up in October. They are also going to talk about this. The Chief of Staff of the Army, for example, right now is going through what he calls his acquisition quarter. To give you a feel for what I'm talking about, when General Meyer took over as the Chief, he said he would use the first quarter to find the latrine, the second quarter to put the personnel house in order and get it organized the way he wanted, and the third quarter, which he's now in, would be his acquisition quarter. One of the major things we're looking at there is going to be how to get at what you just asked. If what you asked exists, I know nothing of it.

Mr. Sheldon

Considering world conditions, what is the projected schedule status for phase-out of the M-60 tank?

General Merryman

My great-great-grandchild's. The M-60 - I said that we have to adapt the philosophy, all of us - Congress, Department of Defense, the Services - of talking in terms of what we're fielding today and what we're going to do to PIP that item, and what we're going to replace it with. The M-60, for example, is in the number 2 stage in that we are continuing to PIP that particular tank. It's a very good tank. The thought process, probably, behind that question is one that goes through the minds of all of us in the Army all the time. Let me just comment that you've got to remember that that old M-60 is going to be a very good weapon system for many, many years against most of the things that the other side has. Not necessarily against T-72s and T-80s, perhaps T-64s, but for every one of those that the other side has, there's a lot of other equipment. Taking that into consideration, and the fact that there is no way in the world we will ever buy enough XM-1s to replace the XM-60 in the next 10 years plus, the M-60 will be around many, many years.

Mr. Sheldon

I have one more question for you, General. What are the specifics of the Army's NBC defense program. We've heard about serious Soviet threat but little about how we can survive. Is there to be more development and enough funds to equalize the thrust? Are we ready now?

General Merryman

As most of you recall, in the early 70's it was decided that the Army could do without a Chemical Corps. Also during the 70's, coming out of Vietnam, most of the scenarios we ran, most of the war games we played were non-nuclear. About three years ago, there was a resurgence of concern as to what might happen in the next war if the Soviets, in fact, used chemicals and if they used nukes. I had just returned from Europe and happened to arrive back in the States when this resurgence took place. At that time, they decided to do two things: one, to get the Army's leadership together to determine what we needed to do, given affordability constraints and given the threat and given what we could reasonably do in the fields of nuclear and chemical warfare. Last year we had a "program review" at Fort Sill to discuss where we ought to go in the nuclear business. This past May we had a big get-together, most of the 4-stars, everybody's who's in this business. We had the nuclear program last fall. This May we got the other down at McClellan and did the same thing with chemical. At the end of that chemical review, the Vice-Chief said we must combine these two, because it is an NBC threat we're facing and it is so important that he wants a semi-annual review of where we are. Your question is timely because two days ago we had our first review after that chemical review that the Vice chaired. I can't give you specifics as far as numbers are concerned. I can tell you this. Dollars have been put into the budget to address the threat. There will be a considerable effort in both areas. To get to the last part of your question, will that be enough to meet the threat, who knows. But it will be a significant change from what you and I know for the past 10 years or more.

Mr. Sheldon

Admiral, in the same handwriting the same question is asked about the Navy, both offensively and defensively, and in addition, what are you doing about cruise missile backfire?

Admiral Kollmorgen

That's the whole warfighting strategy that you want me to cover. The NBC threat is understood and we have had two reviews

of our posture in that particular area. There is not, as in the case of the Army, a major effort underway, but we are taking a look in a prototype on an LHA at a citadel which will be constructed and we'll check that out and determine where we want to go from there. Future construction ships are being built to a more rigid specification to prevent cheap kill. We'll also be looking at improving our overall capability in gas-tight envelopes and NBC capabilities. But there's really no protection against nuclear, other than hopefully to put some distance between yourself and the blast and not be taken out very lightly. There's just no defense against that that we're going to try. As far as the chemical, I think the citadel will have to take a look at that. We're looking at various types of protective clothing which will keep the personnel going and then our general philosophy for ships at sea is that we should be able to get clear of anything other than something that persists and sticks and adheres to surfaces and therefore still retains it's lethality. So that answers that question. What are we doing about the cruise missile - that covers the gambit of everything that we're trying to do in terms of new electronic systems, new capability for the F-14 Phoenix combination, improvements in our AAW posture, and there are just too many things to go into that we're looking at in order to keep up with that particular threat and it is a taxing one. But I have confidence that we're going to come up with the right kinds of mix of systems to give us a better posture. The premier one, the near-term one - not so near, because we don't see the first one at sea until 1983 - is the Egis Cruiser. That's where the technology that we have, the capability for multiple target engagements, looks to give us a real leg up against the cruise missile. We are going to go beyond that and one of the key factors, which I pointed out, is that we need to get into a command and control posture where we can really apply all those resources in an effective way, so there, in kind of a generalized, thumbnail sketch, is the answer to that question. I hope it suffices.

Mr. Sheldon

One last question in the same general vein. President Carter's TV campaign ads show clips of the surface affect on hydrofoil ships. Does this imply renewed administration support for advanced vehicle types. What is the future of advanced platforms in the Navy?

Admiral Kollmorgen

No, there's no administration support, to my knowledge, of advanced vehicles. He probably just happened to like those clips of high-speed things. The way I look at it, the PHMs are being built by Boeing right now. We should have six of

them in early 1982, deployed down to Key West, Florida. Those who have seen the Pegasus, the prototype or PHM-1, operate, the fleet commanders who are employing that vessel now are doing some interesting and innovative things with the PHM. I don't think you will find a well-spring of enthusiasm for the PHM until we get a squadron of them and get through the cultural barrier against a small combatant of about that size and learn how to use its speed. I think it will get a fair shake and a full evaluation starting in about 1982. My own personal thought is that given the kinds of problems we showed you with the dollars up there, if we can find a useful mission and task for the PHM, we'll probably go off in that direction. Surface effect ship's a little harder, so let me dodge that just a tad by saying that we are taking another complete look at our advance ship technology, the advanced hull forms, what they mean, what can they do for us, and what should our level of interest be in that particular area.

Mr. Sheldon

Why are the Russians building a relatively expensive titanium sub, Alpha, when it is very noisy, easily detected? Would we have any interest in that sort of thing?

Admiral Kollmorgen

There's a lot of speculation as to just what they have in mind. We don't really know. I don't know that we have completely convinced ourselves yet that it's titanium, but I think you're correct in your supposition that we're pretty sure that it probably is a titanium hull. I can't give you anything except speculation of what they want a high-speed, deep-diving submarine for. Is it for self protection? Evasion? Or do they really think that they will provide them a leg up and maybe do some kind of high-speed maneuvers and take on our ballistic submarines. I don't know. We'll just have to wait until we get more information.

Mr. Sheldon

We have some questions for you, General Merryman. What is the status in the immediate future of the Army munitions production base modernization program? Is MOBEX 80-A tri-service project? What is the objective and extent of government-industry participation?

General Merryman

I'll have to duck the first part. I can't answer that, other than what I said in my pitch, which is that we will have

money starting in 1981 to take care of the base. I told you that we had \$20 billion of base out there that goes back to World War II and \$10 billion is not in use. Unfortunately, we have been letting that base that is not in use deteriorate. We are now taking action with next year's money to preclude further deterioration. That will apply to the Army munitions production base. Also, there will be money to increase the number of packages and I think the terminology - procurement is something new to me. I know a bit about R&D, but I'm getting into procurement for the first time. The packages that would provide industry with what is needed to produce items of munitions will be increased. That's all I know about that one.

(Question is unintelligible)

General Merryman

The MOBEX 80 is an Army exercise. The objective is to get together, as I mentioned before, with civilian leadership - 36 company presidents have been invited to a 3-day session with the Chief and the Army's leadership for joint dialogue of ways to improve our mobilization capabilities. General Myers will host it.

Mr. Sheldon

Gentlemen, we thank you very much, both for participating this afternoon and taking your time to be with us, for the splendid job you've done answering these questions. We look forward to getting together with you year to year as time goes on. Thank you very much.

SESSION IV

PANEL 1

INCENTIVES FOR RESPONSIVENESS

Nelson Jackson

The moderator for our Panel 1 discussion is Mr. James W. Canan. He has been with the Washington Bureau of McGraw-Hill World News for 14 years, writing chiefly for Business Week. I suppose most of us who read Business Week are certainly familiar with his cover story, "Why the U. S. Can't Rearm Fast," which appeared in the February 4 issue of Business Week Magazine. With that introduction, I give you Mr. Jim Canan.

James W. Canan

I was going to tell you all about that cover story and Nelson stole my line. As a general principle, I believe that reporters should be seen and not heard because we like to skulk, anyway. And so I don't really have much edifying to offer you today, except that I would like to recall for you how sobered I was in gathering the material for that cover story, to find out that, indeed, we could not rearm fast, it always having been my assumption that we could, of course. I've been covering Defense in this town off and on for 10 years, both as a newspaperman and as a magazine reporter, and the easy way to cover Defense, of course, is to write policy stories, which we all dearly love to do. Doing a story on the industrial base is not that kind of story. It's very, very hard work but it was one of the most satisfying experiences I've ever had. I was greatly helped by some of the gentlemen with us this morning. I am looking forward to hearing them as much as you are.

I would like to begin introducing them now. Our first speaker will be Dale W. Church, Deputy Under Secretary of Defense for Research and Engineering. A native of Portland, Oregon, he attended public schools there, graduated from Oregon State University with a BS in Business and Technology. He received his Juris Doctorate degree from George Washington University in 1967. He has a wide range of experience in the field of contract policy, acquisition management, negotiation, administration, and contract law, both in government and in private industry. He is a member of the California and District of Columbia Bars and is admitted to practice before the U. S. Tax Court, the U.S. Court of Military Appeals, and the U. S. Court of Claims. Prior to his appointment to his present job, he served as Contracting Officer and Executive Secretary of the Contract Review Board for the CIA, from 1963 to 1969. From 1969 to 1977, he was Corporate Counsel and Assistant Secretary and Director of Contracts at

ESL, Incorporated in Sunnyvale. In his present job, which is probably one of the toughest in the Pentagon, in my opinion, he is the principal advisor to Bill Perry, the Under Secretary for Research, Engineering and Acquisition in all matters pertaining to the management of the weapons acquisition process. In addition he is the principal advisor to the Deputy Secretary of Defense on Policy concerning minority and small business and inter-agency counsel matters. He also serves on the Policy Guidance Council to the Defense Systems Management College. There is a great deal more. I don't want to read it all because it will take away his speaking time and I don't know how to handle it. May I present to you Mr. Dale Church.

Dale W. Church

Let me basically touch on what I consider to be the overall problems and then some of the defense actions that would tend to motivate the contractors to be more responsive in this area. I think the problem is characterized by the last 20 or 25 years of neglect in the defense industrial base and I can no way better describe it than what has happened in the new emerging technology related to numerical controlled machines.

In the numerical controlled machines, that technology was developed and brought forth in the United States about 20 or 25 years ago, and it has been a burgeoning field ever since. If you go to Japan you can see it in spades. If you go in our defense industries, you can hardly find it. In the metal cutting tools in the defense industrial base, only 2.6 percent are numerical controlled. Of the metal forming tools, only 4/10ths of 1 percent are numerical controlled. I think that says it all with respect to what has happened in the defense industrial base over a time when technology has grown by leaps and bounds.

The three biggest problems I see that create this situation are first, instability. Instability in the marketplace for defense contracts has been with us for a long time. I would hope that it would have got better over the last few years, but I don't think so. I think that the major growth rates that we've seen in the inflation, the growth that we've seen in the cost of high technology systems has driven us well beyond anything that any of us could have expected in causing what we call "bow waves" and unbelievable instability in trying to fit into that defense budget the many, many programs that we need and things like spares, war reserve material, and certainly industrial base get shut out every time. Overburden. Yes, the whole government contract system has been badly overburdened. There is no other government contract system in the world that has anywhere near the social and economic burdens, the Office of Safety and Health, OSHA burdens, the environmental protection burdens, and special legislation, such as the Service Contract Act. I think our problem is at least tenfold worse than the one in second place

in that respect. That certainly doesn't encourage anyone who can operate in the commercial field without such burdens to want to enter into the defense environment. And last but not least, a low return. The way the companies have been able to get by in the defense community is that they manage their money well, that is, those who do survive. When money gets tight and when interest rates get high, that compounds the problem of trying to use the turnover of money in which to create a rate of return which is at least in the same ballpark as those of the competing commercial entities of the same company.

During the Defense Science Board in August, the summer study, we addressed these problems. We came up with some recommendations and I think they're good ones. As a matter of fact, they sounded interesting enough and the recommendations good enough, they've started a series of hearings before the full House Armed Services Committee. They started last week with people like Harry Gray, Allen Puckett, Bob Fuhrmann, who chaired the Defense Science Board Summer Study. This morning they'll be hearing T. Wilson and I don't know why, but this afternoon they're going to hear from me. After all those experts, I'll feel somewhat humble in that category. But the recommendations they did come up with were first, greater use of multi-year contracts. Multi-year contracts are different than multi-year authorizations and different than open-ended types of contracts like the supply schedule types that GSA and others have used. A multi-year contract, pure and simple, is that you contract for the total buy which you plan over a given period of years, let's say 3 or 4 years. Let's say that buy is \$300 million for 3 years. But instead of funding in that year for \$300 million for that contract, you only fund one-third of it or \$100 million. Now, the impediments for doing that right now are primarily twofold. First, there is a restriction in the DOD regulation 7200.4 which says that every item bought in an annual year appropriation except those specifically authorized for long-lead procurement must be fully funded. So effectively that means that you've got to buy, if the units cost \$1 million each, you have to buy one times 100 in that first year, instead of the possibility of buying parts, equipment, getting subcontractors to tool up for a \$300 million run, they tool up for 100 times one. So in this particular full-funded requirement, it does create a serious impediment. The second impediment is that of a \$5 million termination liability, which is in the law, and that says that in any given year if your termination liability exceeds \$5 million, you have violated the statute. So we would like to see that either removed or, at least, raised to a level something like \$100 million so we could have the latitude to get the maximum advantage that could be obtained in the larger buys and certainly when you're talking about contracts involving a billion dollars a year, you've got to have termination liability ceilings of at least \$100 million, if not higher.

