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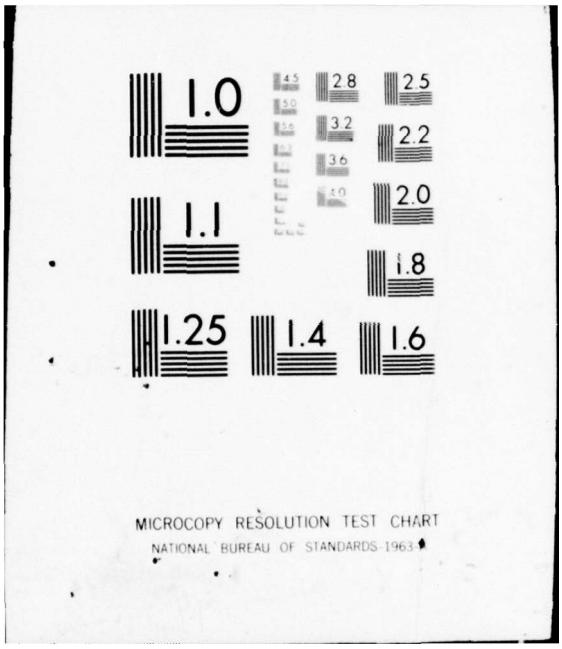
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proceedings of the 1977 WorldWide Strategic Mobility Conference

SPONSORED BY THE ORGANIZATION OF THE
JOINT CHIEFS OF STAFF
LOGISTICS DIRECTORATE

HOSTED BY THE NATIONAL DEFENSE UNIVERSITY
FORT LESLEY J. McNAIR
2-4 MAY 1977

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FOREWORD

The 1977 Worldwide Strategic Mobility Conference was a success. This conclusion is based on the enthusiastic response of all conference participants to the stimulating presentations of the distinguished speakers and seminars. As you will recall, I encouraged our guest speakers to "tell it like it is" -- and they did! The presentations were forthright, thought-provoking, and sobering. Most importantly, realistic solutions to our strategic mobility problems were proffered. Our four seminars were equally rewarding and problems were surfaced that require our immediate action.

Senior military leaders have expressed concern for our future capability to lift general purpose forces without the requisite strategic mobility assets. Indeed, it is obvious, from a review of the roster of conferees, that this concern is shared by a wide variety of senior leaders of industry and government.

This document is a compendium of the proceedings of the conference, fifth in a series of strategic mobility, logistics-oriented conferences sponsored by the Organization of the Joint Chiefs of Staff. Contained herein are the presentations made at the general sessions and the reports of the seminar chairmen. The comprehensive nature of the material makes it a valuable reference document for the organizations and individuals concerned with the subject of strategic mobility, and further it verifies and preserves the conference as an excellent forum for the exchange of information.

For future planning, it is envisioned that a major Strategic Mobility/Logistics Conference will be held on an 18-month cycle. Additionally, I am seriously considering the hosting of mini-conferences which focus on Sealift/Airlift/Surface issues on a more frequent basis. These modal conferences would serve as vehicles for the exploration of issues, discussion of problems, and the outlining of courses of action aimed at solving specific mobility problems to the enhancement of our national security and that of our allies.

MAURICE F. CASEY
Lieutenant General, USAF
Director for Logistics
The Joint Staff

DEPARTMENT OF DEFENSE
NATIONAL DEFENSE UNIVERSITY
WASHINGTON, D.C. 20319

6 June 1977

We at the National Defense University especially welcomed the opportunity to host and participate in the 1977 Worldwide Strategic Mobility Conference, which was sponsored by the Joint Chiefs of Staff Logistics Directorate.

The important and often neglected subject of strategic mobility is inextricably intertwined with major curricular interests of both colleges of the University. As part of its mission in teaching national security policy formulation, the National War College is concerned with military strategy, particularly from a joint and combined perspective. The curriculum of the Industrial College of the Armed Forces, which is centered on the management of resources in the interest of national security, deals with strategic logistical matters.

In cooperation with the Logistics Directorate of the Joint Chiefs of Staff, we are pleased to distribute the conference proceedings to those who normally receive the National Defense University Monographs on strategy. The papers on strategic mobility should prove of considerable interest to those interested in the general field of national security policy as well as to military strategic mobility planners.

R. G. GARD, JR.
Lieutenant General, USA
President

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OPENING REMARKS

BY

LIEUTENANT GENERAL MAURICE F. CASEY, USAF

DIRECTOR FOR LOGISTICS

THE JOINT STAFF

TO

WORLDWIDE STRATEGIC MOBILITY CONFERENCE FOR 1977

NATIONAL DEFENSE UNIVERSITY

FORT McNAIR, WASHINGTON, D. C.

2 MAY 1977

Good morning, gentlemen. For those of you whom I haven't met personally, I'm LTG Casey. As the Director for Logistics, in the Organization of the Joint Chiefs of Staff, I'm pleased to have the opportunity of hosting the 1977 Worldwide Mobility Conference and to welcome you all here. I hope everybody's accommodations and conference registration went smoothly.

I think this conference and my opening remarks could best be described as similar to the "I've got some good news and bad news" stories.

The good news is that Russia and the Warsaw Pact may now be capable of launching a mobilized conventional attack on NATO with significantly less warning time than we have assumed we would have. The bad news is even if we had the longer warning time, we couldn't get the necessary US reinforcements to Europe to insure stopping a Pact attack. I don't want to go into too much detail today on the Pact threat.

I'm going to leave that to Mr. Norman Palmar of the Sante Fe Corporation and formally an editor of Jane's Fighting Ships. He is on the agenda for Wednesday. What I would like to do this morning is to describe the job we have to do to meet our military requirement in supporting our national interest.

Every President from Truman to Carter has stated a U.S. commitment to insure the freedom of Western Europe and our determination to meet our military commitments in NATO. However, during the 1945 to 1975 timeframe, US forces stationed in Europe have been steadily reduced. At the same time, Russia and the other Warsaw Pact forces have been improving both quantitatively and qualitatively. Some of their improvements have been partially offset by technological improvements in US and NATO weapon systems. The United States has reduced combat forces in Europe and the Services have trimmed support forces in Europe to obtain the lean and mean stature necessary for quick-reaction capability. Our government has recognized that we may have reduced our combat capability in Europe too far. Since 1975, the Army has stationed 2 additional combat brigades in Europe. However, the net drawdown in US combat forces stationed in Europe coupled with the almost total reliance, during peacetime, upon our NATO allies for support of our combat forces has not been accomplished without introduction of severe logistics problems for the United States.

At this point, I'd like to show you a 10-minute film which my staff put together. I believe this film is the most succinct method of portraying the logistics challenges we all face. I've used it during testimony before the Senate Armed Services Committee only a month ago, and it has been shown to the staffers from the House Armed Services Committee, House Appropriations Committee, and Senate Appropriations Committee. This film has

helped to clear up many doubts and questions which these committees have expressed in the past 3 years when we have been unsuccessful in obtaining complete funding for our mobility logistics programs.

One last word on the film. It is composed of film footage taken from Air Force and Army films, previously taken to document joint exercises. It is a virtual no cost film, not a "selling of the Pentagon extravaganza." The narration in fact was not done by a professional film narrator, but the film does get the points across. Please start the film.

It is a mistake to deploy more forces to particular areas of the world than are absolutely essential for the purposes of collective defense. Beyond these minimum essential deployments of men and materiel, the role and influences of the United States must be based on a powerful central reserve and the strategic mobility that modern technology permits us.

Central reserve without mobility and the ability to fight on arrival in overseas areas present no capability, are ineffective, and not worth their cost. Worldwide military influence without worldwide mobility is a contradiction in terms. The essential components of effective general purpose forces, then, are:

1. Forces stationed overseas.
2. Strategic Reserve of active and reserve general purpose forces in the CONUS.
3. Pre-positioned supplies and equipment overseas.
4. An airlift capability to rapidly reinforce our troops overseas through delivery of people to the pre-positioned supplies and equipment, and airlift of additional forces with their equipment and supplies.
5. A sealift capability to deliver the additional forces and massive resupply tonnages required to sustain our combat forces in any protracted war.

We require balanced forces to have a viable and credible deterrent posture; therefore, the amount of investment in any one of the above components must be balanced by the appropriate investment in the other four areas. We cannot, for instance, invest heavily in forces stationed overseas if we do not have the wherewithal to sustain them; furthermore, we cannot afford to station forces or preposition supplies overseas in all areas where the United States has vital interests.

The importance of NATO to our national security has been emphasized and properly so. However, while some people may think that NATO is our only possible area of potential combat, we in our military planning, must recognize our responsibility to provide the military capability to protect the interests of the United States worldwide.

Military planning must be flexible and avoid too much reliance on any one option. For example, pre-positioning in Europe all the equipment and supplies which might be required if we had to go to war there, we believe this could be an open invitation to potential enemies to challenge our interests elsewhere such as the Mid-East, Japan, Korea, Africa, or South America. Thus we must have the strategic mobility to respond to our national interests worldwide and more importantly, the Soviets must see and understand this.

In order to further reduce our cost of maintaining forces overseas in peacetime and reduce our lift requirements if we have to deploy forces for a contingency, we've concluded support agreements with some of our allies and are working with others to have them provide support normally included as part of an Army or an Air Force unit. I'm not talking about just housekeeping support. I'm referring to direct combat support furnished by our allies to the point where virtually all the transportation from the seaports of debarkation and aerial ports of debarkation to the Army Corps areas and forward air bases will be provided by them--the so-called host nation support.

In fact, within the Army Corp areas in Europe, we are now dependent upon the Germans for a large percentage of the truck transportation providing direct support to troops on the line. The Services have given their equipment requirements several close look scrub-downs - All in an effort to cut lift requirements. As a result of pre-positioning equipment configured to unit sets, the Army calls that POMCUS, the duel basing of Air Force fighter squadrons, elimination of some equipment from the movement requirements or deferral till later in the deployment - All these actions have resulted in the reduction of lift requirements in the 1st 30 days or over 200,000 short tons, you can see how important these management actions have been.

Unfortunately, we are at a point where our management actions alone cannot materially decrease our initial deployment requirements any further. In other words, while in peacetime we rely almost entirely on host nation support, part of the price we must pay if we must reinforce NATO in the early movement of some of our support forces - Although a lot more would have to be moved if we placed no wartime reliance on host nation support.

The areas which we have been concentrating on most recently is obtaining the use of more lift assets without having to invest in their acquisition. In other words, get someone else to provide the lift.

Members of my staff are accredited to 3 NATO civil emergency planning boards or committees under NATO's Senior Civil Emergency

Planning Committee or SCEPC. Let me go into a little bit of the NATO alphabet acronym soup for a moment. The boards or committees on which my staff participated are the Planning Board for Ocean Shipping or PBOS, the Planning Board for European Inland Surface Transportation or PBEIST and the Civil Air Planning Committee or CAPC. As accredited members of the State Department delegations to these boards or committees, these people have presented the military requirements and assisted in negotiations to obtain the following:

From PBOS, the commitment to the US of cargo ships belonging to our European NATO allies. At present, the commitment is for these ships to be made available for US use when hostilities begin in NATO. With the number of NATO-owned ships randomly available in US ports or transiting the Atlantic to our ports, we feel confident that commitment can be met. However, in view of the increased Warsaw Pact capability, and our desire to deter a conflict if possible, we are now negotiating for the availability of these ships on NATO M-Day or start of NATO mobilization. This agreement, if consumated, will allow us to get our massive deployment/resupply tonnages over to Europe several weeks sooner than presently programmed. Through PBEIST, we have negotiated for support of our allies for truck, rail, and barge transportation of our equipment and supplies from the sea and air ports of debarkation, as far forward to our combat units as possible. It is this line of communication or LOC support which has enabled us to reduce during peacetime, the large number of heavy truck companies previously stationed in Europe. At the same time, we no longer have to deploy all these equipment heavy units to Europe during the critical front end of the deployment. We have substituted about 60,000 short tons of fire power to be moved at beginning of the deployment rather than 60,000 short tons of cargo trucks, materiels handling equipment, etc.

My staff has also participated in several reinforcement studies with the three NATO commanders (SACEUR/SACLANT/CINCHAN) over the past two years. Through these efforts, we have been able to identify specific areas within shipping in general where our NATO allies can more effectively support our efforts in the inter-theater portion of the reinforcement equation. For example, provision of greater numbers of NATO's highly productive roll-on/roll-off ships, and ways to attain increased levels of containerization to make better use of containership availability.

Now, while sealift is the most economical method of moving large amounts of heavy equipment from the CONUS to Europe, it takes 14 to 20 days from the time a unit starts moving to a US seaport for loading aboard ship till it is delivered to the front in Europe. At least to where we hope the front will be when the surface lifted equipment is delivered.

In the critical early period of a crisis when hopefully either a war will be deterred or an initial pact attack blunted without major loss of territory, only airlift can play in the CONUS-to-Europe reinforcement scenario. It is recognition of that fact which has led us to define an economic method of doubling our airlift capability. Our investigations of the problem recognized first that the utilization rates of our military aircraft in Services of crises could probably be increased by about 25 percent. The Air Force has programmed to obtain this increased UTE rate over the next 5 years at a cost of $364.4M for spares and additional crews. Two of the lessons learned from our airlift to Israel in 1973 were: the value of inflight refueling of transport aircraft both with regard to economy of operation and increased rate of delivery. The C-5 had an inflight refueling capability as part of its original design but in 1973, because of economy, fuel consumption, and presentation of the C-5, virtually no crews were proficient in the inflight refueling of their aircraft. The Air Force now has sufficient C-5 crews trained and proficient for inflight refueling of all their C-5s. The C-141, however, which is the backbone of our air transport fleet, has no present inflight refueling capability. In addition, it was proven in 1973 that the C-141 tended to bulk out prior to its grossing out weight-wise when airlifting typical Army equipment. As a result, the Air Force proposed a program to stretch the C-141 by about one-third and at the same time install an inflight refueling capability. This prototype program is running ahead of schedule and below cost. If a decision is made to modify the entire C-141 fleet, the estimated cost would be about 677 million dollars and at no additional operations and maintenance cost. The productivity of each C-141 would be improved by about 30 percent and be independent of overseas basing for any contingency operation worldwide.

The air-to-air refueling capability would also have significant utility in a deployment to Europe since it would allow us to put more cargo on the aircraft and then refuel it on the way to Europe. Additionally, by air refueling on the way out from tankers based in England, we wouldn't have to draw down on in-theater fuel in Europe. This modification would be the same as buying 90 new C-141 type aircraft which would probably cost 3+ billion dollars.

Probably the most cost effective of all our airlift enhancement programs is the modification of existing wide-bodied civil aircraft. The addition of large side cargo doors or nose doors plus strengthening of the floors would allow us to ship over-size equipment such as wheeled artillery pieces, radar vans, etc., which at this time won't fit into commercial passenger convertibles or freighters.

The cost of this program based on 87 aircraft is estimated at 592 million dollars. You'll note all of the airlift enhancement programs I've described make use of existing military of civil aircraft. Let's face it, the smart business-like approach demands we get the maximum utilization out of existing investments.

As far as obtaining approval from our board of directors, that's Congress, for the required expenditure of funds to improve our capital assets, we appear to be in good shape on all but the CRAF MOD program. The Senate Armed Services Committee in previous years had strong reservations about the requirement for the lift capability the CRAF Modification Program would generate. I believe the hearings held last month by the R&D Subcommittee of the Senate Armed Services Committee should help resolve the doubts and questions they had. We presently have 30 million dollars in the FY 78 budget to do 8 prototype modifications.

One of the significant points about this particular program is the opportunity it presents to get our NATO allies involved. They are watching our progress closely in order to evaluate the efficacy of modifying their civil wide-bodied aircraft to augment US airlift in an inter-theater role as well as to provide their own military with an intra-theater oversize airlift capability.