Improving cash flow, raising the progress payment rate, using milestones; these are the kinds of tools which create the cash flow which allows government contractors to achieve a higher rate of return. I think they are very important. We had not examined the 80 percent progress payments for some years. We're now in the process of doing so and should have a report out which is sponsored by the Deputy Secretary of Defense in the next six weeks. Obviously, that increases the outlays of the Federal Government. I think it works something like for each 1 percent we raise the progress payments and the outlays go up on the order of \$250 million. So it's not an insignificant sum and could easily involve billions of dollars in outlays. Of course, there will be some political problems working that through. In the meantime, you have a tool which is available to us, that is to create milestone billing which liquidates the unpaid portion of these progress payments and we'll be putting heavy emphasis on that. The biggest impediment at the present time is the regulation requires such milestone billing approvals to go to Assistant Secretary level and as a consequence, those out working in the system simply don't take advantage of it.

Profit policy. Last March we changed the profit policy in the DOD. It was our observation that we must have a hurdle rate of at least 15 percent of return on new capital investment in order to compete with the commercial side of the company. Unfortunately, right after that time, interest rates soared and we didn't have much change to see the effect of it. Now they've come back down, though certainly not anything near what they were before, but I think in the realm where the profit policy would have a chance to succeed. What that means is that it works out to about a 28 percent pre-tax and a 15 percent after-tax as a part of the weighted guideline formula for new capital equipment. That should motivate contractors, I believe, to at least take a hard look when they're trying to decide where to put their capital budget for the year.

Economic price adjustment clauses. Just about the time that people like the Navy and others discovered that when you're building ships over a long period of time, there's no way that you can predict inflation. They started using EPA clauses, somebody came along and said that the EPA clauses were creating inflation. All of us who have been in the business for a while know that that's just not true. So unfortunately, there was a pall hung over EPA clauses. I think we've got to get back on to EPA clauses. I think they are a way to take the risk out of the investments that contractors must make and if we don't take that risk out, they aren't going to make those investments.

Acquisition strategy. I believe that acquisition strategy can contribute a great deal toward stabilizing this market.

Too often we start going into competition without really thinking in terms of what we have involved. That is, we've had an old model which was used as IFBs, invitation for bids, which is a formal advertising sort of procedure, and with that model we try to apply that to high technology negotiated acquisitions. That's bad business. Dual sourcing is a good idea. Total by-outs, for the most part, is a bad idea. It creates great instability in the marketplace. I think we need to preserve competition. I think it's a very important element of the strategy, but I think we need to tailor it and use it in a sensible way to take care of the high technology products and part of that ought to be that those who are successful bidders and suppliers through the development stage, I think that we should keep them on throughout the production stage, bringing on other sources as needed, but meanwhile keeping them so that they do get a significant chance at production. Then they will make the investment back in the development stage which will make sure that we get the best possible deal for Uncle Sam.

The defense priority system, or defense material system. I understand that did come up yesterday. I think this is an invaluable tool. It's the most misunderstood tool that I have ever run into in the Government. That is, you talk to people about DOs and DXs and there are as many opinions as there are people to talk about it. So we have kicked off an educational effort to try to bring that into the fold as one of the useful tools. The DOD is working with Commerce. It's a joint tool to be used by both of us. The Summer Study did conclude that at the prime level, it's being basically followed at a level maybe 50 or 60 percent. At the first tier it drops to something like 30 percent, at the second tier to 20 percent and after that it disappears altogether. So it is not being observed, it's not being followed. As a consequence, long lead times are extending way out beyond that which the system was created to prevent. The worries and concerns in the commercial side of the disruption that could be caused by the full-court press work being put on in this area are incorrect. In those few cases where we've really applied it, we've been able to sit down with the Pratt-Whitney's and the Boeings and the Lockheeds and so forth, and found that both of us have scheduled needs which are quite consistent with each other and that all of us have thrown our lots in there at the front and we didn't need it that way. Once we worked it out, we found out that the system does work and it doesn't create disruption and Defense can get a significant decrease in these lead times by use of this system. But I highly recommend to all of you that you get hold of this narrated slide show to give your people. It's available in DCAS offices and Department of Commerce offices around the country.

On the other side of things that DOD can't do but can support is tax policy. I clearly believe that we need a change in the

tax policy in this country, particularly with respect to the depreciation of equipment. If you look at other industrialized countries around the world, Japan, UK, Germany, Scandanavia, wherever, you'll find that the number os years that they have to depreciate their equipment is far less than what our companies have in this country. Furthermore, our countries are now having to depreciate on the basis of acquisition cost and not replacement cost. With inflation being what it is, the combination of stretching it out over, say, 10 years and the acquisition cost, means that those companies are recovering oftentimes less than 30 percent of the replacement cost of that particular equipment. That is a national tragedy and I think it must be rectified immediately. We can't do that in the Defense Department, but I think we can support such changes and I think they ought to come about soon.

I've certainly well overshot my time. I think that does introduce the subject and let's bring on the next one.

Mr. Canan

If you'd indulge me for 30 seconds, I'd like to mention something that's an aside in all this. It's an intangible, but it may be very important. One thing I do know as a reporter is that over the last several years, maybe just the last two years, in the general press there has developed a really good appreciation of what the problems are here. It has come as a real shock to the reporting community, most of whom didn't pay much attention to this kind of thing, and, in fact, as you are well aware, tended to look on the whole thing basically as a ripoff by the military industrial complex. I think in the years to come, given the recent appreciation of the problem on the part of the press, it will be an enormous help in getting this thing together in a lot of little ways and maybe some big ones.

I'd like now to introduce our next speaker, Mr. Marvin E. Gantz, who is Executive Vice President for Mill Products of the Aluminum Company of America. He joined ALCOA in Cleveland at it's magnesium foundry in 1940, after having graduated from the Colorado School of Mines as a Metallurgical Engineer. He became Manager of the ingot plant there in 1957 and then went to Pittsburgh in 1960 to become production assistant in the Fabricating Division. Since then he has served as Manufacturing Manager for ingot and . . . General Manager of the Fabricating Division; Vice President, Manufacturing, for Mill Products; Vice President, Operations, Mill Products; and Executive Vice President, Mill Products, in 1975. He's quite an inventor. His inventions include a magnesium grain refiner, a heat treating process, and a chilling method for sand casting. He is on the Board of Directors of several organizations and I want to tell you, in keeping with what I said before, I never thought I'd see the day that in covering the Defense beat, one would have to start getting

interested in and learn about forging and casting. May I give you Mr. Marvin Gantz.

Marvin E. Gantz, Jr.

Thank you and good morning.

I've learned by bitter experience that when people introduce me as the Executive Vice President in Charge of Mill Products it's good to mention just what mill products are. I tried once saying that mill products are products made in a mill and got in a little trouble when someone in the audience said, "What's a mill?" Mill products, as we talk about them in ALCOA, are sheet, plate, foil, wire rod, bar, extrusions, tubing, forgings, castings. In other words, they are basically the fabricated and the cast products. We like to think that our half of the company makes aluminum useful. Primary Products half makes aluminum and then we make it worthwhile or useful in the products of mankind.

I do appreciate the opportunity to participate with this panel today. The issue of defense readiness and requirements is controversial and complex. Some critics warn that the United States lacks industrial capacity and readiness for emergency defense. Others insist that we have ample capacity and the willingness to meet the defense needs, that the military would tell us what is needed and when it's needed. I guess that reality lies somewhere between these two points of view. Mr. Canan, our moderator, has written this article in Business Week and it's a splendid article. That's already been mentioned. I guess I'd like to set the record straight with relation to one aspect of his analysis and that's the aluminum forging situation. The situation as described in that article is not true for the entire aluminum industry and it's certainly not true today for ALCOA. As a matter of fact, the Forging Division reports to me, which in some obscure way means that I work for the General Manager of Forgings and he has empowered me to take an order from anybody here today that wants to buy aluminum forgings. So if you have some requirements, I can accept an order today for 38-week delivery. It generally takes a while to build the die.

The excursion look for aircraft is better than has been reported. We in ALCOA are moving ahead with expansions to meet civilian and defense needs. For example, we are increasing our large press, hard alloy extrusion capacity and expansion underway at Lafayette, Indiana, will cost about \$10 million and if we need more capacity than that, we're prepared to spend more. We have begun a \$35 million expansion at our Forging Division to increase forging stock capacity and to add forging presses at both Cleveland and Los Angeles. In addition, a major expansion project was completed last year at our Davenport works, that's a sheet/plate mill, that included heat treating facilities and equipment improvements to increase productivity and capacity. We've got a second

expansion of heat treating facilities underway which includes plate, heat treating units, and related equipment. We're expanding our premium casting facilities, too. We have a new plant to produce premium casting under construction right now and the drive for that is substantially the Boeing Air Launch Cruise Missile.

These are examples of our plans to invest now for the future. And our incentive is to fill orders and to make a reasonable profit. If you add those numbers up you come up with something over \$200 million of expenditures, primarily focused on defense, and that doesn't include the expenditures that are being made by ALCOA to increase our metal base.

There was some statement to the effect yesterday that the aluminum industry is reluctant to make expansions without some kind of assurances from the Defense Department that those expansions will be utilized. Well, I'm here telling you today that we are now unaffected by the recession, spending more than \$200 million, most of which is focused directly on the aerospace effort.

There are two ways, however, in which the Government and the military can help suppliers better prepare for defense needs. One is to provide information that contractors require for planning. The other is to provide for more stability in the defense market and let me briefly explain both.

The aluminum industry, like other industrial suppliers, will be in a better position to provide defense materials if we know what those needs are with reasonable lead times to respond. This requires a cogent, organized, and funded defense plan. We need some assurance that our investments won't be superfluous. There are often development costs involved, as well as production expenses. Our defense marketing people do a pretty good job trying to figure out how many aircraft, how many armored vehicles, how much ammunition the military will be buying in the current year and in the next five years. But obtaining this information is difficult. We would prefer that the Department of Defense share with industry its five-year development plan and requirements. Then suppliers can gear up to providing the facilities, raw materials, and the people.

There's a concomitant need for increased stability in the defense market. The annual appeal to Congress for program funds to buy weapons, balanced by the political realities of the budget process, introduces tremendous uncertainties regarding the life of each particular weapons program. Multi-year contracts is part of the answer. However, the ups and downs that have characterized many military programs make it difficult for suppliers to meet particular needs. For example, changing from one aircraft to another requires us to supply different aluminum plates,

forging and other products. It's extremely difficult for us to juggle and switch frequently and still meet military requirements in a timely way. We urge more stability in defense procurement planning, along with Congressional funding.

Now, we in ALCOA take pride in our track record in anticipating market needs and building the capability to meet those needs. Especially in defense applications. For economic reasons, it's harder today to expand in anticipation of demand, and so we seek the planning assistance and market stability necessary to ensure military preparedness.

Just as an aside, it was possible back in the late 30's for ALCOA to put on stream in Lafayette, Indiana, a large extrusion plant in 1938, and in Alcoa, Tennessee, a large new north plant sheet mill in 1939, in anticipation of the needs of World War II. Both plants were born when the clouds of war were gathering, and believe me, they were very useful in World War II.

There are some who call for an increase in government regulation of the materials industry in order to guarantee defense supplies without production delays for national security. I'm completely in support of increased national security, but more government bureaucracy is not the answer. A national materials policy will evolve through the forces of supply and demand. The recent aluminum supply situation for fabricated products was created by a rapid escalation in the demand for aerospace products and by a lack of capital investment five or ten years ago. The industry at that time had little incentive to invest in new facilities for the fabrication of sheet plate extrusions and forgings. Capital formation problems, plus insufficient profits, were the roadblocks then. We're in a stronger position today. At ALCOA, expansions are underway. That's not limited to us. Other aluminum producers are expanding also. Our industry can and will meet the increased military and commercial demands with planning assistance from the Department of Defense. We'd like to remove the guesswork and minimize the financial risks that have too often accompanied past expansions.

Thank you very much.

Mr. Canan

Our next speaker is Mr. John J. Ford, who is Staff Director of the Committee on Armed Services, House of Representatives. A very special vantage point. A reporter's dream of a job. John sees them come and go and he wards off charges of micromanagement, depending on who is being micromanaged, and altogether has one of the neatest views is all of Washington, in my opinion. He has been with the Armed Services Committee 15 years. Prior to becoming Staff Director, he supervised staff work on the Department of Defense authorization legislation and for a number of

years he had staff responsibility, especially for missile procurement and strategic programs. He was principal professional staff member for the Military Compensation Subcommittee and through the decade of 1965 to 1975, he worked on virtually all of the pay, promotion, retirement, and selective service legislation handled by the Committee. I imagine that it is with a great deal of pleasure that John sees now that a lot more attention is being directed to that sort of thing in the Executive Branch. He has also been the principal professional staff member for special subcommittees that studied NATO, European participation. He has traveled widely in that job and others which he has held. He has been to the Middle East, Africa, to Russia, Japan, and Southeast Asia. He handled the legislation in 1967, which removed promotion restrictions on women officers, which makes him stand out even more. He was born in Pennsylvania, as I was, and therefore it is with a little extra special pleasure that I welcome John Ford, Staff Director of the House Armed Services Committee.

John Ford

Thank you, Jim. I suspect that the one thing we can all agree upon this morning is that there is a problem and that indeed the defense industry is in trouble. I think nothing confirms that so much as the fact that the leaders of industry are coming willingly and, in some cases, eagerly, to Congress for help. Ford's 8th law is that the depth of severity of a problem can be measured in inverse ratio to the organization of the experts you turn to for help. When you turn to the Congress, you've got a problem.

You have probably heard the story of the surgeon, the architect, and the politician who were having an argument as to which was the oldest profession. The surgeon said that surgery was the oldest profession, because when God created Eve he created her out of a rib of Adam and that was the first act of surgery. And the architect said, "No, you forget, when he created the Garden of Eden that was a great work of architecture and he created that before he created Adam and Eve, and it was a great work of architecture because the Book says he created it out of chaos." And the politician smiled and said, "And who do you think created the chaos?" So from the wonderful people who gave you the chaos, I want to tell you this morning about what we are thinking about your problem.

I think, perhaps, the panel description was a little premature in saying that we were going to suggest alternatives. From this panel member, at least, we are still in a stage of asking questions, and will be for some time. The Committee on Armed Services began to be aware that there was a problem because of information we kept getting over the last year or two in authorization hearings, especially in our R&D Subcommittee, about

long lead time items, about inflation factors being singularly unrealistic, and about shortage of various types of materials. The Committee was probably further sensitized to the problem because in the course of the much maligned congressional activity called foreign travel - they sometimes use another word that I never use - the Committee went to Africa on a few occasions and learned a great deal about the shortage of certain raw materials critical to our defense industry. For reasons that we've never figured out, God decided to put most of the strategic metals of the world south of the Zambezi River in Africa. And what He didn't put there, he put a lot of in the Soviet Union.

The Chairman decided back in June that after we finished the Authorization Bill, the Committee would get into the problem of this defense industrial base, and as Dale said, a week ago we started hearings, listening first to Mr. Fuhrmann and Doctor Eugene Fabini of the Defense Science Board, from Harry Gray, the President of United Technologies, and from Alan Puckett, the Chairman of Board of Hughes Aircraft. This morning, the Committee will hear from T. A. Wilson and this afternoon we'll be hearing from Dale Church. As Jim says, I have the best vantage point in the world, and one of the advantages is that you get to hear Dale Church twice in one day.

At last week's meeting, the Chairman announced that because of the time factor, it would be impractical to study the whole problem in a full committee posture. As you know, members of the committee have a very important function they have to perform over the next month and a half, which is to get reelected to office. So the Chairman announced that he would appoint a panel of the committee to look into this. And he's going to announce the formation of that panel this morning. It will have two members, one Democrat and one Republican, from each of four subcommittees concerned with procurement matters. It will have as the Chairman the outgoing Chairman of our R&D Subcommittee, and it will have an additional Democrat, so we are consistent with the ratio requirements of the House of Representatives. It has, fortunately, a combination of members whose election problems are not of the severity that they won't have any time in October, so the panel will be functioning next month and you may see them visiting your particular facility. They will hear, next week for example, from the General Accounting Office, which will publish in about a month a study of this problem and I think you're going to be surprised by that. I think Jim is going to find it's a real story, because it's a man-bites-dog sort of thing. When GAO agrees with industry as much as this report is likely to, that's a story.

They are going to hear from a variety of defense experts and economists and visit their facilities. To date, the witnesses have suggested a number of steps that could be taken to address the problem. I think Dale mentioned them, so I won't take a lot of time with them. Such things as initiating tax incentives

to help the industry, the most important seeming to be allowing more rapid depreciation for capital investment. They also point out the various factors that cause the net profit on defense industry to be lower than on commercial work, in large part, perhaps, due to the fact that the interest on borrowed money is an unallowed cost according to defense regulations. Another is the complaint about defense over-regulations, such as environmental laws, socio-economic laws, and in this case particularly, the defense procurement regulations.

Another was the urge that we provide more competent and long-term defense investment by allowing multi-year procurement, multi-year authorization, and appropriation, so that there will be more incentive to invest in new machinery and long lead time items.

Another complaint that we heard was that there was a real shortage of skilled manpower in industry, and finally that the rate of progress payments have to be specifically re-examined.

As I say, we're still at the point of asking questions and I think it's important that we do that, rather than try to rush into some kind of supposedly corrective legislation. I think it is significant that in announcing the hearing, Chairman Price said that what he wanted the panel to do by the end of the year is to clearly define the depth and the nature of the problem, and that he recognized that legislative remedy would come in the next Congress, and would take, perhaps, some time. Mr. Moynihan said that the most intense difficulties of our time are conceptual in nature and arise from nothing so much as the problems fully stated. To us there are a lot of questions which still have to be answered before we can start revising a legislative remedy. For example, we don't know exactly how much of the problem is related to defense industry and how much is an industry-wide problem which just happens to be affecting the defense industry. Conversely, if we tried some sort of remedy to provide more investment capital to be available to the defense industry, how do we, in the case of diverse corporations, assure that they do not use the money for ventures in the commercial field rather than applying it to defense. We are not sure at all how you attack the problem of the shortage of raw materials and we're not sure how to go about that. We have many questions as to how we got to where we are. We had a witness last week who said that the cost of electric connectors has gone up 170 percent in a period of one year. And we want to know how we got that way, how it got that high that fast. We had all kinds of horror stories about the sudden increase over a period of 2 or 3 years in the long lead time requirements for forgings, castings, and all kinds of sub-systems. How did it jump that high that fast? What are the discreet factors that went into that problem. We don't know that and we have to find it out.

Back in the 1960's, when there was a great human cry about cost overruns of defense programs, we had the General Accounting Office do a study of cost overruns and frankly, at the time, the people who encouraged the study thought that it would show that increased labor cost was the principal reason for the overrun. It turned out that that wasn't so. The labor cost was a much lower factor than we thought, but government change orders was a much higher factor than we thought. We had a witness last week who said that Japan's productivity has gone up 10 percent over a period of about 5 years, while ours has gone up 2 percent. We'd like to know all of the factors that go into that. I think it's significant that Mr. T. A. Wilson, who is going to testify today, says that we should not overreact to the problem and we should be careful not to solve the problem by creating further government regulations which could do more harm than good.

One of the things we don't know is to what extent the problem relates to deficiencies at the subcontractor level only. Dale Church implies that it does. An industry witness last week said just the opposite, that the prime contractors have as much of a problem as the subcontractors.

We don't know how much is related to the general problem of our economy, the general failure, if you will, of our economy over the last couple of years. Now, I know our economic problems are going to be solved next year, because both Mr. Reagan and Mr. Carter told me so. If it is, how much of this problem goes away? We don't know that.

One of the frustrations of the Committee, particularly, over time, has been the question of inflation indicators in defense programs. A lot of the attacks that the members of the Committee have fought off in floor debates on defense programs relate to cost overruns which are often largely related to inflation, and we have had members of the Committee who consistently complain about the Defense Department to OMB Directors being forced to put unrealistic inflation indicators into their estimates. At the same time, we are all aware that if an inflation indicator becomes a self-fulfilling prophecy, that whatever the indicator is tends to become the minimum price, and how you attack that problem is something we've agonized about for a long time and never have solved.

Finally, I would point out that legislative remedies that have been proposed so far are the kind that would cross Committee lines. Tax relief, for example, would come from the Ways and Means Committee. A number of other committees would be involved in other things. I would say that the question of the limit on termination liability is one of the things that would go the first, but I think there is a lot of action that has to be taken in a number of committees. There's a lot of education that has to be done and I would suspect that throughout most of the next Congress you will find us working on this problem. Thank you.

Mr. Canan

You may be wondering why I'm doing the awkward thing of going down there to sit rather than sitting at the table. I'm also playing reporter today and I'm scribbling furiously. Therefore, I would be a distinct distraction up here and I did want to explain that to you.

I'm going to make the introductions a little shorter now because I'm sure the gentleman whom I am about to introduce would rather have it that way. We're running a little late.

I'd like to introduce to you next R. James Woolsey, a lawyer in town but prior to that a member of the General Counsel of the Senate Armed Services Committee and Under Secretary of the Navy. It's sort of axiomatic among defense correspondents that if you're up against a problem that you don't have a specific source to go to, of if you, yourself are having trouble defining the problem, I've heard it said a dozen times, "Why don't you go talk to Jim Woolsey." That's the kind of reputation Jim Woolsey has. When he was General Counsel for the Senate Armed Services Committee under John Stennis, he was instrumental in the drafting of a War Powers Act of 1973. He's a man of renowned intellect and good humor, and a sincere and lucid analyst of the defense problems of this country - in my opinion, one of the best. A native Oklahoman, he now is a partner in the law firm of Shea and Gardner, having left the job of Under Secretary of the Navy in 1979. Prior to becoming Under Secretary of the Navy, he was an associate with that same law firm and prior to that, he was on the Senate Armed Services Committee. He left the National Security Council staff in 1970 to go to the Senate and from 1969 to 1970, he was an advisor on the U. S. Delegation to the Strategic Arms Limitation Talks in Helsinki and in Vienna. He had been a program analyst in the Office of Secretary of Defense. He served in the Army from 1968 to 1970. That's, in brief, having risen from bean counter to big thinker in Washington. May I give you Jim Woolsey.

R. James Woolsey

Our topic is incentives for responsiveness and I'm going to tinker with that just a little bit and talk about disincentives. Getting rid of the disincentives is a first and rather important step to creating incentives.

I want to talk about two types of disincentives; one procedural, one conceptual. If you stand back from this problem a little bit, back from the depreciation schedules and difficulties with lead times and all the rest, and look historically at responsive programs, at weapons development programs which worked right like, say, the development of radar in England in '39, '40, and

'41, or the development of Polaris, they have some characteristics in common. First of all, they're done frequently under what is conceived to be a great deal of time pressure, and the British were, of course, fighting for their lives. We also thought at the time Polaris was instigated shortly after Sputnik, that we were in a very severe situation with respect to our needs for a new strategic weapon. They are normally handled by very bright and able people, frequently the best the country can pull together at that particular time. They are characterized by close teamwork between operational military, technical people, both military and civilian, and business, with a strong disregard for encumbering procedures, very much an attitude of rolling up your sleeves and getting the work done. That attitude and those types of schedules - it was 3 years and 11 months from the day President Eisenhower signed the order to tell the Navy to develop a ballistic missile and put it on the submarine, to the day the first Polaris boat was on operational patrol. Those types of schedules which seem absolutely incredible to us today, with the possible exception of programs which are extremely, highly classified and therefore can avoid some of the procedural constraints we place on everything else. Those types of schedules are almost unthinkable today. Why is this?

First of all, it's because both defense industry and the professional military, and the permanent and not-to-permanent civil servants in the Pentagon, in trying to work together are very much in the position of a secretary with 35 bosses. Each one may just want coffee or some xeroxing done or a short letter typed, but nobody takes account of what everybody else is doing and pretty soon you drive your secretary crazy. Well, you and we are very much in that situation of being a secretary with 35 bosses. Today if anyone attempted to launch a brand new strategic or other program as revolutionary as the Polaris was in its time and to bring it to operational status in 3 years and 11 months, he would find that it was very difficult for him to get his legislative testimony on his arms control impact statement coordinated with his litigation strategy, defending his environmental impact statement in time to make an adequate presentation of both before the Defense Systems Acquisition Review Council so that he could fold it into his mission element needs statement before the Office of Management and Budget and PA&E in their spring review of his programs objective memorandum cancelled the whole program because of excessive delay.

Graham Clater, former Secretary of the Navy and currently Deputy Secretary of Defense, talks about the only happy moment he had in the days of December 1941 and early 1942, was the morning of December 8, 1941, just after Pearl Harbor, when he was skipper of a sub chaser down in the Caribbean. He and several of the enlisted men onboard his sub chaser went and got hold of a very large filing cabinet which was full of all of the peacetime forms, requisitions, and procedural requirements for

training, using two rounds of ordnance a day for target practice, etc., and unceremoniously picked the whole thing up and dumped it over the side into the blue waters of the Caribbean. He said it was his only happy memory of those very dark days.

In a very similar sense, procedurally, we need to start thinking about how we might be able to do that ourselves. I don't have any single formula, except a suggestion that at some point we have to decide, in managing the defense business and in setting up each of these procedural hurdles that everyone has to go through in almost every program, we have to decide who is in charge. I can't think of a better solution, generally, than the Secretary of Defense, and it seems to me that what we have to do is to begin - and this takes statutory changes, this is not something he can do on his own - we have to begin to change the burden of proof. We have to give him the authority to say, with respect to defense programs, concurrency is all right on this one, this one does not need an environmental impact statement, we'll forget about A109 on this - he has to be able to say that, make it stand up, be able to go to a congressional committee, give his reasons, and make it stick. Until we give some senior authority in the Government the ability to use procedure for specific tasks, to use a procedural step when he wants to for his purposes, rather than have these 35 bosses of the secretary, each one creating his own little set of problems, only when we can get ourselves as a group, military and industry together into that frame of mind, we won't even begin to solve the procedural problem.

Secondly, standing back from all of this just a little bit, I think that one of the very large problems we all have in trying to remove disincentives from industry's ability to be responsive, has to do with a sense of intellectual arrogance about being able to predict the future which has been, I'm afraid, a handmaiden of the intellectual revolution that came to the Pentagon in the early 1960's, called Systems Analysis. Why do I say "intellectual arrogance" about being able to predict the future? One major problem that we have had in trying to get anyone's attention for issues such as sustainability in the industrial base is, as your white paper points out, the long war-short war phenomenon. The history is filled with the wrecked reputations of people who predicted short wars, including the nicely-dressed ladies and gentlemen of Washington in 1861, who crossed the Potomac to watch the rebels be whipped at Manassas on a pleasant afternoon. In August of 1914, the songs in England were about everyone being home by Christmas. History has been full of that sort of prediction proven wrong. Yet, it is true that if one only has so much to spend, one tends to focus first on the first problem, win the first battle first, and so forth, and the difficulty comes not in that we are paying attention to readiness, which I genuinely think the Administration has been trying to do, even though it has been thwarted from time to time by the Congress, particularly a House Committee other than the one

John Ford is the Staff Director of. Although readiness is terribly important and it is, in many ways, the first problem, we have in the Defense Business in one way or another, talked ourselves into a frame of mind that sustainability in the industrial base is something that we're going to take care of next year. We really don't have the dollars next year - I'm sorry - the budget is too tight this year - next year we're going to get around to thinking about sustainability in the industrial base. That frame of mind is fostered by a certain sense of intellectual arrogance that says, "I really kind of know how it's going to happen." That is often hedged with all sorts of professional-sounding caveats, but it's only if one is willing to take that step and say, "I think I have a pretty good idea how the next war is going to come about and what we're going to need in order to be able to fight it, and I can tell you that it's okay for us to wait another year or two in order to get into the business of giving industry incentives to have a reasonable industrial base and in order to get into the business of spending enough on sustainability." That sense of intellectual arrogance, I'm afraid, is almost a necessary concomitant of the revolution, the analytical revolution, that swept Defense in the 60's and is still the guiding force behind defense policy making.