Meanwhile, the US Navy is not ignoring the surface transport problem. The Navy has programmed 60 million dollars to reduce the time required to get some of their reserve fleet ready to load Army units and equipment in 10 days vice the present 30 days. The number of ships involved in that program is about 24. But like the Air Force, the Navy also must make tough decisions between investments in their transport fleet or in fire power.

The cost of air and sealift vehicles has become much too expensive to be considered just another line item in the military budget. Our country cannot afford the luxury of providing the military with a totally dedicated air and sealift force. While we must have sufficient military lift assets to satisfy military peculiar lift requirements, peacetime training requirements and a capability to respond to minor contingencies without disrupting US trade, the bulk of our non unique lift requirements for a major show of force or war must come from the civilian sector. This just makes good sense.

In fact, what I'm really saying is that airlift and sealift can no longer be totally segregated into civilian and military components. They must be considered as national assets. When it comes time to design a replacement for the C-141 or C-5, this country cannot afford the luxury of a military CXX while the civil sector goes out to design a CXY to replace the current

family of commercial wide bodied jets. When the airline companies and aircraft manufacturers design the next family of passenger and cargo aircraft, both the military and civilian transporters must sit down together and list their requirements, but they must be prepared to compromise on some of their requirements; not for the good of military or the airlines but for the good of the country. The fact that we have expensive 747s and DC-10s that can't do the national military job is an indictment of our present planning and acquisition system.

We must consider such things as common engines even if the body of the aircraft must be slightly different in the military or commercial versions. The economies for instance that would have accrued had we designed a common engine for the C-5 and the 747 are immense. Cross-servicing of aircraft engines worldwide would result in reduced inventories, maintenance, overhaul facilities, etc.

In summary, the theme and challenge of the worldwide mobility conference must be innovation and initiative.

We must innovate in the use of existing lift assets and we cannot afford not to examine all possible new initiatives in design and procurement of new lift assets. Finally, energy is a strong consideration we all must face. Again the energy problem is a 2 phased one. First, we must all put our minds to getting the most out of our existing assets by conservation, coordination and cooperation. Cutting down on the frequency if all vehicles are not used to or near capacity. The second phase will have to include research into alternate types of fuel in order to gain as much independence from oil as possible. US strategic mobility is a necessity if we are to remain a leading nation in the world.

Transportation is the foundation of mobility, as well as commerce. So the interface between the civil sector and the Department of Defense is only natural and must be as smooth as possible. The various panels which we have set up will, I hope, come up with some solutions or at least approaches to the problems.

Thank you for coming and let's get to work!

AN ADDRESS

BY

GENERAL GEORGE S. BROWN, USAF

CHAIRMAN, JOINT CHIEFS OF STAFF

TO

WORLDWIDE STRATEGIC MOBILITY CONFERENCE

FORT McNAIR, WASHINGTON, D.C.

3 MAY 1977

I am delighted to be here, to see so many friends, and to be a part of this important and valuable conference.

I know you have already heard a great deal about transportation; and I have it on good authority that you'll probably hear more about transportation in later sessions. But I have General Casey's express permission to depart from that general theme -- for which I'm grateful since there are so many experts in the field here this evening.

What I'd like to talk about tonight is our overall security posture. This does not represent a significant departure from the conference theme, since our strategy in nearly every plausible scenario depends on strategic mobility -- getting the right forces, equipment and support to the critical point, in time.

There is a great deal of current debate on national security and defense issues.

-- In the past few weeks, we have seen considerable emphasis on the overall defense budget, on our defense commitments, and on force deployments overseas.

-- We have seen increased concern for the threat -- what our adversaries have been doing, and what their efforts mean in terms of our own security.

-- And we have seen renewed attention to readiness, and the all-volunteer force, particular weapons systems, and other specific issues.

This discussion, to my mind, is one of the great strengths of our Nation. It helps sharpen the issues, it can increase public awareness of security matters; it can break the mold of outdated thinking, if that is required. The vigorous examination of defense programs and requirements against national objectives and goals is essential -- and helps insure that we will endure and prosper as a nation.

On the other hand, it seems that some of the discussion falls short by omitting or playing down a very important fact: that defense programs -- and the armed forces that execute our national defense policies -- exist to preserve and protect our country and its people. From time to time, this basic truth is obscured by the notion that our armed forces and defense programs exist for themselves -- or even more specifically, for the generals and admirals; or for defense industry; or for some other special group or purpose.

We must -- all of us -- keep the perspective clear that national defense and the armed forces exist for the nation. And we should make every effort to help that perspective be understood throughout the land.

In like manner, the actual and potential challenges to our Nation's security must be understood as threats to our territory, our people, our way of life. We must not view the threat merely in terms of the possibility that our military forces may become engaged in conflict.

--The growth and improvement of Soviet strategic nuclear forces, for instance, are challenges that affect every American -- and, indeed, every human being on earth. The fact that the Soviets are developing new and more sophisticated strategic weapons -- even today -- bears on our own security posture. It bears on our posture not because those developments may alter the balance of our military forces, but rather because they affect the integrity and well-being of our Nation.

--The tremendous increase of Soviet conventional forces and capabilities is reflected in their ground maneuver and fire support units, in tactical air forces; in surface and submarine naval forces. This growth should give the nation pause. These heightened capabilities do alter the battlefield balance -- but their deeper meaning goes to the heart of our security as a nation. Can we, as a nation -- in conjunction with our allies -- deter potential adversaries from aggression and adventures which will affect our territory, our interests and our freedom of action in the world?

-- Of particular interest and concern to all of us here is the rather impressive growth we have seen in the Soviet Union's strategic mobility. In recent years we have seen that capability increase from a modest and relatively unsophisticated level, having only continental range, to a sophisticated and efficient capability of global dimensions. The professionalism of the Soviet Union's air mobility operations in Angola was respectable indeed. This increased challenge is not something that concerns only the strategists and analysts -- in the larger sense, it can affect the life of every American.

It is not necessary to belabor the point. The threat is not just to the armed forces; it is to the Nation. The defense establishment does not discuss the threat because it justifies forces or programs -- we discuss it because it shapes the defense requirements for our Nation.

As we assess the challenges, and lay out broad strategic approaches to deal with them, we identify the tasks -- the actions we have to take to maintain our security.

Most of these tasks are reflected in forces and program and budget items that are widely discussed in the Congress and which are accessible to the public at large. They can be described as options. Where there are various options, there are bound to be differences of opinion and judgment.

-- In many cases there are different approaches to a national or strategic objective. Shall we position larger forces overseas and reduce the transportation requirement, or shall we retain more forces in the United States -- and increase requirements for strategic mobility?

-- In other situations, there are options that offer alternative levels of effort or resources. Do we need "X" number of divisions, nuclear submarines, or bombers, or can we do an acceptable job with fewer?

-- In still other matters, the alternatives reflect differences in timing: must we buy new fighters we need over a three-year period, or can we spread the purchase over five or eight years, or over a longer period.

It is the alternatives and options that seem to get the most discussion and attention in the media and among the public. There are often competing views and positions which become associated with their spokesmen. This discussion is healthy. But as these views and positions are discussed and argued, there are two important and potentially harmful side effects:

-- First, the discussions may become oriented entirely on dollar costs of the alternatives. You have heard this in many forms: Option "A" is cheaper than Option "B", so we ought to go with Option "A". Or to put this perspective a different way: Program "A" is so expensive, we ought simply do without it.

-- Second, the perception can emerge that the programs exist only because their sponsors or spokesmen advocate them,and that if General So-and-so could just be retired, or if Admiral So-and-so could be reassigned to some remote area, the need for the programs they support would disappear.

The real danger in these misperceptions is that they derive from the false assumption that the only people affected by the decisions will be people in the defense establishment -- either in the armed forces, the government, or that elusive demon, the military-industrial complex.

The fact is this: every alternative -- every security option, every program, every policy -- entails a degree of risk, some more than others. When an option is selected, a certain degree of risk is assumed. And that risk is borne, not by the spokesmen

and the decisionmakers alone, but by the people, by the country as a whole.

-- For instance, if we should elect to keep a larger part of our NATO-designated forces in the United States, we would change in some manner the risk to our overall national security -- which can affect every American. If, on the other hand, we chose to deploy additional forces to Europe, we may incur certain costs, but we would likely reduce the risks in the overall NATO strategy. Which way do we want to go?