It's not something I know exactly what to do about, except to call your attention to it, to suggest that one thing we all need is a very healthy dose of agnosticism about our ability to predict the exact circumstances and nature of future wars; that we need to begin to think hard about how we're going to be able to make weapons systems more responsive, more readily changeable to cope with new and unforeseen contingencies, rather than designing them against specific scenarios and specific contentions. One reason the aircraft carrier and the B-52 have been such successful old work horses for so many years is because first of all, they were well built, but secondly because it has been relatively easy, compared with many other types of weapon systems, such as surface ships, to change their armament and their sensors, upgrade them, to change their mission. Happily, the people who were designing Midway and the B-52 - the Midway back when I was 3 years old and the B-52 in the early 1950's, were not designing either one solely around a specific scenario or we would not have had the kind of utility out of either of those weapon systems that we have had over the years.

So I have only those two general points to make. One is that we need to change the burden of proof on procedure, put somebody in charge, and let him impose specific procedural hurdles, whether it's A109 or whatever, for a specific purpose (I can't think of anybody better than the Secretary of Defense for that particular job) and second that we all need to resist whatever explicit or subtle efforts are pushed from time to time to tell us that we

can forego certain things, such as sustainability in industrial base that we know are important.

Thank you very much.

Mr. Canan

Our next speaker has just experienced a homecoming of sorts. He is Mr. Henry Hebeler who, in January of this year, was appointed President of the Boeing Aerospace Company. His division produces all the company's strategic and tactical missile systems and space systems, as well as his airborne information system. It employs about 16,000 persons in the United States and 4,000 foreign nationals at bases in Spain, Turkey, and Greece. He brings a strong engineering and management background to his new job. He was a Boeing man starting back in 1956, following his graduation from MIT, where he was both Bachelor of Science and Master in Aeronautical Engineering. He went back to MIT in 1969 as a Sloan Fellow and received a Master's Degree in Business Management. His new assignment at Boeing Aerospace, as I said, is something of a homecoming and he approaches it, obviously, with great confidence. During the reporting on the shortages in the defense industry and the inability of the military hardware companies to get materials, it was said to me several places, "Well, if it weren't for Boeing, we could get the damn stuff." Boeing is very big and so is Mr. Hebeler, and I'm very happy to introduce him to you this morning.

Henry K. Hebeler

Thank you, Jim. My first idea for this morning's meeting was to ask what would happen if the military would stop asking for proposals from industry, which cost industry over \$100 million to prepare, and if industry put that same kind of money into productivity improvements. We could maintain the same profitability levels by reducing our new business expense and trading it for depreciation of capital equipment, but it's like that old saw, "If your outgo exceeds your income, then you're upkeep may be your downfall." But then I began to wonder whether that remedy or any of the remedies that we've talked about here actually would be used, or would we just decide to follow our same practices, or would we just lower our price, taking advantage of these points. So let me tell you how I think it is.

I would expect that industry will, in fact, continue it's present course. It will make investments to produce weapons for which it has firm orders, but as prudent businessmen, defense executives will be careful not to build more capability at the beginning of a program than it actually needs, or that you can afford for that price. In this scenario, surge capability falls by the wayside because the contractor has to worry about the

ABC's of the defense business. "A" stands for the alternate weapons which may cut into his market. "B" stands for the budget cutbacks which will also reduce projected rates. "C" stands for outright cancellation.

Let's step back about 25 years. The country was about to deploy a major defensive missile. Contractors were told of the need for 5,000 units. Their representatives scurried all around the country to make land purchases and so on. These plants would have to have the best available technology. Even the planning cost lots of money. Fortunately, the plants were not build, because instead of buying 5,000 missiles, the government bought 570 and then built them in a federally-owned plant. I'll admit that by today's standards BOMARK was primitive, but in that day it was considered quite a weapon. It's performance was not to blame for the reduction in quantity.

About 10 years ago, industry was asked to respond to the requirement for the advanced short-range military transport that was to be a STAL aircraft. Eventually, the competition narrowed to two firms, one of them Boeing. Thought we were given development funds, Boeing made very substantial investments of its own, largely unrecovered, and thus fully chargeable to profit and loss. This was done because we believed the military when it said it had a need for a plane, and because we were confident we could produce a superior product. A funny thing happened on the way to selecting a winning contractor - the program died. The proposals went in, but a winner was never named. Instead, both firms lost. The four prototypes went into storage and there is no assurance that even the technology will be applicable to future military developments.

Now, I realize that no one forced us to invest as we did in the YC-14. Further, we knew there was a risk involved because we were in a competition. But it's one thing to lose a fair competition and another to find you were chasing a rainbow. Our undoing was simply that we believed the assessment of need. Later it was to be said of the competition, it was an aircraft in search of a mission. Executives from other firms could tell similar stories. Industry continues to see more new systems coming out of development than can possibly go into production. Programs that appear on firm ground may be randomly attacked and only randomly defended. Political decisions can shift the production of weapons to foreign producers, leaving the industry with expensive and empty facilities, and while indemnification and incentive programs and tax credits and multi-year procurement and shared development costs, while all of these things make sense, they are simply not enough. They do not get rid of those discontinuities and perturbations that are referred to in our printed program. Take multi-year contracting as an example of something that falls far short of what's needed. First of all,

the cancellation ceiling is currently restricted to \$5 million. Our experience shows that at various points in a long program, outstanding obligations can be as high as 1/4th of the total program cost. This eliminates from consideration contracts much more than \$20 million, or \$100 million congressional limits means \$400 million contract limits for all of industry. Multi-year termination liability of our 757 and 76 programs would have to be measured in billions of dollars.

Secondly, recurring as well as non-recurring costs should be recoverable. In this connection, progress payments of 100 percent for paid material and subcontracts should also be allowed. In connection with the basic premise of multi-year contracting, something has to be done to cushion the profits of long term commitments for uncontrollable and unpredicted inflation, so fees should be subject to EPA clauses.

Please understand my position. I don't mean to denigrate the work that has been done to improve weapons procurement. I fully agree that American industry must work with the government to identify and implement programs that are going to make industry more responsive to defense needs. I merely say this. There is no substitute for perceived predictability and continuity in our defense programs. Until we stabilize this defense business of ours, I don't know anything better to do than for the military to contract for what it wants directly. If it wants surge capability, it must issue long lead procurements and contract for those specifically. On the other hand, if it wants voluntary industrial investments, then we must emphasize stability in defense procurement.

Mr. Canan

This question is directed to all services, I guess Dale Church would be the man to handle it. You're all free to comment. Will facilities expansions be approved to support the establishment of surge production capabilities and concomitantly, will the provisions of the defense priority system be enforced to ensure the filling of military orders over commercial orders to support surge production?

Mr. Church

The answer to the first question really involves a significant amount of what are we willing to put forward in the budget for capability which we are likely never to use and, in fact, we're finding today that the original projections of production on almost any given weapon system are far in excess of those that we are actually producing. The first part, with respect to what are we going to invest, we don't even have enough spare parts or enough war reserve material. The priority for investing in additional plant capacity, when we are falling far short of the

numbers that we project now, I think it is very dubious whether we will get to that at the current budget levels. Whether we should or not is quite a different question. We do, as we go through the review process, try to envision, in tanks, aircraft, other major weapon systems, what kind of surge potential we do have. It is a regular part of the process and we have now asked for it to be included as a data item, that is, the contractor's plans as to how that might be done. So we are getting the data. I have a serious question as to whether or not the money will ever be made available.

The answer to the second part of the question is resoundingly yes. The biggest problem with enforcement of DPS has been lack of understanding. I think we will first need to educate people, but at the same time you can expect a full-court press in the rigid adherence to the DPS system. When I say rigid, that means a responsible application of the DPS system, where we will sit down with our conflicts and resolve them in favor of the Defense Department, at the same time not being arbitrary or cause unreasonable disruption of the commercial marketplace.

Mr. Canan

Next question to Mr. Ford. Please explain or expand on how you trade off the need, the time-consuming need to study the problems and ask the questions and do the conceptualizing of the problems vs. the seemingly critical need for action now.

Mr. Ford

I thought I had explained that and am sorry that I did not. The idea that everybody says we have a need for action, but we can't agree on what the action required is. It's a very simple thing to come in and say, allow greater depreciation allowance or allow this and allow that, and the problems are going to be solved. In the nature of things, you can't just do that and assure the problem is going to be solved. I think you could ask, by the same token, if the problem is so serious, why did it get so serious so fast. As I said, we have to know just what are the elements that went into it so we know how to address it. Mr. Church is going to testify this afternoon and the defense witnesses are going to tell us what the department is going to do. I know that some members are going to jump all over him and ask what he has done so far. I don't think we're taking a long time. We're at a point in time where getting legislation through Congress in the next three months would be rather difficult. You can get action on some things fairly early next year. But I don't think we have yet agreement among industry and defense and other interested parties on exactly what needs to be done. We have to get a consensus before we do anything.

Mr. Canan

Dale, I have three questions here that I'm going to edit and combine for you. Most of these are addressed to you, since you're the representative of the Defense Department. It goes like this: 1) Are the results of Nifty Nugget, which was described very widely as a logistic and command and control disaster, being integrated in the present industrial mobilization preparedness plan? And in connection, here's a semi-comment and a question. Industry isn't waiting for the millennium to arrive, it simply wants to know what does the DOD expect of it in the event of mobilization. What is needed to clear up smog content of vacillating and prolonged uncertainties at OSD about requirements and the industrial base needed to support these. When can industry expect sound policy guidance about the industrial preparedness?

Mr. Church

That's about 2 hours worth. Just to try to make it very short, yes we are taking Nifty Nugget and looking at how it relates to the defense industrial base. But let me make it clear - Nifty Nugget really didn't address itself to that particular problem. It was addressing, really, more of the logistics of how to get troops and supplies and materials and how much were already there, as opposed to the development of industrial base to support that after the first increment has gone. That's wherein begins to lie the real problem. First of all, how long does it take for that first increment to be gone. Will there be a hot war break out which is followed by a series of delays in which we can then crank up the defense industrial base: With today's shortage of skilled manpower, which I estimate to be in excess of a quarter of a million people in the defense industry right now, manpower is going to always be a significant item. I just don't see any quick way to solve that. Even if we can convert people over from the commercial sector, it will be faster to build new plants and equipment than it will be to get trained on the new equipment. I don't see a significant response even with the investment of numbers that begin to read like the whole defense budget and maybe the GNP in plant and equipment that would be on stand-by in order to respond to an all-out war which would go on for several years. I think mobilization in the sense of World War II is a thing of the past. It just can't come about. They will never invest that kind of money. So what we have to begin to look at is what are the items and what can we do about them. The most fundamental one I see is people, not plants and equipment. I just don't have a ready solution to that. We have a large unemployment in this country, but it is virtually unemployable in the high technology business in the defense department. Skilled machinists, the expected shortage in the next 5 years, there will be 250,000 jobs in skilled machinists alone. In the defense section, that's about 10 percent of that. What are we doing about filling jobs of skilled

machinists? Nearly nothing. The federal legislation in this regard, the comprehensive educational training act requires that the people who go into that be economically disadvantaged. Well, that's not going to be a viable source, although we would all like it to be, of skilled machinists for some time to come. That's where all the money is going right now and we're getting almost zero skilled machinists out of that system. That's a long answer, even for that point on that question, but I just want to make it clear that in industrial base, you have to look at the totality of it and the biggest problem I see is people.

Mr. Hebeler

We all have large training programs. The point I would like to make about this, our industry really has plenty of people, particularly if you consider the complex itself, considering the government people, as well. Every person that's in this room is an overhead person and if you look at all the overhead people, the people not actually involved in touch labor, either touching the hardware and working on it, or actually doing engineering, the number is very large. So what we have to do is convert some of these overhead types into people who are doing more productive and direct kinds of effort. You may say that's an impossible kind of thing to do, but we're seeing that done in our plant. We are training machinists, I might add.

Mr. Church

In the average machine shop, I think there are something like 19,000 of them in this country, employs about 16 people. And Boeing and other major prime contractors, as well as second and third tier subcontractors, subcontract out much of that machining work to these average 16-man-sized machine shops.

Mr. Hebeler

Another thing that helps in this regard is the use of numerically-controlled machines. And industry is making very large investments in that area.

Mr. Canan

Mr. Hebeler, here's one for you. Is competitive prototyping, given what you think about the AMST program, really an effective way to go? Does it really produce a better product at lower cost?

Mr. Hebeler

I think it clearly does. The thing that's important, though, is to keep down the overhead costs at the same time. I don't know that we necessarily have to produce all the paper that we do on the side during the competitive phase.

Mr. Canan

Mr. Gantz, does co-production by our allies seriously denigrate our industrial mobilization base, particularly in forging and casting?

Mr. Church

I can maybe start that answer with respect to those equipments that are going into the U. S. inventory, relying almost not at all on European sources for any castings and forgings that I am aware of. And if the question presupposes that that business would otherwise be coming to the United States for the systems that are going into the European forces, I think the questioner doesn't understand the capability of Western Europe today to build its own. As a matter of fact all we're doing by co-production, which is really dual production, is saving money in the aggregate so these countries don't develop a duplicate or slightly less than duplicate system to do the same thing as systems that we've already done. But if we don't do it that way with them, they're going to do it on their own and they're going to use their own industrial base, so there is no flow of business away from the United States, to my knowledge.

Mr. Gantz

Let me talk about that just a little bit in terms of where all of this is. Certainly, we compete with - well, Boeing, for example, buys some forgings from Otto Fuchs, and we think that's all right. We don't want them to buy any more than they're buying right now. But we're an international company. We're competing throughout the world. We're putting our aluminum on the air bus. We expect, as an international company, to take on the companies wherever we find them and get our share of the forgings and the extrusions and the plate and sheet business. I believe we're doing that. I think there's little threat to the domestic capability in these product areas at the present time from manufacturers anywhere else in the world. We're certainly selling more of the aerospace, the high technology products abroad than those products are coming into this country. Otto Fuchs bought Webber Metals on the west coast and is putting a 33,000 ton forging press there, and believe you me, the Aluminum Company of America is dedicated to make that press as useless as we possibly can. That's what competition is all about.

Mr. Canan

For Dale Church. There are a pile here of questions that I'm trying to edit copy here - a talent which I am not known for. Dale, basically there is a great curiosity as to specifically when you are going to ask for legislation, what kind of legislation are you going to ask for, what are your implementation plans for the remedial measures you intend to put in?

I think you addressed this before, but there seems to be a tendency to want to pin you down on timing, specific steps, and just how will these new methods be implemented and when.

Mr. Church

This Congress is all but over with respect to legislation, so we're really looking to what's going to happen in the next Congress. The proposed legislation, with respect to the relief of the \$5 million limitation, which is all we need to do for multi-year contracting in a legislative sense, is now being considered in the full Committee, literally the first hearings on it which will provide us valuable initial input which will carry over into the next Congress. Items like the Service Contract Act and some other burdens that are on the process, we are now drafting in the final stages of legislation to present to the next Congress. As far as this Congress, it's over.

Mr. Canan

For Jim Woolsey. Why, when technology is available in foreign defense trade shows, does our administration tell our government (Navy) people to stay away. We can't get ahead without being aware of the technology that's in use now.

Mr. Woolsey

I agree and I have no idea. We went this year, I think, but why the clamp was on before I suppose had to do with not trying to promote overseas sales of weapons or something and insofar as that was a reason, I don't think that's a very good idea. Now, with respect to some such demonstrations, it's apparently been turned around and I'm glad to see that.

Mr. Canan

Once again, Jim Woolsey. Your point about giving the Secretary of Defense the authority demands the same thing at lower levels, that is, have the faith. The DESARC process itself is the culprit in impeding the responsiveness of the industrial base. That's more comment than question, but it intrigues me in that, may I do a little dance around that? What do you think about the receptivity, as such, do you think there's a ghost of a chance of giving the Secretary of Defense that kind of thing and how will the rest of the establishment react to it?

Mr. Woolsey

Part of this we do to ourselves in the Executive Branch with the way we implement A109, 5000.1. I generally found that if I

had a good case and could get the attention of people like Dale Church and others down at OSD (we say down in OSD from the Navy's point of view) when you could get someone's attention and get them fully briefed to understand why your able technical people, the program manager, etc., had gotten together and decided that we really did not need to go have a DESARC to a prime budget and we could skip that, once you could explain that, there are able people down there and more often than not, we didn't have any problem. The difficulty is that there is, in general, because of the way 5000.1 and A109 are drafted, and also because Congress has come to expect that you're going to go over every hurdle, it is easier just to require everything and make people come forward with an explanation each time as to why they want to avoid a particular procedural hurdle. There's only so many hours in the day, even for people who work as hard as Bill Perry and Dale Church, and my suggestion would be that basically we put the burden on the bureaucracy to explain why a certain procedural step would have to be gone through. The burden of proof is kind of on the Secretary of Defense to come up with that requirement and have his staff explain it, and that requires a whole change in attitude. I'm not just talking about 5000.1 and A109. I'm talking about things like environmental impact statements on weapon systems, as well. That requires legislation and it requires a whole new attitude on the part of some people in the Congress. It requires people being willing to say, "We're going to have a Secretary of Defense and a team in the Defense Department that we trust to get the job done right, and we'll hold some oversight hearings from time to time and see how they're doing, but basically, we're not going to all stand up here and yell if a program runs into difficulties because it did not go through DESARC 2A Alpha or because it did not file an arms control impact statement. We're going to stop trying to design a weapons acquisition process in such a way as the Marines say is Marine-proof, that anybody can get in there and if he does it the product will fall out the other end." That's not what we're after. What we're after is putting bright, able people in charge and hold them responsible and fire them if they do a bad job.

Mr. Church

Just a brief comment. Since Jim left, we did revise 5000.1 and added 5000.2. Those of you who are not acquainted with the new documents should be because they do significantly change the attitude with respect to DESARC and the culture. They introduce a tremendous amount of flexibility and provide for the combining that Jim just discussed. I don't see ever the elimination of a DESARC process because even if you give the Secretary authority, he has to have some way for his staff to give him a recommendation. And that's literally what the DESARC process is. The other thing the new documents do is provide a tremendous amount of new latitude and authority to the program manager. That's the one person who hasn't been mentioned here today in this. He

is absolutely key. Jim alluded to it when he said if the guy doesn't get the job done you fire him, and I think that's what we ought to do with respect to program managers. What I'm very concerned about and what we've seen in the past, is even if we write a document like this at the OSD level, as it goes down through each filter within the services, sometimes two and three levels, it cuts down the authority of the program manager so that by the time it gets to him, he can't even turn around.

Mr. Canan

Mr. Gantz. We hear about the need for incentives for industry. How does that square with something like a seemingly unilateral action to invest in expansion in anticipation of growth and demand?

Mr. Gantz

I guess maybe its a question of how serious the need is. If you're in enough trouble, you have to look for some kinds of incentives, but it's awfully hard to imagine incentive systems that are even-handed, that treat everybody the same and treat everybody fairly, and so we like to let the supply and demand marketplace decide what the opportunities are and like to think that we can generate enough money to invest and satisfy those needs and those opportunities in a timely fashion. Maybe if we couldn't do that, we'd have a different posture, but we're like that today and we expect to be like that tomorrow. One of the things that certainly has happened to the whole aluminum industry, and it should be apparent, is that the intrinsic value of aluminum has increased dramatically in an energy-short world. That has helped us get more realistic prices throughout the whole range of products, and those realistic prices have stayed with us. It didn't go back out. The money stream came in and we've been able to cut a little more of it off than we were a few years ago. For a 20-year period of time, aluminum products did not increase in price at all, from 1953 to 1973. We tripled the output in ALCOA, sold the product for the same price per pound, with 10,000 less people, incidentally, in that 20-year span of time. But that literally happened. That ended in 1973. Energy drove prices up, but industry today, I think, is acting very responsibly with respect to profits and prices, and is generating satisfactory returns and we're plowing all the money we make back into facilities.

Mr. Canan

John Ford, you spoke of the unknowns associated with how to revitalize the industrial base to support wartime expansion, thus requiring further investigation. The Defense Science Board addressed these problems and proposed solutions in 1976, and again in 1980. Why must the Congress continue to study the problem?

Mr. Ford

I guess I have to keep defending myself on this one question. The Defense Science Board is a board appointed by the Under Secretary of Defense and it reports to that gentleman. They did study the problem in 1976, and did report to that gentleman, and I don't recall that we got any proposals submitted to the Congress from the Defense Department as a result of that report. As to why we have to study the problem further, I think that the answers that you got this morning answer that. Mr Church says that the number 1 problem is skilled manpower. If that's true, is Congress the place where you attack that problem? Don't we have to find out how much industry has been doing, how much the unions have been doing, for example, to train machinists? We were told by one witness that within the next 5 years, 40 or 50 percent of the population of machinists are going to retire. And they don't see replacements coming in. We haven't had anybody tell us why that's true, what has happened to make that true, what the industry and unions are doing now to replace them. I don't know that the remedies for all problems are congressional actions, necessarily. Mr. Gantz just said that it is very difficult to have an incentive that's even-handed and I think that's probably true. Therefore, if you were going to sell, as legislation, incentives, you've got to be sure that you can prove that they are needed and that there is enough of a crisis that you've got to have them and that you are directing him to where the need is. I said that we are not sure how much of the problem is related to our economy. I get a mental picture of coming to the floor with legislation to help the defense industry and members of the Congress saying that all segments of society are suffering because the problems of economy and we are trying to take care of one segment - what about the others? Mr. Church said, in his opening statement, that he thought further tax incentives were an absolute must for the industry and should be done right away. Have you seen any proposals come from this Administration on that? Where are they, if that's needed right away? Do you know how difficult it is to pass a tax relief without the support of the Administration? You've got to take your time and you've got to study and make your case.

Mr. Church

Just let me quickly comment - the number one problem of skilled manpower is the expansion of industry, not in the current malaise that exists in the productivity in industry, which I consider to be the number one problem as instability. I just wanted to make sure you understand that.

Mr. Canan

For you, Dale. In new aircraft program procurement, I understand that the Air Force and Navy are taking a good look at

total contractor support in place of the usual military organic support. Is this correct, and if so, doesn't total contractor support make the normal six-month warranty on correction of defects clause useless?

Mr. Church

Jim is really in a better position to answer this than I. It gets into more of the problems of when a war breaks out, how many contractor support people are going to go into the war zones to maintain the ships and aircraft and other fighting systems in the war zone, and how far can we go in this direction of contractor support. For example, in Korea, we've had a couple of instances where a little bit of hostility broke out along the DMZ and the contractor support people all disappeared overnight. There are some real gutsy issues here. I'm not sure how exactly we're going to take them on. We're being driven in this direction by the lack of skilled manpower which goes back to compensation and other very intricate motivations of why the people stay or do not stay in the military. I think we have to answer that question first. I do think that in cases, we can move toward more contractor support and help to relieve the manpower problem, but I think that when the balloon goes up, we'd better have the people in the military necessary to do the action that is on or near the forward lines of the battlefield. With respect to warranties, that's a whole can of worms. It gets into all kinds of things - how contractors cost out warranties, how can you spread out these costs - my belief is that on major weapon systems, the government has fundamentally got to take the risk for the cost of what happens to those weapon systems. Because they'll pay for it anyway and what you really get into is how much contingency can a contractor slip in his warranty. So I think we have to look very carefully at the warranties before we get into any kind of widespread application.

Mr. Canan

We're going to have to wrap it up. Thank you very much, gentlemen. I've forgotten my role here, being interested as a reporter, and I'm letting this go too long. I do apologize to all of you whose questions I wasn't able to ask.

PANEL 2

SUSTAINABILITY

(Introduction of Mr. Frank R. Barnett, President of the National Strategy Information Center, was not recorded.)

Frank R. Barnett

It was an unexpected pleasure for me to have the opportunity to chair this panel. For those of you who attended our ADPA annual meetings the last several years, I think you know that one of the principal concerns of the Industrial Base Planning Division has been the question of sustainability.

In light of some of the earlier comments today, I think it is most appropriate that we can address this particular issue, because the area of sustainability in our judgment, has often been a serious problem of definition. In the Industrial Base Planning Division, we have frequently addressed the question of sustainability and in doing that, we've tried to ask people what sustainability means. We would like to define sustainability as a process and a commitment that is associated with the sustainability and the survivability of our industrial base. I'm afraid that's not exactly the definition that many involved in planning this terminology have in mind. The general terminology for sustainability addresses the question of whether or not there are resources in being to sustain troops in an action that is defined by a group working with a computer. This is sort of like an answer in search of a question, much in the context of Johnny Carson, where we set our answer and then we try to find the questions that will support it. We pointed out that time and again this country has been engaged in hostilities and following those hostilities we've asked ourselves the question of what we need to fight the next war, if it comes. We then have to define the war that we will face. And in defining the war that we will face, we have to define the consumables that address that particular threat to our country. In each and every action in which we've been involved, we run against the serious problem that we may not have addressed the right scenario.

It is because of this that the ADPA, and particularly our Division, has challenged our system, to seek to maintain the largest possible viable warm base so that industry can be responsive to the changes that may be required. But as we go through a transition from what we can build to what we probably will build, we frequently run into the situation that the timing is not exactly right. Plants capable of making one type of consumable must be retooled to make another type, and, if they are shut down on what they can build and not allowed to continue, you run into the serious problem of losing your skill base, of

and driving to production those consumables that will replace that which has been used. When you drive something into production prematurely, you make serious errors, you escalate costs, and you run into those problems that immerse us all and create serious deficiencies in our readiness posture.

There's another problem that occurs through the passage of time. That's the loss of institutional memory. Perhaps I'm one of the old-timers here. I can still remember Bruce Maderas, when he was Chief of Ordnance, before he went to Huntsville to launch our first missile. He was a no-nonsense general. He was a man who sought the answers to very specific questions and was prepared to make very straight-forward decisions and it didn't take 20 weeks to get that decision through the process. And thus, we were able, while he was Chief of Ordnance, to rapidly bring on stream those systems that we needed. Too bad we've created the proliferation of regulations and laws, such as were addressed in the earlier session, and too bad that the general officers and chief civilians feel constrained in answering those questions.

I vividly remember Atlanta I, when General Miley stood up in front of industry and talked about a single face to industry, when he talked about people that would have that institutional memory so that the problems that we were addressing in Atlanta I would not pose serious problems into the future years. But when I think of what has happened since Atlanta I and the changes that have gone through the system, and I look throughout this room for associates of mine that were at Atlanta I, who represented what was perhaps then the strongest industrial preparedness posture, I become seriously concerned about whether when we address sustainability, if we fail to sustain our base because many of those companies are not here today, can we produce what we are going to need to produce to sustain a force?

We have a very distinguished panel with us. It wasn't my function or purpose to talk about this subject, but rather just to introduce. And at this point, it is a real pleasure to introduce our panel members, each of whom will make a statement to stimulate your thinking on the broad subject of sustainability and then we will invite questions from the audience and hopefully find an answer to the problems posed by sustainability. Can we sustain? Should we sustain our industry base? How can we sustain efficiently so that we will avoid the readiness posture problems that are so prominent throughout this meeting.