-- If we try to do a particular job with fewer forces, we may be able to save money; but those savings may well be accompanied by an increase in risk to the nation. Do the savings seem to justify the risk?

-- If we decide to stretch out a major weapons system purchase, we can increase the risk, at least for a time. Can we allow that period of risk?

-- If a particular program is disapproved, the benefit may be a saving in dollars, and possibly in manpower; but the cost may be increased risk -- perhaps only a small increase, perhaps somewhat larger. That risk is shared by all of us. Is it a prudent and acceptable level of risk?

None of this is to suggest that we should always choose options or alternatives that decrease risk. No matter what we do, no matter how much we spend, we can never be absolutely certain of success. We always assume some risk. The question is, how great a risk is prudent? How much risk is acceptable? What must we spend to keep the risks tolerable while keeping costs as low as possible. The answer to these questions affect every American now living, and can affect our people for generations to come. So the decisions cannot be taken lightly.

The generals and the admirals -- and other officials in the defense establishment -- have the responsibility to assess the risks. We apply professional judgment to these assessments. But we do not make the basic decisions on how much risk is acceptable. It is not our job; it is certainly not our right to do so. Since the risk is to the American people as a whole, the fundamental decisions must ultimately lie with them, acting through their elected representatives -- the President and the Congress.

The President and the Congress determine our national security goals and objectives. <u>They</u> decide on what security tasks are to be accomplished. <u>They</u> determine what level of resources are to be requested and approved. <u>They</u> decide how much risk can be

accepted. From these decisions -- acting for the people -- they determine the size, the composition, the deployment, the state of readiness, and the overall security policies of the Nation.

The role of the legislative and executive branches does not end with the decisions, however. The Armed Forces report their condition and status to the country's civilian leadership and to the people as a whole. In addition, many members of Congress have taken a direct interest in the condition, the missions and the activities of our armed forces.

-- For example, Senators Nunn and Bartlett recently visited the European theater. Their observations, analyses and findings lent increased credibility to a number of recurring requirements that had been identified earlier by the armed forces. I am sure their independent judgments on various issues, and their assessment of the costs and risks of various programs in support of NATO, will help strengthen the Alliance.

-- To take another example of the civilian leadership's concern for military aspects of national security, we can look at SALT. President Carter approved the participation of a senior general officer as an advisor at recent SALT meetings in Moscow. This action was a clear indication that the Administration recognized the importance of assessing the security costs and risks of various alternatives which might have arisen. The decisions, however, and the acceptance of their implied risks, are civilian decisions. Again, these are not risks borne by the military alone, but by the Nation as a whole.

We can say truthfully, then, that our defense posture is a matter for all Americans. Likewise, the Armed Forces exist for the American public -- not for the generals and the admirals.

People in uniform are not only part of the defense establishment, they are part of America. Men and women in uniform have committed themselves to the security of our country. By volunteering to serve, they have willingly placed themselves in an environment of service, of challenge, of rigor, and of discipline. They have also placed themselves in a role that can involve considerable inconvenience and risk -- even the risk of life itself.

They do not serve the generals and the admirals -- or even just their government. They place themselves under the direction and authority of established leaders -- but they serve the Nation. That is their commitment.

In return, they ask very little. From their leaders, they ask for good example, for fairness and justice, for effective control and leadership. They especially ask for the opportunity to do something worthwhile with their lives and their talents.

From the country as a whole, they ask not much more:

-- A sense of recognition and appreciation for their efforts.

-- A respect for their commitment and dedication.

-- An equitable level of compensation, as part of the Service way of life.

If we can keep this perspective foremost among ourselves and among all Americans -- that the Armed Forces exist for the people of our country and for their continued security and well-being -- then I have faith that the people, through their elected leaders, will make the right decisions.

-- They will choose what is right for the defense of the country and its interests around the world.

-- They will make clear the level of risk that they feel is appropriate and acceptable for themselves, their families, and future generations.

-- They will recognize that men and women in uniform are not somehow apart from the rest of society, but rather are an essential part of that society, standing for what is best in our people and our way of life.

Thank you.

KEYNOTE ADDRESS

BY

THE HONORABLE CHARLES W. DUNCAN, JR.

DEPUTY SECRETARY OF DEFENSE

TO

WORLDWIDE STRATEGIC MOBILITY CONFERENCE FOR 1977

NATIONAL DEFENSE UNIVERSITY

FORT McNAIR, WASHINGTON, D.C.

2 MAY 1977

Ladies and gentlemen, I'm another new boy in town from Texas via Georgia, but even in the short time I've been here I've already had some exposure into strategic mobility. Indeed the very fact that we're here today at the strategic mobility conference reflects the crucial importance of mobility to our entire security posture.

Let's go back to fundamentals for a moment and recall that our entire general purpose force strategicy is based on overseas force projection. We Americans learned a long time ago -- after two World Wars -- that the best place to defend our nation was overseas -- before an enemy ever reached our shores. Of course in strategic nuclear terms this is no longer possible. but it remains fundamental to our conventional force posture -- which after all takes by far the biggest slice of our defense budget.

Another fundamental is that we can no longer rely on our allies to hold the fort while we slowly mobilize -- as in World War I or II. These days as General Nathan Bedford Forrest used to say "Get thar fustest with the mostest" in order to deter or defend effectively. And it's not just a matter of moving men and equipment from Point A to Point B. We must get them there, perhaps thousands of miles from home, in full fighting condition. This too underlines how worldwide mobility has become critically important to a credible U.S. defense posture.

Nowhere is it more important than in meeting our most demanding single overseas commitment -- the defense of Western Europe. President Carter at the upcoming European Summit and Secretary Brown at the following NATO Defense Ministers meeting will both be reaffirming this commitment and urging our allies to join with us in building up NATO's defenses. In fact, most U.S. active and reserve forces are already programmed to meet this need. But growing Warsaw Pact capabilities for attack without much warning make it imperative that we be able to reinforce Europe a lot more quickly if the need occurs.

As you may know, Secretary Brown and I focussed immediately on mobility problems. We asked for increased lift assets and greater readiness in the revised budget package that was sent to Congress by the President. We sent the Congress a strategic mobility study prepared by the JCS which is the most comprehensive analysis ever attempted of the NATO reinforcement problem. It goes without saying that the greater capabilities we are seeking would be needed in other contingencies as well as NATO.

We in DOD keep constantly in mind, when we address such mobility issues, the underlying principle that they can best be solved -- at the least cost to the taxpayers through full partnership between government and industry. We are well aware of our

ultimate reliance on civil sector transport capabilities -- land, sea, and air -- and have long planned on using them to supplement that limited airlift and sealift that we feel DOD must maintain.

So one of our primary DOD goals is to encourage a large viable commercial transport system capable not only of meeting civil needs but those of any national emergency as well. I'll talk later about some ways in which we might expand and consolidate our partnership, which I see as one of the primary purposes of this conference.

But first I want to say a word about the ongoing technological revolution in transportation, because I think it's opening new vistas of how the Industry-Defense team can together meet not only civil needs but our defense mobility requirements too. Like most things in the complex high technology world in which we operate, it is characterized by constant change which must be anticipated, captured, and exploited skillfully. I'm not talking only about wide bodied jets and new generations of more powerful engines, but about the less noticed but equally significant advances in ground and sea transport as well. Indeed, one could say that there's been a quiet revolution in sealift with the advent of containerships, roll-on roll-off (lighter aboard ship), Lash lighter ships, and maybe later large sea-cushion vehicles or multi-hulls. New propulsion systems too are on the horizon. And energy-conserving technology must be carefully investigated, because even in wartime fuel conservation will be imperative.

Let me turn now to a brief review of our planned airlift and sealift programs and other options we are considering to improve our strategic movement capabilities. As you know, our strategic airlift forces include 70 C-5As and 234 C-141s. An equal number of C-5s and C-141 Reserve Associate Units (personnel without aircraft) are collocated with the active units. These make possible a rapid increase in the surge rate of the active force. In peacetime, these reserve units participate in operating and maintaining the active force aircraft as part of their normal training. In addition to these military assets, U.S. airlines have committed 246 long-range aircraft to the Civil Reserve Air Fleet, 156 cargo or passenger/cargo convertible planes and 90 passenger-only aircraft.