Our first speaker is very knowledgeable in this area. I remember last year in our meeting in Alexandria, when he participated with Gary Nelson, who previously held his position in preparing the presentation at that meeting on the subject of sustainability. Gary raised the point at that meeting that he could not understand why industry was so concerned about

sustainability, because it was driving procurement of end items and industry was concerned that the doctrine of sustainability meant the possible dissipation of the base. These are serious problems and in the 1-1/2 years that has passed, I'm sure our speaker will want to bring us up to date on that program. Our first member of the panel is Mr. Charles W. Groover, the Deputy Assistant Secretary of Defense for Requirements, Resources, and Analysis. Mr. Groover had a long and distinguished career in the service and for a number of years has been in the Office of the Assistant Secretary of Defense for Systems Analysis and has progressed to increasingly more responsible positions in the Office of the Secretary of Defense, Logistics Policies and Program Analysis in 1968. It's a real pleasure to introduce Charlie Groover.

Charles W. Groover

I earned my invitation to be a part of this august group by virtue of my involvement in logistics guidance on industrial preparedness planning over the last few years that so many of you find so popular, and I thought it might be useful for me to lay out, as specifically as I can, where I'm coming from and why, to improve your target acquisition capability.

I would submit that DOD, like the well-managed companies and organizations that you represent, should define its objectives and then allocate and organize its resources so as to attain those objectives as efficiently as possible. We in OSD who have drafted the Secretary of Defense's guidance for industrial preparedness over the past decade have attempted to do that. Now, I happen to believe that that guidance has been a logical and faithful derivative of the overall strategic guidance for developing the DOD program. As the world has changed politically, our strategic guidance has changed and the logistics planning and programming guidance related to industrial preparedness has also changed to maintain logical consistency with that strategic guidance.

On that specific point, let me correct one statement that my good friend and boss, Richard Danzig made to you yesterday, a correction with which he agrees, by the way. Richard said yesterday that we plan against the worst case of a short war following short warning. Now that's clearly not the worst case. The worst case would be, or certainly a much worse case, a long war after short warning. Obviously, we have to acquire the short warning-short war capability en route to the capability to support a long war after short warning, but it's the warning time that's crucial.

If you believe that we must be prepared to fight with little or no warning, that leads you through a kind of "first things first" logic to spending your first sustainability money on the war reserve inventories which you have to have if you expect to

survive the first few weeks or months of conflict. Now, with your forbearance, let me share some more general thoughts and conclusions about industrial preparedness policies and planning which I've drawn from some 10 years of analysis and thought about the key policy implications in this area.

I would submit that the world has changed in the last 30 or so years in some ways that inevitably must lead us to rethinking the utility of and our approach to industrial preparedness planning. Let me lay out my logic for that assertion. I think modern technology has made some fundamental changes in the industrial preparedness problems that we face and the avenues that offer some promise for solution. It appears to me that the vastly increased weapon system sophistication and complexity has had a major impact on the production base capacity and responsiveness that we can acquire at an affordable cost. To illustrate this point, let's say that we could turn the clock back and define, as a baseline, the set of production facilities, capital equipment, subcontractor capacity, the subordinate vendors, etc., that would be required to produce five F-15's a month most efficiently. Now, by definition, if we size the base that way, we'd have a base with very little slack capacity and very limited acceleration capability. If we made such a calculation, such an analysis, and set it aside, and then said that alternatively we wanted to design a capability that would permit us to accelerate production from five F-15's a month to 25 a month, within 12 months, I think we could demonstrate to each other fairly quickly that the cheapest solution to that problem would incur significant incremental costs above the cost of this baseline case that I just described.

Just as an aside, let me acknowledge that we obviously have some surge capability in our aircraft production base now to the extent that we're producing, largely because of budget constraint, several aircraft that rate well below the rates for which we were initially facilitated. I'm sure that you and I could agree that that sort of slack capacity in expansion potential is largely an accident. Some would say a highly undesirable accident and I would agree with them. And it's certainly not the product of any rational, coherent plan for a responsive production base.

But let me get back on the subject. At the same time that technology is reducing the production base acceleration capability that it's feasible to acquire and maintain, similar technology advances have vastly compressed the time within which a conflict can break out, expand, and possibly proceed to a decisive outcome. Furthermore, that same technology explosion means that the price tag on a week's worth of combat attrition-replacement equipment for an Army division is enormous. We have, for several years, followed a policy of not even attempting to buy war reserve, and by that I mean combat attrition-replacement aircraft.

Our logic for that policy has been that the cost to acquire the primary weapon system is such a large fraction of the total life cycle cost, for example of an Air Force Tac Fighter Wing, that if we're going to buy an airplane, we ought to put that airplane in an organized unit, hire the necessary pilots and maintainers, and thus be in a position to employ its combat potential on D-date, rather than buying that airplane and reserving it for an attrition-filler later in the war.

The cost of land war's combat equipment, for example, million dollar tanks - the last estimate I saw on the XM-1 was \$1.4 million a copy - seems to be moving us toward the practice of providing little or no war reserve equipment for land forces. We think this is unwise in my office. We resist this trend as best we can. Nobody so far has proposed a formal policy of not providing war reserve attrition-replacement combat equipment, but when I look at the recent program and budget decisions in the Pentagon, it's pretty clear to me that we're moving in that direction, if not in terms of policy, certainly in terms of practice.

Similarly, the increased munitions sophistication, effectiveness, and cost have dramatically increased the cost of a week's worth of consumption for an artillery battery.

In summary, the cost of buying a week's worth of sustainability continues to rise dramatically. Since Joe raised the definition issue, let me make sure that everybody understands that when I say sustainability, I'm talking about ability to provide replacement equipment and munitions to support the forces in combat.

I would submit that the combination of all these factors that I have walked through means that while the cost makes us more and more penurious about the conflict duration for which we're willing to buy war reserves, technological complexity, particularly, and some other factors is stretching out production base response times and the result of this is that the time gap between the likely exhaustion of the war reserves that we appear to be willing to buy and the point where we can expect a production base to produce some output that would help us support combat, that gap continues to widen. As a result of that, investment in industrial mobilization enhancement purely to support a major conflict scenario seems less and less interesting and less and less relevant to the resource allocation decisions that people at the top in the Pentagon face.

The phenomena that I've just described largely reflect the interaction of physics and finance. But unfortunately, international politics and strategy reinforce the pressures that are making significant investments in industrial mobilization enhancement less and less appealing. Our NATO allies, clear in continuing disinterest in buying substantial conventional

sustainability, presumably for fear in their view of undermining the West's strategic nuclear deterrent, acts as a very real and effective brake on any enthusiasm that might otherwise be generated within the U. S. Defense Department, for a major effort to increase our industrial mobilization capability for war. Now, the end point of this chain of logic that I've tried to lay out for you appears to me to say that there's no way that one can rationally justify a major industrial mobilization program on the basis of a specific conflict - and I emphasize conflict - scenario, of the scenarios that have to remain central to our defense planning.

I've come to the conclusion over the last year or so that we really do need to do something about the production base and about industrial preparedness in general. But I'm still have to face the conclusion that you can't sell a program like that based on mobilization for some future war, and where that leaves me is with the conviction that what we really ought to do is to de-couple the whole idea of industrial preparedness planning from the specific conflict scenarios that we currently use to size forces and size war reserve procurement, and have a completely different basis for our industrial preparedness planning. I would submit that that basis probably should be something that attempts to define the base posture that would be necessary to permit us to absorb a major increase in defense spending, should the world deteriorate to an extent that the Administration, the Congress, and the American people suddenly became willing to support a defense budget at 8 percent of the GNP, rather than 5 percent. This is a point that Richard Danzig made to you yesterday. We believe that if the world should go to hell all of a sudden, short of a shooting war and the Administration and Congress should propose a dramatic increase in defense spending, that we would not have a clear idea - probably not even an unclear idea - of how we would propose to expand our forestructure, what that would translate into in terms of increased production for specific weapon systems, and in many cases we are pretty sure that we would not have the capability to expand the base to accommodate that.

I guess the only last thing that I would add to my comments is that I hear what Joe is saying about proposing to define sustainability in terms of what it does to the base. And I really think that's a non-starter. I think that you're proposing to have the tail wag the dog and I don't think you can ever sell that argument. If you want to have a viable industrial preparedness program, the only way that's going to happen is if you are able to articulate to someone some specific set of objectives that are tied somehow to national security objectives that you think you have to be able to satisfy with an industrial preparedness program. But to try to sell industrial preparedness for the sake of industrial preparedness is not going to sell.

End of speech.

Mr. Barnett

We really appreciate your being direct and forthright. I hope you understand that I promised to be the same way, also. It is my view and also our view that the Industrial Base Planning Division will encourage and attempt to cause the base to survive, and to cause recognition of the reasons to cause it to survive.

Our next speaker is Ralph Edgar Hawes, Jr., who has been with General Dynamics since 1956 in positions of increasing responsibility. Today he is Vice President and General Manager for the Pomona Division of General Dynamics, and serves as Vice President for Air of ADPA's Advisory Service Committee.

Ralph E. Hawes, Jr.

Joe, Thank you very much. Let me make a few comments and then I'd like to end up with a few issues and recommendations that I'd like to throw out.

Since we are in the defense business at General Dynamics, very heavily, and my particular division is solely defense - we make systems for use by the Navy, by the Army, and by the Air Force, so we're not in the shoes, boots, and helmets business. We're in the business of making very sophisticated weapons systems. The issue of surge, or sustainability, as it relates to our obligations as a defense contractor are obviously very important to us. So I asked the question of my Vice President of Manufacturing and some of my program managers a few months back, "If I got a call from our customers who said, 'We need all you can give us right away,' what could we do?" They went out and took a look at this and first of all, they found that we did have a mobilization plan requirement and after we got the dust off it, we found it was primarily something that you have to fulfill as a requirement of a contract, so that didn't give much help, so I told them to go back and take a look at reality. Each program is different, and they went back and took another look and to make a long story short, the answer is, I can't give you an answer. The answer lies in a number of things associated with a lot of your choke points, but if you're talking about a surge, what you have to talk about in our part of the industry is that you have to suck the pipeline dry. That pipeline, if you were to suck it dry for a surge, you might talk in terms of giving two or three months worth of production at whatever rate you were contracted for in a relatively short period of time. That's provided you don't have shortages that you're working out on the line. We work shortages on the line all the time.

If you talk about sustainability, that's an answer we really don't have. It's a function in the contract that you

have, it's a function, obviously, of the contractor-subcontractor support that you can get. But fundamentally it ends up being driven by what kind of rate, tooling and testing equipment do you have, by program - and we're not funding these days for much rate, tooling, and testing equipment on our contracts. It gets down to the material availability, that which you have, that which you can get out of your subcontractors, and as was said a little earlier of aluminum forgings, 38 weeks fits with my data, because when I look at things like aluminum castings, it's 30 weeks; aluminum extrusions, it's 67 weeks; steel forgings, 34 weeks; electrical connectors, up to 30 weeks; transistors and semi-conductor parts, from 30 to 40 weeks to get those parts. And even assuming that you have a priority in a time of a national need, you're still talking about fairly long times. So you'll basically work with what you have in the way of equipment, particularly to support any kind of a surge.

The other constraint is people - trained people. We talked about a come-as-you-are war. If you ask industry for all you can get in a short period of time, we're going to give you that with what we've got in the way of trained personnel. Sure, we can work overtime. We can hire people. But the hiring lag is there. Once you get up over that hiring lag, you can get them trained and you can get on. So I don't think there's a shortage of people. What there is a shortage of is the time to get through the process of hiring them, getting them trained, and getting them on the line.

Obviously, I wasn't satisfied with the answers I got, so we're taking some internal actions to make sure that I can better answer that if I get a question from our customers. But that did bring four points to mind that I'd like to leave with you.

First of all, if there is a policy relative to surge and sustainability and readiness, I'm not sure what it is and I would encourage some action to get a clear national policy that will act as guidance and some authority for funding and planning. If nothing else, an expression of that policy will allow me to have something to work with my Board of Directors when we start talking about capital investments that are generally required in many of these areas.

The second point is that we have to get down to requirements. Not just definitions - requirements. If we talk about a surge or we talk about sustainability, we have to start defining them and we can't do that. That's a government, DOD, services or the customer. But I would urge in getting on with defining those requirements that we start now. There's no reason that I see that we can't start now. My concern, however, in defining what those requirements might be is don't count numbers and pounds. An example - we're a producer of the Stinger weapon system and

we're in the process of putting it into production. Someone might say, "Okay, for shoulder-launch air defense, you've got Redeye." True. We produced 30,000 Redeyes at one time and I would guess there are somewhere between 15 and 20,000 left in the inventory, but let me make a few observations for you. The life of that weapon when it was produced was projected to be 5 years. That was the design requirement. It's been extended up to 12 and 15 years for some models. If you take a look at its capability vs. the threat, as an example, you'll find that modern day countermeasures will make it almost not usable in the field. So your count might say you have so many shoulder weapons. The reality of usefulness in the field, as far as what it has to be effective against, is a totally different matter. So be careful of the count. My point is, let's start defining the requirements now. It allows us to get some initial planning started, which I think is essential, and then it allows us to do some flowdown communication to our subcontractors of what they have to be responsible for, because we are a prime contractor.

The third thing that I would mention is that the government has got to get serious. The only way you're going to get serious in that issue is that you've got to put the requirements into the contract or somehow we have to implement in separate contract the issue of having a surge or sustainability capability. Otherwise over the years what it's going to do is deteriorate and you really won't know what that capability is.

My fourth and final point is that government, obviously, must be willing to fund that or at least compensate industry's investment in having that surge or sustainability capability. And I'm talking about special tooling and test equipment, which can be done on a contract by program, the ability to have an inventory of critical parts that are some way accounted for, either by contractor or in our overhead structure, and also most importantly, training of our people. There's an expense associated with training of people. If it's a come-as-you-are surge, then we're going to do it with the people we have by working overtime. We have a lot of people and like Henry Hebler says, you can get a lot of the overhead out, but what we do when we have a contingency plan is we train those people who are in the overhead or we train our engineers to work the line. But if that training's going to make sense, you have to continually do that and that is a cost. But that's where you're going to get the people for a surge.

Mr. Barnett

Our next panel member is Jim Daniell. Jim has broad executive experience in a number of companies dating back, in a senior executive capacity, when he was Chairman of Alloy Manufacturing Company in 1956, and continuing to the point in 1976, when he became the President of RMI Titanium Company. One thing that

you might be interested in knowing is that there were years that Jim was with the Chicago Bears and the Cleveland Browns.

James L. Daniell

Thank you very much, Joe. Those years were 1912 and 1913. And I can prove it in this rainy weather by every ache.

My part in this panel has been suggested that we talk about people in a preparedness plan, and I can best relate that to the company that we have in Smiles, Ohio. Now, the town that we're in happens to be Niles, Ohio, but they are rather despondent people. There have been mill shutdowns. We have 16,000 people on either relief of some form or unemployment. Due to the government's EPA policy, these 16,000 people are enjoying the hell out of clean air and clean water while they sit on the park benches and do nothing. In this community of Youngstown basically, I was put in a position in charge of RMI, which is half owned by U. S. Steel and half owned by National Chemical and Construction Company, and told that the company had lost money for 15 of 19 years, to turn it around. There had been a small law suit that the government charged that it was price fixing. This is a Biblical term that we use - BD and AD - Before Daniell and After Daniell. Anything that happened Before Daniell you can forget. But what we did is that we took a very small plant and tried to instill a degree of pride, a philosophy of business that if we're going to be competitive, we must be the best, the best quality, the best delivery. Now there are three basic integrated producers in the United States. I'm not going to push our company over our competitors, because everybody is running full smoke. We're trying to keep up with the industry, with the defense needs, and we're also trying to establish a commercial base wherein should the war surge not materialize, we won't be left hanging high and dry as we were with the SST, the B-1 and other programs.

In the survivability of titanium - and of course you know some of the Congress of the United States claim they could buy a mine that produces sponge. It isn't quite true - you have to process it. But I like Lee Iacocca's new ad on Chrysler. American Ingenuity. I think that if we were pressed into a surge situation, and given all the tools that were talked about by various people on the previous panel and by Charlie, that we could meet the obligations of our government providing we get away from the over-regulation, we get away from the stipulation that you must expend money and energy on wasted paperwork that was mentioned previously, we must take people who are on the other side of the fence, and of course there are many who want to keep the United States as a lesser power. For example, in our Ashtabula plant, we spent over \$80,000 on a singular law suit because one single person charged us with the fact that he took a walk with his little dog with a little leash and a little collar and walked him across

our little stream that was 8 feet wide and 2 inches deep, and would you believe that little dog disintegrated before he got to the other side? And we had to go to court with the Atomic Regulatory group and prove that this didn't happen. I drink enough martinis that I thought I'd be ready for it. I took a glass of water out of this stream and drank it and proved that either the stream didn't disintegrate the dog or the water wasn't as bad as martinis.

In the improvement of our company, in talking to our people and getting them ready for this burst of order, which we're very appreciative of, we actually can prove in three different methods that we increased our productivity 77 percent. Now, you may challenge that. I'll give you an answer. But our people decided that in this community of Youngstown where people have been laid off by numbers, that they had best get to work. Fortunately, we got a series of orders from various companies and what I'm pointing out is if there is a surge, I'm sure that we will have the capability of improving productivity rather than have it lag at a -2 percent, as it is nationally right now.

On top of the increase in productivity, we used to ship 100 ton of material and get 10 ton in rejection. We are now shipping 100 ton of material and get .343 in rejection. So in effect, we have increased the availability of the materials by 77 percent. We have also introduced 26 percent more sponge in our Ashtabula facility, so if you mathematically figure that 26 percent more sponge will come on stream, and multiply it by 77 percent productivity and then add the -9-1/2 percent rejection I would say that we integrated producers in titanium, given long range planning and direction, and the funding, and the laws, and the depreciation that others have spoken about, we will be there to answer your surge.

Mr. Barnett

Thank you very much.

Our next panel member is a gentleman who is, I am sure, known to many of you. After a long and distinguished career, he had a short visit at the Pentagon. Many of you will remember him as our Assistant Secretary of the Army for Research and Development. Our next speaker is Ed Miller, Vice President of Engineering, Sanders Associates.

E. A. Miller

Thank you very much. What I would like to do in the time allotted me is to synopsise a briefing that we made early this year for the National Defense University, in particular the Industrial College of the Armed Forces. They sent out a total

of 12 different teams; each team visited about 20 different contractors. Their interests were surge, mobilization, sustainability, etc. What I'd like to do is make a few observations about what we should do about the situation we're in, quote a few of the results that these young people found - their perspective of the situation is at the present time.

Necessarily, I have to give you a little commercial about the character of our business so that you can understand that, and then rapidly to a discussion of our last surge, what worked well, what didn't work well, what has changed since the last surge, and then go on with a few recommendations.

The character of our business is electronics. It's advanced defense electronics systems, electronic workers systems; on the scale of technological difficulty of 1 to 10, we managed to make most of them 11's or 12's. The history of our company has been one of pioneering and innovation and we stay alive by staying ahead of our larger competitors. In our business we believe that the threat changes more rapidly than almost any other phase of defense business. Increasingly complex, it's sophisticated, constantly changing. The Russians have fielded probably 20 or 22 different ground systems, radars, etc., in the past 10 years, guidance systems for missiles, etc., which we have to accommodate. Our knowledge of the threat is imperfect, so our intellectual arrogance does have some bounds.

Prior to the Vietnam surge, we were a company of 2,500-3,000 people. We peaked up to 10,000 during the war with some growing pains, but not quite to the extent that was represented by some of the comments made earlier this morning. I think that if we had a surge in the future, we could find a lot of retired military people who are competent and a great many of the 30 percent of the aerospace and defense complex that left since the end of that war. If we could somehow make it more interesting to be back in the defense business than selling real estate, we could probably solve any of the manpower problems.

From the facility point of view, we went from 5,000 to 15,000 and back to 5,000 again. What we learned in this situation was that when we started to surge - and we're talking about sustainability - we drained out our pipeline in three months. We went down to the place where we couldn't build anything because we had sucked all of the lead time out of the system. In my judgment today, the only kind of a war this country can fight is a short war to survive, to keep from losing, and then a long, up-hill, continuous battle, eventually to win. These debates about long wars and short wars, that it will be one or the other, are totally academic. I see only the hope that we can survive long enough to build back up the kind of capability that was typical of our efforts in World War II and the subsequent wars.

To get on with what worked well the last time, we were able, technically, to respond to rapidly changing threats. There was enough capability in place to respond adequately. Our programs were aimed at updating and improving existing equipment and they worked well. There was an excellent esprit de corps between the military people with whom we dealt and ourselves and our associate contractors. It's implied in that that there's a great deal less formality in this kind of a situation than what we see today in our procurement practices. It wasn't against the law to work eyeball-to-eyeball with your customer and work out, over a conference table, the best solution to the problem and then go out and do it that afternoon. The QRC procedures that were in effect at the time were effective. I want to qualify that a little bit by saying they were effective for the purpose of producing equipment, getting it to the field, and having it work and satisfy the objectives at the time. They were not particularly effective in terms of logistics, in terms of paper work, descriptions of what was in the equipment. After the war ended there was some heartburn about documentation, etc. If we're talking about sustainability, staying alive, supporting our forces while they're in combat, the QRC system did work.

Various priority systems were established at the time and they also worked. What worked poorly was a vast and continuing rapid change in requirements. Some of this may have been necessary. Some of it may have been threat-responsive. But we believe there was more than necessary. Constant reiterations of "what will it cost us if we buy 100 of them, what will it cost if we buy 50, suppose we leave this capability in and take that one out." Those kinds of things hurt us and hurt our ability to respond.

Our game is closely involved with security, as you might guess, and intelligence, and we found that security requirements and the communication of intelligence-oriented information was slow. In fact, it was slower than the actual placement of some of these sensitive systems in the field. We obviously ran into some areas where critical technologies were troublesome.

The most troublesome problem - we've heard people talk about when the balloon goes up. The last one is when the balloon bursts. Rapidly reduced programs leave industry in very, very difficult situations...many employees on hand, facilities unused.

Since the last surge, we think things have gone in the wrong direction. There are more government managers with diffused authority. I can certainly tell you from personal experience in the Pentagon as an Assistant Secretary that that's true. I was in the Pentagon in 1950 as a Captain and I swear I had more authority then than I did when I came back 25 years later as Assistant Secretary. There are much longer administrative chains, much greater administrative burden.

We think that the emphasis on fixed price contracts has gone too far. Much work is being conducted today on a fixed-price basis and we think this is all wrong. The Defense Department is not the only offender in this regard. We have one contract with the Federal Aviation Administration to develop a new air traffic control system, computer-driven and reactive, for a firm fixed price. And we're losing our shirts. We think the competition is too extensive. We believe in competition, we think competition is a good thing if it's used at the right time and the right place, but the broad brush application of competition to everything, as it seems to be going now, we think has gone too far.

Much has been said about the long procurement cycle, vendors being less interested in military hardware, and the commercial sector being more attractive to people and to management and its resource investment decisions.

I told you I'd cover quickly one or two results of the survey. Since the National Defense University visit with us, and we gave them inputs, I asked them if they would give us their outputs. So they have given me their report. It's published but not distributed yet. I'd like to cover one or two very brief conclusions that they reached.

The first conclusion has to do with munitions and propellants. "A capability of the base to respond in an emergency is dependent on many factors. The main factor is the number of plants currently operation at reduced capacity. These plants are referred to as the warm base. However, even warm base plants have individual lines in lay-away status. In fiscal '77, 361 lines and facilities were in this category. By fiscal '84, it is estimated that the number will be 543, clearing heading in the wrong direction."

"In the telecommunications game, the industry has only limited surge capability. Companies visited indicate the government has neither proposed nor funded such surge capabilities."

"None of the companies visited could cite mobilization planning, nor do they perceive the government has a plan in existence today."

"Due to the complexity of modern telecommunications hardware, it seems clear that lead times preclude rapid mobilization after the fact."

There are some hostile words about several government policies, including ceiling on FMS, the so-called leprosy letter which forbids U. S. Government personnel from assisting U. S. industry in foreign sales, and RSI.

Their overall summary is that one of the major areas of concern appears to be preparedness planning. "No responsible government officials indicate that there are adequate plans. Industry leaders uniformly indicate that they are either unaware of any specific planning or that they have not had any contact with responsible officials in the past 5 to 7 years."

Finally, what do I think we should do about it? I think the QRC-type procedures need to be reestablished. I would use the approach of a selective disassembly of 5000.1 or selective application of it, whichever way you want to put it. I think it is too ambitious a project to say, "let's throw away the whole system and start to develop a new one." But we can get more people thinking in terms of selective application of all these hurdles, rather than blind following.

We need to get more authority to the government program manager. I made a talk in Monterey last year where I said I thought the final decision-making authority ought to rest in the hands of the first 2-star general that the program or project comes to. I think that expecting the Secretary of Defense to exercise these responsibilities in all cases is just too far up. I think you ought to stay at the command level. Those are the guys that we hire and fire because they're good at it. Most of them are good at it. Leave them alone and let them run the railroad.

As far as getting commercial vendors interested in DOD business, that's a tough one. Our own business now is about 50 percent commercial, where 5 years ago it was 100 percent DOD. You may not know this. We're the inventor of TV games, among other things. We made more money in royalties last year on our TV games than we made in our entire profits of our electronic warfare division.

In summary, I'd say that the present system is ineffective. Having people come around once every 7 years to talk about it isn't enough. There should be a requirement for planning for mobilizations, a part of our acquisition process. We must establish goals for the suppliers and then communicate them to them. Some of the readiness is simply going to have to be funded. Somebody is going to have to pay for some of the long lead preparations. And finally, I'd say that somehow we have to solve the contract and regulation problems ahead of time, before we start out on our next surge.

Thank you.

Mr. Barnett

Our next speaker is Major General Sampson H. Bass, Jr., Department of the Army, Director of Supply and Maintenance, Office Deputy Chief of Staff for Logistics.

General Sampson H. Bass, Jr.

I'm going to stand up here at the podium because I want to get as far away from Charlie Groover as possible. I don't find myself entirely in agreement with his ideas on the necessity for war reserves. I guess that will come out in my talk.

I'd like to address the experiences that I've had during the last three years of my career when I was a Deputy Chief of Staff for Logistics in the U. S. Army in Europe. I want to talk about the other end of the continuum or the spectrum of sustainability; not the base, but the perception of the guy in the field, the man on the ground, and how we view sustainability, focusing on my experience in Europe.

I think it goes without say, at least from my point of view, that our forces in Europe have just to be able to sustain themselves until the base can mobilize and provide the equipment, the supplies, the units, and the people that is so much required.

The elements of sustainability from the Europeans' perspective are three; first, POMCUS, and I'll get into that in a moment; next, war reserves; and finally, force structure. POMCUS, the first element. That is an acronym for preposition of material configured to unit sets, where we're locating equipment on the ground in Europe today that's broken down by unit sets, by company battalion size, and placed into controlled humidity warehouses for long-term storage. It's a form of sustainability because forces can come and rapidly deploy on this and hopefully be in place to do their mission by D-day. Thus, we will have a measure of sustainability until the larger forces can deploy and reinforce the ground forces. Now, with the status of POMCUS, we have it located in two areas in Europe: in the central Army group area, that's the central and the southern portion of the Federal Republic of Germany. POMCUS has been there for some years. It's not a new concept. It's been there in the form of the Reforger and the 2+10 program. We have the equivalent of a Corps there, three division sets, with their proportionate share of Corps support forces, and the fill of this POMCUS, with equipment and repair parts, is going along quite well. It's in very good condition and it is exercised annually. In fact, portions of it are being exercised today in Northern Germany on the NATO annual exercises. In the northern part of Germany, the situation is considerably different. That's because decisions are more recent in terms of deciding to position POMCUS in that particular area, decisions based upon a recognition that the northern Germany plain is indeed the historic invasion route and our allies in the north do need some support. Again, a Corps-size force is planned there, three division sets. The first division set is just getting off the ground. The real estate in the northern part of Germany has been acquired and equipment is arriving there.