As I said earlier, strategic airlift plays a crucial role in reinforcing Europe. Our ability to deploy forces rapidly could do much to offset the Soviet Union's geographic advantage, particularly in the early weeks of a NATO confrontation. While sealift also plays a crucial role, and would eventually account for the bulk of materiel movements, only airlift can ensure sufficiently prompt delivery of combat forces in the first two or three weeks.

We intend to further improve our ability to rapidly reinforce NATO via a major increase in the capability of our strategic airlift forces. Our proposed programs include increasing the wartime utilization rates of the C-5s and C141s, upgrading the C-141s, and government financing of modifications to civilian wide-bodied passenger jets. This and other operational changes, such as in-flight refueling of C-5s and using C-130s in a strategic airlift role during the early weeks of a major deployment -- would double our wartime airlift capability.

We regard the CRAF modification program as one of the keys to this increase. It is an excellent example of the way we can and should take advantage of our existing civilian capabilities. It is also probably the most economical way to greatly increase the all-important cargo carrying capability of our Civil Reserve Air Fleet. We have looked very carefully at commercial passenger aircraft now in service and find it highly desirable to modify some of them so that in emergencies they can fly oversize military equipment -- our most critical airlift constraint.

As a businessman myself, I know the obvious temptation within the aircraft industry to propose selling new aircraft rather than putting a wide cargo door in a commercial airliner. However, when we consider DOD budget priorities, the tradeoffs of weapons systems versus airlift, and the lead times required, this CRAF modification program comes out clearly as the most sensible and economical way to get a 35% increase in our air deployment capability in a short time. Besides adding significantly to our overall lift capability, these CRAF modifications will make it possible for us to use the C-5s more productively. Then we can use the C-5 for outsize cargo (tanks, field artillery and large communication equipment), thus enabling us to deliver much more firepower overseas a lot sooner.

This program results from over 40 months of joint military/industry negotiation, during which various alternatives for incentive payments and cost burden sharing were considered. It is a good example of a cost-effective initiative resulting from military and industry partnership. In fact, I believe the President's request for $30 million to modify eight aircraft in the FY 1978 budget, which is hopefully only a beginning, will lead to expanded military/industry cooperation to enhance strategic mobility.

When we look out beyond the present generation of big cargo lifters, I am intrigued with the idea of pooling civil and military requirements and designing a single hybrid airplane which could meet civil needs in peacetime and the military in wartime. Since each new generation of aircraft costs so much more to build, this way of meeting both government and industry needs simultaneously could make a great deal of hard economic sense for the

1990s. Here is a new challenge which government and industry might face together.

Turning now to sealift, let me assure you that it remains vital for sustaining and augmenting the forces initially deployed by airlift. In almost any conflict scenario, many of the deploying forces would have to move by sea, as would the bulk of resupply. Here we rely even more heavily on the private sector. DOD-controlled sealift is probably insufficient to support even a minor contingency in a timely fashion, so we are heavily dependent on the U.S. Merchant Marine and, in the case of a NATO conflict, on the commercial fleets of our NATO Allies as well.

The sealift problem is less a matter of total capacity than of: (a) early ship availability, and (b) their suitability. Given enough time to assemble the shipping, our our Merchant Marine, augmented by allied ships, could provide more than enough sealift to meet even the most demanding NATO contingency. And our NATO Allies have already committed NATO flag ships to assist in U.S. deployments if needed. These are Allied ships which frequent U.S. East and Gulf Coast ports, and are "earmarked" in peacetime to facilitate their early availability.

Consequently, our principal concern in the sealift area is early availability, not only in a mobilization declared by the President, but also for lesser contingencies not involving mobilization.

For minor contingencies not involving a declaration of mobilization by the President or Congress, the Military Sealift Command under our Sealift Readiness Program has commitments from commercial shipping lines to make ships available, with at least half to be available in the first 30 days. However, we also need a capability of the sort now represented by the National Defense Reserve Fleet. A revitalized NDRF would fit in well with the Sealift Readiness Program. Then we would only have to rely on the berth line industry during the initial stages of such a contingency, until the NDRF ships could be broken out of the Reserve and placed back in service. This arrangement would limit the adverse effect on the competitive position of the berth line operators.

But we need to do still more to satisfy our early sealift requirements. So we are working on two more programs to generate the mix of surface lift we need. From the ships in the NDRF, we have selected the equivalent of 30 Victory ships which will be brought up to a sufficient state of readiness to be on berth for loading within 10 days. We'll call this the Ready Reserve Force. We are requesting $8 million for it in the current budget. We are also asking our NATO Allies to increase their capability for

early sealift of U.S. Forces by making their ships available to us on M-day instead of D-day.

I'm more concerned with the second problem in the sealift area, suitability of ships. Here I'd like to seek the help of this conference. Working together, we must make greater progress in our ability to utilize the ships of the Merchant Marine in emergencies. In particular, we've got to make better use of the revolutionary new generation of fast container ships which now dominate the U.S. merchant fleet. The tremendous commercial acceptance of these container movements means that military planners must learn to utilize container ships in Defense operations. In any full emergency, we know that our sealift resources are going to be dominated by the container ships' productivity. So we are doing the best we can to learn to use commercial container capabilities for military contingencies. Other new cargo vessels such as the Roll On/Roll Off and the barge and lighter carriers are more adaptable to military needs.

So my challenge to the merchant marine industry is to cooperate with us to ensure the availability of a wide range of fast, modern cargo liners. We have a program for incorporating national defense features in new ships via construction subsidy through the Maritime Administration. Such features as strengthened decks and increased speeds have been included. However, less than one percent of construction subsidy dollars go toward this type of national defense feature. I believe we in Defense must work more closely with the ship builders, operators, and Maritime Administration to encourage commercial operation of cargo liners that can meet urgent strategic deployment demands.

We in the Defense Department are also convinced that if we are going to reinforce our Allies quickly enough, we are entitled to ask them to help us do so more effectively. As a matter of principle, wherever allied resources are readily available, why should we duplicate them with the U.S. taxpayer's dollars?

One of the key conclusions of the JCS Mobility Study was that we need even more allied support for timely U.S. reinforcement of NATO. I've already mentioned our heavy reliance on allied shipping to augment our own. We see a need for use of suitable allied aircraft for airlift too -- to meet allied needs as well as ours. So we have opened discussions on the formation of a European CRAF with Allied wide-bodied commercial aircraft. It is very clear to us in discussing strategic airlift with Congress that a NATO commitment similar to our own CRAF would be a convincing step. It is even possible to envision a NATO CRAF modification program similar to our own. Of course, Congressional approval of our own modification program would dramatically improve our negotiating position for a NATO counterpart program.

The JCS mobility study also raises some basic questions regarding why we should program costly airlift of support equipment and vehicles when host nation support is readily available. Therefore, we are negotiating with our NATO partners for a wide range of host nation logistic support. Over a hundred host nation agreements have been completed for use of civil labor, use of civil and military airfields and transfer facilities, and the provision of utilities and transportation services. In short, we count on a significant contribution from our NATO Allies.

But it is vitally important that we exercise these host nation support arrangements, and our own civil air and sealift arrangements, in peacetime, because we must be sure that they will work reliably on short notice in event of war. We in Defense must redesign training exercises like REFORGER to test the interoperability and coordination essential to true strategic mobility. We also rely on Belgian and Dutch longshoremen -- on German busses and Luxembourg airport operators -- on European railroads and pipelines. Together they form an interrelated system which is essential for our strategic mobility. We must be able to evaluate how they all fit together through effective training exercises. Thus the REFORGER exercise provides an excellent opportunity for operational management and coordination as well as the actual deployment of men and equipment. I think some of you were involved in REFORGER last year, when it was broadened to include the sealift of an airborne division's equipment and linking up with personnel airlifted to Europe.

We plan to continue adding to the validity of these training exercises -- by designing them to be more realistic. They also provide an opportunity to test our own U.S. surface rail and truck capabilities. As you know, the military already depends on the commercial tracking and control systems to trace military shipments moving from our depots to ports. In peacetime, this information flow moves much more slowly than would be necessary in event of war. So we need to introduce more realistic timeframes during our training exercises to find out whether wartime movement and management challenges can be met.

Many of you are aware that we are reducing our operations of dedicated military ocean terminals, and moving toward joint use of terminals with the civil sector instead. As terminal costs become an increasing percentage of total transportation handling costs, we have sought a harmonious relationship between these military and civilian transportation capabilities. Our training exercises should test these joint-use terminals, perhaps by scheduling the arrival of materiel at the ports of embarkation as close as possible to what would be expected in a wartime situation. Moreover, in designing the ready reserve force of ships I've described, we've included a provision for an annual

surprise random activation of one ship to ensure that we can meet our goal of having such ships on berth for loading within 10 days.

Lastly, we may need to develop some new long-range planning concepts to cope with the short warning times implicit in growing Soviet capabilities for quick attack. I hope that some of the issues involved can be explored at this conference. Clearly a much quicker NATO response will be required to cope with the forces the Warsaw Pact can put into the field. This will no doubt entail increasing NATO's readiness too. It will require accelerating the rate at which NATO can mobilize plus increasing U.S. prepositioned material in Europe. In fact any cost-effective U.S. response may have to rely heavily on pre-positioning. The cost of airlifting large armored and mechanized formations in the very early timeframe would be extremely high. But greater strategic mobility, in shorter timeframes, is a must.

Let me sum up. Having been invited to speak to you I wanted to give you an overview by posing some of the critical issues we confront, telling you what DOD is doing about them, and challenging the government/industry partnership to come up with good answers. We depend heavily on this partnership. Adequate Strategic Mobility is central to our force projection strategy. In fact the need for more rapid deployment is growing rather than declining.

Our policy is to meet this challenge through the closely knit joint efforts of government and industry. The ideal state of affairs would be if all our required mobility assets could be operated commercially for profit in peacetime yet meet military surge requirements in wartime. We can't reach this objective totally, partly because we must retain a certain amount of dedicated military lift, but let's work together to achieve it wherever we can. It's in our national interest to do so.

I thank you.

BIOGRAPHICAL SKETCH

CHARLES WILLIAM DUNCAN, JR.
DEPUTY SECRETARY OF DEFENSE

Charles William Duncan, Jr., was nominated by President Jimmy Carter to be Deputy Secretary of Defense on January 20, 1977, was confirmed by the United States Senate on January 21, 1977, and took the oath of office later the same day at the Pentagon.

A native of Houston, Texas, Mr. Duncan attended the public schools in that city, was graduated from Rice University in 1947 with a B.S. degree in Chemical Engineering, and completed two years of graduate study in management at the University of Texas.

Following his graduation from Rice University, Mr. Duncan worked as a roustabout and chemical engineer with Humble Oil and Refining Company. During World War II, he served in the United States Army Air Corps.

Mr. Duncan joined Duncan Coffee Company, the predecessor of Duncan Foods Company, in 1948. He was elected Administrative Vice President in 1957, and President of the company in 1958. When Duncan Foods Company was merged into the Coca-Cola Company in 1964, Mr. Duncan was elected to the Coca-Cola Company Board of Directors. For a period of three years, Mr. Duncan lived in London, England, and had responsibility for the Company's European operation. He was elected Executive Vice President of The Coca-Cola Company in May, 1970, and President of the company in November, 1971. Mr. Duncan resigned this position in May, 1974, to return to Houston.

When nominated to be Deputy Secretary of Defense, Mr. Duncan held the following position and board memberships:

Corporate

Chairman and Director, Rotan Mosle Financial Corporation.

Board of Directors, A.P.S. Inc., The Coca-Cola Company, Great Southern Corporation, Southern Railway System.

Advisory Director, Texas Commerce Bank Shares, Inc.

Advisory Council, Trust Company of Georgia.

Civic, Charitable and Education

Vice Chairman, Board of Trustees, Rice University, Houston, Texas.

Board of Trustees, Emory University, Atlanta, GA.

Board of Trustees, St. John's School, Houston, TX.

Board of Directors, Houston Chamber of Commerce.

Board of Trustees, Texas Children's Hospital, Houston, Texas.

Board of Visitors, Cancer Foundation, University of TX.

Board of Directors, Rice Center of Community Design and Research.

Board of Directors, Houston Symphony Society.

Mr. Duncan was born September 9, 1926, the son of Mr. and Mrs. Charles William Duncan, Sr., of Houston, Texas. He and his wife, the former Anne Smith, have two children - Charles William Duncan III, 17, and Mary Anne, 15.

AIRLIFT'S CONTRIBUTION TO MOBILITY PLANNING

A PRESENTATION BY

GENERAL WILLIAM G. MOORE, JR., USAF

TO

WORLDWIDE STRATEGIC MOBILITY CONFERENCE FOR 1977

NATIONAL DEFENSE UNIVERSITY

FORT McNAIR, WASHINGTON, D. C.

2 MAY 1977

I'm honored to be able to share with you a few thoughts concerning airlift's contributions to mobility planning. The concept of mobility underpins our national strategy. Over the last several years we've reduced the numbers of American forces based overseas. Today the bulk of our military forces is based in the U.S. We rely on our transportation resources to deploy these forces wherever they'll be needed.

The basic deployment problem is one of determining the appropriate mix of sealift, airlift, and prepositioning. Each has certain inherent advantages--and disadvantages--in the overall mobility scheme. The determining factor is the timeliness of inserting combat units where and when they are needed. Airlift, represented by the resources of the Military Airlift Command and the CRAF, plays the role of responsiveness to moderate size movements with short warning.

A lot of our DOD "customers"--many represented here today--must rely on MAC to deploy and sustain them during emergencies before sealift can provide the needed support. I know you're interested in MAC's capabilities.

Let me preface my initial reactions to the command by relating a story told of the immigrants.

The immigrants came to this country because they'd heard the streets were paved with gold. But soon after they arrived, three rather startling facts came to light:

One: The streets were not paved with gold.

Two: The streets were not paved.

Three: They were expected to pave them.

And since MAC has the task of paving "the way" for mobility, I can sympathize with their problem. MAC has a tough job.

America is faced with massive Soviet military capabilities that span the spectrum of war. Today, because the strategic nuclear strength of the two super powers is "roughly equivalent," the readiness of our conventional forces is especially critical.

Three months ago, General Brown addressed this paradox when he spoke to the Senate Appropriations Committee. He said, ". . . we simply cannot afford to place ourselves in a situation where nuclear weapons must be used because we would not pay the price for conventional readiness."

Concerning the European theater, General Brown noted, ". . . We face the most direct confrontation with our major adversary and consequently our major force commitment."

Today MAC is working with our DOD customers to make sure we can rapidly deploy them and their equipment--wherever they'll need to go. The thrust is conventional warfare--the direction is Europe. We're talking about today, the 1980s, and beyond.

There's been a lot of discussion about the Soviets massive conventional presence in eastern Europe. NATO may face a massive conventional attack with little warning. If the attack comes with short warning, our forces will have to fight with what they have prepositioned plus the supplies and equipment MAC brings in. Military forces rely heavily on mobility and firepower. As warning times decrease, the demands on airlift increase. It's our job to get the support equipment and firepower to Europe quickly and make sure they have enough supplies to effectively counter the attack.

Although the military has been in the mobility business for some time, MAC and its customers are still learning and working toward a more effective plan. The customer needs to identify the parameters of what, where, and when he needs his war materiels, and we in MAC need to employ our available airlift in the very best way possible to satisfy the customers requirements. Knowledge of these needs is also vital in determining what kind and how much airlift will be required for the future.

With these comments as a reference, I'll briefly review where MAC is today and the directions we foresee for the future.

The Secretary of Defense has established MAC as the single manager operating agency for all airlift service. All DOD strategic and tactical airlift has been consolidated under MAC, now DOD's third specified command.