The situation is different with the other two divisions of that particular Corps from a POMCUS point of view. The intent is to locate them in the Netherlands and in Belgium, and in both cases, the real estate has not yet been acquired, so we are quite a ways away from achieving any capability from that point of view.

There are a number of challenges with regard to POMCUS. I'd like to address just a couple. The first of these is the acquisition and storage sites. I alluded to that in the case of the second and third division sets. You may not know it, but to fill POMCUS, the Army must take that equipment out of its hide. Appropriations are not increased to cover POMCUS, and inevitably this leads to a draw down of the equipment available to our units back here in the United States, and of course, that will have an impact upon training.

Looking now at the second element of sustainability from a European perspective, that is war reserves. I personally feel this is a key aspect of sustainability because we need repair parts, we need equipment on the ground to replace our combat losses until at least the C-line of communications is open to us on a sustained basis for resupply. Not only do we need equipment, but we need sizable quantities of ammunition to sustain those very high intensity rates of consumption during the early days of the battle.

The status in Europe, not as good as POMCUS. In fact, there is a substantial shortfall of war reserve stocks and there are imbalances within those stocks. The reasons are many. Two of the major reasons, of course, are that there are major increases in requirements. As a result of the Arab-Israeli war, a new look was given to our consumption rates and the conclusion was that they were vastly understated and they have been increased. But this, in turn, increases the stockage level requirements. Also, not only were consumption rates increased, but the force to be supported in the early days of the war was also increased, not only by four deploying units on the ground, but also the increases to POMCUS, which I just addressed.

The other major reason why we have a substantial shortfall, of course, is the huge investment that is required. Here you get into that question of priorities. One is, of course, deterrents - should we emphasize deterrent as opposed to sustainability? Should we concentrate on winning that first battle and then worry afterwards? I will not get into the merits of that discussion here, but that is an area of concern.

The last element has to do with forestructure. There is a substantial imbalance between combat forces and support or logistical-type forces in Europe today. It is these logistical forces that provide a large degree of sustainability to the

combat forces in terms of transportation, in terms of furnishing supplies, ammunition, and performing maintenance. It is recognized now, and I, personally, feel very strongly, that we need to balance that force. Balance it by providing additional logistical support units, forward deployed today, as a part of POMCUS, and, of course, increasing our capability for early deployment within the reserve components in which a large majority of our logistic support units are found.

In the meantime, we're going to have to make up the shortfall and that shortfall is going to be sizable. We have looked at it from the point of view of what the host nation can provide us with - we call this Host Nation Support. This, in turn, will allow us to continue to place a high degree of emphasis on projecting combat forces forward.

I'm not going to argue the merits here today of host nation support. Frankly, I feel we have little choice. We do, though, need a degree of assurance that we can plan on it and during peacetime, that we can exercise it. I might say that extensive negotiations are underway to provide that element of sustainability. There has been progress. Umbrella agreements have been arrived at with the countries so that they will operate the line of communication. The Germans have also agreed to provide a certain amount of support, and they are looking at other requirements. But I might point out here that there are a large number of sustainability functions that host nation support cannot or will not perform. We have to take up that slack by getting a capability from a U. S. logistic support unit point of view as soon as possible. The Department of the Army recognizes this. They are undertaking programs to fill that void, but it's going to take time.

I guess by way of summary I could say that sustainability in Europe, the other end of this continuum, is a major challenge. With the buildup of our combat forces to act as a deterrent, I think we can win the first battle there. If you talk to the corps commanders on the ground, they feel confident that we can. But frankly, our capability to sustain ourselves beyond that first battle is at least challengeable.

These shortfalls are not new. They've been recognized, they've been addressed. Given the resource constraints that we're faced with, they're not going to be resolved overnight. But I'm convinced, personally, that they can and that they will be resolved because they must. Thank you very much.

Mr. Barnett

Mr. Groover is going to leave due to a previous commitment and the questions that we have frequently address him, so I'm going to direct the first question to him for some brief comments and

then others on the panel might want to comment. The first question states, "I believe Mr Hawes' four points states the concerns of industry members present. Both you and Mr. Danzig state that that the OSD can't acquire the dollars to accomplish the immediate planning to assure our national security. What do you suggest we do to reverse the OSD position." And collateral to that, the other question is also directed to you, concerning the fact that OSD guidance permits the sizing of munitions production facilities to meet peacetime procurements only, and therefore poses a serious problem for the services to meet surge and wartime consumption rates. Are there any quick comments you can give us on how to address these problems?

Mr. Groover

Let me address the second one first, if I may. The second one is flatly wrong. It is not true that the OSD guidelines do not permit the services to size the ammunition production base for anything other than efficient peacetime procurement. What the OSD guidance says is that if you're building additional production capacity for new items, you should present several different alternatives for sizing that new facility, one of which is directed to be sized for efficient peacetime procurement. But there are other higher levels that are to be presented as alternatives. The instructions say that you should specify the capacity of the facility that you would build under each alternative, tell us what the cost of that facility would be, and illustrate the production acceleration capability that would result. The idea is that when those alternatives are presented to OSD that they would be reviewed and a decision made on a case-by-case basis.

To get back to the first point, I don't think that's what either Richard or I said, but I'll not speak for Richard. I think the problem is basically one of priorities. I, personally, and a lot of people who are in the same business I'm in in OSD think that we need more sustainability, materiel sustainability, for the combat forces. Obviously, the two key ingredients of materiel sustainability or the war reserves is that you have to have N-inventory on D-day to support the first few weeks, months, until the production base can catch up. The other key component is a responsive production base. Now, whether you like it or not, it is a true fact that where we are today is with a current and programmed posture that has relatively low war reserve inventory levels. And what we're saying is that we agree that we should have more sustainability than we currently have, but given where we have to start from, we clearly should spend the next increment of money that is to buy sustainability on additional war reserve stocks. If it takes 6 X time periods to get the production base cranked up and new deliveries delivered to the combat theater, and you've only got 1 X worth of war reserves on hand now, it is clear to me that the additional money that I have available to spend on sustainability I want to put on moving my 1 X worth of

war reserves out to some longer period of time. At some point in the war reserves inventory buildup, you get to the point where it then starts to make sense to put money into a responsive production base. But where we're starting from right now, I would argue, and I think you would agree if you could look at the numbers, that we should allocate additional sustainability funding to war reserves more than to investments to expand the capacity of the production base.

Now, let me make an important distinction. What I'm talking about is investments in the base to build either additional plants or expand the capacity of existing plants. That's a very different matter from investments that you make to improve the efficiency of an existing production process. And the Secretary of Defense's guidance now, and has for several years, says loud and clear that if there are industrial preparedness measures that you can identify that would improve the efficiency of the peacetime production process, and they would pay for themselves within four years of the planned peacetime procurement rates, that you ought to do that. I haven't worked out in the private sector, but I don't think that a four-year payback period is an overly stringent criterion for that kind of investment. If the services are not coming forward with proposals to make those investments to improve the efficiency of the base, it isn't because OSD won't let them. Now, they may not be surviving the internal service budget development and I can't speak to that. But I can speak to the fact that there's nothing in the OSD guidance that precludes that kind of investment.

Mr. Barnett

Question for Mr. Hawes. What is your opinion about using co-production facilities in Europe as a factor in realizing sustainability?

Mr. Hawes

That's a tough question. I think we have a lot to learn about the issue of co-production as it relates to our sustainability base. Personally, I think there is a major risk, particularly when you talk in terms of the lines of supply from either Europe or countries that would be your supplier. I don't believe that as a defense prime contractor that I can put myself in the position, when supplying prime contracts to either the Navy or the Army or the Air Force, that I'm totally relying on parts that would be procured from somewhere overseas. I think there has got to be a mix and a balance.

Mr. Barnett

The final question is for General Bass. Please comment on the vulnerability of the POMCUS site at initiation of combat. Is this concept sound?

MGEN Bass

I have to handle this in an unclassified manner. The bottom line is that of course it is largely dependent upon the warning scenario. If you take the warning scenario which we're operating against, the view is and the objective is that to have those forces in on the ground, having collected their equipment before the balloon goes up, that there is sufficient warning. I can't, for security reasons, get into the details of that. Should that event not occur, should there be a much shorter warning period, we are, at least in the northern Army group area, building them in a dispersed fashion so that the damage that could be created could be minimized. I think that's about as far as I can go on this topic.

General Henry A. Miley, Jr.

The program says that we are going to get through at 12:15 and I'm going to get you through sooner than that.

Two whimsical thoughts have occurred to me as I've sat here for a day and a half and I'll share them with you. The first goes back to 1956, I attended the Army War College and I remember the Commandant, in his opening remarks made two points that have lived with me forever, one of them being reinforced during this meeting. His first comment was that once we graduated from the Army War College, we would be certified military statesmen. The second was that more than half of us would get to be general officers. His second point interested me more, at that time, than his first, and I have thought for a long time about what a military statesman might be. Up at the school the philosophy was that you, as a professional military soldier during the 9 months at school, will be able to relate your military profession and your military outlook to the larger world of politics, economics and international relations. I guess I passed all the tests and graduated and finally got to be a general officer. But I sensed during yesterday's sessions, that we now have produced a breed of military statesmen who can accommodate very nicely and very vocally to the realities of the political, economic, and social world. I listened to people in military costume understanding why we use unrealistic inflation rates when putting our budgets together, understanding why we can't afford to have adequate stocks of spare parts and ammunition on the ground, and understanding all sorts of things that I would never have understood in my military lifetime. It seems to me when you're short of spare parts and ammunition and you don't have adequate war reserves of major items of equipment, it's not a question of whether you understand the reasons for it or not, but you as a military man should continue to say, when asked "Are you prepared to fight, for any reasonable length of time?", "No, I am not."

This year we structured our annual "reunion" of people who are interested in industrial preparedness in a slightly different, and we thought, very bold fashion. We started off, if you recall, on the first morning by having two senior industrialists, one being the Chairman of the Board of ADPA, and the other being a member of the Board, saying, "We've been reading in the newspapers and in the Congressional Record, and listening to speeches which attest to the fact, over the last 10 years, that the experts don't think our forces are prepared to fight and sustain themselves in combat. Is that true?" And then the second man, said, "We've been reading the same media, that our industrial base has gone to hell, has eroded, is not very responsive, is that also true?" In concluding, the two of them said, "Is there anything industry and ADPA, or industry and anybody can do if these two things that we read about are true?"

Then we started on a response and then we had our troubles, and our troubles have not been resolved and we're almost ready to go to lunch.

My problem with the subject at hand is that to keep people talking about industrial responsiveness and industrial preparedness and industrial readiness is, in my view, an almost impossible job. People want to talk about mobilization, because it's a fun thing to talk about. Mobilization has nothing to do with near term industrial responsiveness, except at the margin. If you're going to mobilize the industry of the United States to fight a major war, you do it the way Franklin Delano Roosevelt did it. You start in 1939 letting educational orders and getting involved with lend lease. I recall that in October 1941, before Pearl Harbor when I was down in North Carolina on maneuvers we had 2-1/2 ton trucks and jeeps and stuff like that coming out the ears. So when it comes to mobilization, we've done it, we know how to do it. You don't do it by soliciting competitive proposals. You take some money, some letter orders, some authority, and you go out and say, "Please, Mr. Automotive industry, make me some tanks and we'll settle on the price 5 years from now when the war is over." During the Korean War we did something like that. We built three tank plants during that war. People like to talk about mobilization because it fun, it's unreal and there's nobody left living, except people like me, who remember how we did it. But I can assure you it wasn't all that hard. Now, when someone says, "spending 8 percent of our GNP in defense is unrealistic" but if you look back at the record, we spent 40 percent of our GNP in World War II and somehow seemed to survive.

The other thing we like to talk about has to do with DSARCs and how long it is taking us to develop and field equipment. One man asked this morning, "Do you think competitive prototyping is the way to go?" That's got nothing to do with industrial readiness or responsiveness. What we tried to talk about, and I guess I'm about to give up, is how can we achieve a situation where we have an industrial base that produces the peacetime requirements of the Army, Navy, Air Force, and Marines, at a reasonable cost and on time and has a built-in surge capability to accelerate production if you need it. "Go to war." "No, I'm not going to war. I may want to give some more tanks and helicopters to Israel if they get in trouble. I may want to modernize the South Korean forces. I may want to give some more stuff to Turkey." In the past when we did things like that, we took it out of the Army, Navy, and Air Force hide and then replaced it over the next 10 years. I'm talking about a production base for the principal items, major and consumables, that we need and will use in peace time, a warm base, characterized by being totally tooled for a one-shift operation, not have that bottleneck test equipment set that has to run 24 hours a day to keep up with the rest of the line. With such a base we have the capability to surge to 2-1/2 shifts a day, if we have bought a reasonably priced kit of long lead components.

That's what I would like to talk about: industrial base readiness. If we had a base that looked like that, we would be in pretty good shape. But we can't seem to talk about that. So I guess it's fun to talk about mobilization and all the other good things.

That's my tirade at the end and I do one of these each time. People who have been to these meetings before will say that I do.

I want to thank everybody who participated. I think, despite my somewhat cynical views, it was a useful meeting. I thought these panels were great. I thank Joe Berney for being a superb chairman and the panel chairmen who handled the various sessions were great and I thank you all for coming.

And now I'll share with you the other whimsical thought that occurred to me in the last day and a half. It's connected with that play that only takes two people to act out, called, "Same Time Next Year." Because it only takes two people, you see it often at country clubs and at dinner theaters. It's a funny play about two people who meet inadvertently in New York. They are both happily married, but they fall in love and have a weekend affair. Then they go back to their respective spouses and do a good job for 364 more days but they return each year at the same time to have fun and games in a hotel room in New York. No hard feelings when they break up and their spouses don't know anything about it. So, as I sat here listening, particularly towards the end, I said, "If I can make it again for one more year, let's do it again: same time, next year."

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