We have a dual reporting structure--one through the Joint Chiefs of Staff for wartime operations, the other through the Air Force Chief of Staff for routine peacetime operations. MAC responds through the Joint Chiefs of Staff during the following conditions:

Wartime
Periods of Crisis
JCS Exercises

And, as necessary to insure the operational support to other unified and specified commands.

This dual chain of command allows MAC to receive strategic direction from the National Command Authorities, with JCS assigning the priorities and MAC applying its airlift resources. During peacetime we provide airlift service

through the Secretary of the Air Force, but our primary task is wartime readiness training.

Combat readiness is the objective of all military training. However, MAC's training is unique in that is produces airlift--a valuable by-product.

This by-product is used by customers within the Department of Defense. MAC must be supported by these customers. Peacetime tariff rates and wartime combat readiness depends upon their use of airlift.

Our customers reimburse the Airlift Service Industrial Fund--ASIF--only for the hours flown in support of their requirements, and, or course, we maximize the use of those hours for our own readiness. Unfortunately, the number of customer subscribed hours just isn't enough to fulfill all our readiness needs.

Our wartime mission goes much further than simply delivering supplies and combat equipment to ground forces. In fact, we'll be deploying many of these forces prior to any need for resupply. Such things as joint exercise training, airdrop training, formation training, and aircraft proficiency training for our crews are also essential to readiness. So some flying hours devoted to readiness training must be funded through Air Force operations and support accounts.

Obviously, airlift readiness is, in fact, a dual responsibility between the armed forces user and MAC, the operator. An understanding of this mutual interdependence is fundamental. The more we fly--the more we keep the force ready--and, the better the service.

Peacetime activities must not only maintain aircrew combat readiness--but other vital subsystems of the strategic airlift system (maintenance, supply, and aerial port). We can't focus on just one subsystem, because the critical factor regarding the total airlift system is how well the component parts work together.

The entire system--flying, maintenance, supply, and transportation units--must be periodically "surged" so the subsystem managers can experience, identify, and correct problems.

We're looking at subsystem activities in detail--identifying each as a unit readiness event. What levels of training are required for each unit readiness event? What unit readiness events impact those of other subsystems? When? Some readiness activities are not applicable to all subsystems. Cargo handling is critical to aerial port readiness--but not directly related to the supply or maintenance subsystems.

So, airlift system minimum readiness requires not only flying hours, but also a balanced application of these hours to specific unit readiness events.

This January MAC began a program called the U.S. Army Air Line of Communication--or ALOC. The Army has a wide variety of spare aprts, and the demand for them fluctuates. Yet the Army had to reduce overseas inventories. ALOC is the answer--MAC flies the parts to Europe. The Army can save millions of dollars in inventories and increase responsiveness.

Since the first flight on January 4th, 1977, through April 31st, we've moved 5,653 tons for the Army, and they forecast 21,000 tons per year. This figure equates to three C-141s daily on a seven-day-per-week basis. MAC and the Army both benefit from this efficient use of airlift.

During wartime operations, MAC is going to have to work much harder. One reason for this has been the reduction of active-duty manpower in our aerial ports. This reduction in peacetime manning was directed by Congress with an eye toward saving dollars, but we have to be prepared for the workload that immediately proceeds a war emergency. We were directed to use reserve personnel in the place of active military, but the problem is that the peak workload might hit us before the reserves are mobilized or called to duty. As a result, we may be short of aerial port workers right when we need them the most. This would mean our active-duty people will have to work harder and longer-and they know it.

We've tested ourselves with surge exercises to see what would happen, and we found we were only able to double the normal flying rate. But plans call for these normal peacetime rates to quadruple for the C-141--and increase by a factor of seven for the C-5.

Three points deserve emphasis. First--the peacetime utilization rates for our aircraft have decreased during the last few years. Second--the "surge gap" (the difference between actual peacetime utilization rates and anticipated wartime rates) has increased dramatically. And third--we've never had to attain our programmed wartime surge rates.

Problems of similar magnitude exist in the cargo-related airlift subsystems. During surge conditions, we'll move more cargo out of the CONUS in two days than we move in 30 days during peacetime. Consequently, we've taken a hard look at the surge gap and the relationship between the adequacy of our peacetime training and the demands we're likely to face in wartime. We've concluded that we're simply not flying

our airplanes enough to keep our various subsystems (mentioned previously) in tune. Not only are they each out of tune, but they're not exercised often enough at high demand levels so that we're sure they'll complement each other efficiently when we really need them in a crisis. So we've proposed a new look at airlift readiness which better quantifies our flying hour needs, while defining some very important areas in which we need to train but are not now involved.

MAC also has begun "new look" operational readiness inspections. We test our units during conditions approximating wartime capability. We inspect our units during actual Army, Joint Service, and JCS-directed exercises.

Our readiness revolves around the combat airlift force of: 70 unit-equipped C-5s, 234 C-141s, 488 C-130s, and 112 C-123s and C-7s.

These military airlift resources are complemented by those of the Civil Reserve Air Fleet--or CRAF. We've never considered it financially or operationally practical to maintain a purely military force to handle all contingency requirements. For 25 years we've relied on this very successful partnership arrangement with the U.S. commercial air industry.

The CRAF gives us a practical balance between the need for organic military airlift capability on the one hand, and a healthy, vigorous commercial air industry--to augment the military when needed--on the other.

The CRAF aircraft are designed for commercial operations, but because of the support equipment needed for loading and unloading, they are more difficult to operate in a military environment. Nevertheless, the CRAF produces half of our long-range capability to meet contingencies. The CRAF has never been formally activated, but it has responded every time we've needed it (Korea, Southeast Asia, and just recently, Zaire).

Our organic resources and the CRAF produce a lot of airlift capability. But continuing studies show that even with all of our military transports and all of our civil aircraft in the CRAF, we don't have enough cargo capacity to meet the most demanding of wartime contingencies.

The shortage is in cargo capability to move the Army's large, heavy equipment, such as M-60 tanks, weighing over 50 tons each, armored personnel carriers, self-propelled guns, and the like. These must be deployed in minimum operational configuration and with their crews if military operations are to be successful.

Most of the CRAF resources today are passenger transports; of the 225 CRAF long-range aircraft, only 130 are cargo capable. Even these cargo versions of the CRAF cannot move the Army's tanks and large guns, nor most of the Army's other tracked and wheeled vehicles.

This leaves the C-5 as the only aircraft in the world that can carry the tanks and large guns, and the C-141's must carry the other vehicles and large equipment. Future Army plans include more of these outsize pieces of equipment. For example, the X-M1 Tank will place even greater demand on our outsize cargo capability. To insure we have the right airlift capability to meet the user's demands, we must work together--plan together--today--to meet tomorrow's challenge. Until now, our planning has not been detailed enough.

To help get a better perspective of the wartime job, we're planning the first four thousand loads with the Army, Navy, and Air Force for a European scenario. We have to surface problems now--before we get the order to move somebody. Although we have a lot of airlift capability, to use it effectively we have to think about loads--with respect to priorities and sequencing--now. Detailed planning is required, especially for initial deployment operations.

We're looking at effectiveness-asking our users to critically evaluate what they're taking to war, what must they have, and when must they have it.

We've learned things--first, our planning tended to be optimistic. Working with TAC and their equipment, we found we needed more C-141s than planned because their equipment is light and bulky.

Second, we need to fine tune our use of the CRAF--especially in unit deployments. We have to refine procedures--and practice during exercises.

Finally, we must streamline our procedures during the transition from peacetime to wartime operations. We want to insure that peacetime restrictions--though valid in those environments--do not unduly restrict emergency operations.

We're working on several programs to preserve and enhance our airlift capabilities: reconditioning the C-5; improving the C-141; and modifying the CRAF fleet.

I'll briefly review these programs.

(C-5)

First, the C-5 wing modification. The C-5 represents 50 percent of the total strategic military airlift capability and is the only aircraft--I repeat, the only aircraft--capable of airlifting all of the Army's heavy combat vehicles. All of our past studies have shown that we gain the greatest benefits by maximizing the C-5.

Unfortunately, tests indicate that the wing structure, designed to last 30,000 hours, has a useful service life of only 8 to 9 thousand flying hours.

However, it would be prudent to fix the wing so the C-5 can continue to complement our airlift fleet into the next century.

The cost of the modification exceeds one billion dollars. But it would cost five to seven times that figure to replace the C-5 with a like airplane. The wing modication is the best way to preserve this invaluable asset.

(C-141)

Another major program examines "stretching" the C-141 and providing it with the capability to be air refueled. The first prototype is flying. Called the YC-141B, the aircraft has been stretched by 23 feet, increasing its volume approximately 30 percent. Our initial planning of the first four thousand loads has shown us we'll need that extra volume. In addition to carrying more, the redesigned wing fillet resulted in a fuel consumption that approximates the unstretched version.

Modifying the C-141 fleet will cost between 500 and 600 million dollars. No additional costs are required for more aircrews, or increased support, maintenance, or other facilities; these already exist and have been paid for.

We'd get the equivalent of about 90 new airplanes at a very nominal price; a bargain during these times.

(CRAF Mod)

As I mentioned earlier, the CRAF provides a capability equal to the strategic airlift force. Because most civil aircraft are designed to carry passengers, we have a great deal of passenger-carrying capability, however, we don't have a large capability in the CRAF to carry cargo.

By modifying existing wide-bodied passenger aircraft to carry cargo in an emergency, we can increase the contribution of the civil sector. Once modified, continuing costs are minimal, and the aircraft return to the civil sector until they're needed.

The airlines have offered approximately 80 aircraft for the CRAF enhancement program.

The minimum modification calls for the addition of a nose cargo door and a cargo floor treadway system. This MOD cannot carry as much cargo weight as the maximum modification, which will have a side cargo door and a stronger freighter floor. Planning the first four thousand loads has shown us the advantages we'd gain by adding these systems to the CRAF.

This CRAF modification program is the most cost-effective airlift enhancement.

While the C-5, Stretch C-141, and CRAF modification programs address the immediate future, we're also looking at two ways to modernize airlift--the advanced tanker cargo aircraft (ATCA) and the Advanced Medium STOL Aircraft (AMST). We believe that airlift capability can be gained through aerial refueling.

First, we consider air refueling when we can't get there without it. During the Israeli operation, we used only Lajes in the Azores.

At that time we weren't using the C-5's air refueling capability, and the C-141 had none. Without air refueling or Lajes, we could only have used the C-5, and this would have forced us to operate with one-third of its effective payload.

Secondly, when we must carry sufficient fuel for a long flight, we are forced to reduce our cargo load. In this case, aerial refueling allows us to carry heavy loads long distances. If air refueling had been available during the Israeli airlift, our average of 74 tons per load could have been increased to 104 tons.

The ATCA will greatly improve our efficiency through air refueling. But that's not its only contribution. The fuel will be carried in the lower lobe, leaving the rather large cargo compartment unencumbered, so the ATCA could function as either an airlifter or a tanker, or both at the same time.

I'll be candid: we don't know all the answers concerning this capability--but we are trying to find out. We are currently looking at crossover points: when is it a tanker? When is it a cargo carrier? And in considering cargo applications, should it carry oversize or outsize cargo?

Although the questions aren't all answered--we do know that the ATCA offers an improvement to our capabilities--cargo or refueling.

(AMST)

Our tactical fleet is aging--and the normal aging process was accelerated by hard use during Southeast Asia. By the Mid-1980s, some of our C-130s will be about 25 years old on the average. By 1986, we'll have only about 120 C-130 "E" and "H" models that will be less than 20 years old. And by 1983, our C-7s and C-123s--currently our only extremely short field capable aircraft--will be 21 and 27 years old, respectively.

Not only is our tactical airlift fleet getting older, it does not satisfy current and projected requirements for mobility and resupply of the ground combat forces. Army equipment has grown in size and weight as more combat units are converted into armored and mechanized infantry brigades. We propose to replace the older C-130s, C-123s, and C-7s with the advanced medium STOL transport. They have turbo fan jet engines and large cargo bays to accommodate outsize cargo. Two manufacturers have built two prototypes each. With the flight tests scheduled to end this summer, a source selection will be made in the fall.

The production AMST will be able to carry loads of about 14 tons to unimproved runways no longer than two thousand feet.

In West Germany alone, the AMST could operate from almost three times as many runways as the C-130.

The AMST should reduce the distance Army trucks and helicopters must travel from the landing zone to the troops by two-thirds. This will provide quicker deliver and greater economy. AMSTs could be used to augment the strategic mode with more than double the productivity of the C-130s.

For the late 1980s and beyond, we have ideas on more ways to increase our productivity and efficiency. These could include a new generation of large cargo airlifters designed with both military capabilities and civil utility. The key to this dual role aircraft is further strengthening of the civil-military relationship. An airlift partnership could reduce defense costs by providing the DOD with an expansion capability to meet any contingency and, at the same time, foster international trade and air cargo growth.

European airlines should be encouraged to share in what is a mutual responsibility, since the shortfall in support of our neighbors becomes their problem also. They possess a large fleet of cargo-capable aircraft which, today, remains untapped. If these aircraft could be combined in a NATO airlift reserve consortium, similar to, but separate from, the U.S. CRAF, they could greatly augment the alliance's airlift capability. An ad hoc working group of the NATO civil aviation planning committee is presently examining this issue.

We have to explore every avenue of efficiency to insure that our strategy of mobility rests on firm planning. Like the immigrants I mentioned earlier, we're going to have to pave the mobility "streets."

Again, I'm honored to join you today. This conference provides a forum for the exchange of ideas, and ideas are as valuable as our equipment.

We need both in order to serve our ultimate customer--the American fighting man of the next decade. He isn't here today because he is in grade school and hasn't the faintest idea of who we are or what we're doing here, but he may some day find himself in need of our help.

I wish you every success during this Worldwide Strategic Mobility Conference.

Thank you.

BIOGRAPHICAL SKETCH

GENERAL WILLIAM G. MOORE, JR.
U. S. AIR FORCE

General William Grover Moore, Jr., is Commander in Chief (CINC) of the Military Airlift Command (MAC), with headquarters at Scott Air Force Base, Illinois. As commander of a specified command, CINCMAC is responsible to the President and the Secretary of Defense through the Joint Chiefs of Staff for accomplishment of military missions assigned to him. His command is comprised of airlift forces assigned for accomplishment of his military airlift missions during wartime, periods of crisis, and Joint Chiefs of Staff exercises. CINCMAC is responsible for contingency and exercise planning within the context of strategic guidance provided by the Joint Chiefs of Staff. During periods of crisis he directs the management of all strategic and tactical airlift operations worldwide to insure operational support to unified and specified commands engaged in military operations. Additionally, he serves as Executive Director of the Single Manager Operating Agency for Department of Defense Airlift Service. As Commander MAC, he is responsible for air rescue, air weather, aeromedical evacuation, and combat documentation and audio-visual systems throughout the world.

General Moore was born in Waco, Tex., on May 18, 1920, and graduated from London High School, New London, Tex. He attended Kilgore College, Kilgore, Tex., from 1937 to 1939, and The George Washington University, Washington, D.C., during 1961 and 1962. He graduated from Air Command and Staff School in 1950, the Air War College in 1957, and the National War College in 1962. He completed Airborne Jump School, Fort Benning, Ga., in 1962.

General Moore began his military career in 1940 by enlisting in the Army Air Corps as an aviation cadet, and in May 1941 graduated with a commission as a second lieutenant. His first assignment was as an instructor pilot in basic flying school at Moffett Field, Calif. From May 1942 to May 1943, he served as a training squadron commander at Chico, California.

During World War II, General Moore commanded the 777th Bombardment Squadron, 464th Bombardment Group, 15th Air Force, in Italy.

After World War II, he served as Troop Training Coordinator at Minter Field, Calif., and Commandant of Students at the Army Air Forces Aircraft Observer and Bombardier School at Mather Field, Calif. From October 1947 until May 1951, he was on inactive duty and a member of the active Reserve force.

In May 1951, during the Korean War, General Moore was ordered to active duty and assigned at Mather Air Force Base, Calif., as Commander of the 3535th Maintenance and Supply Group. In December 1951 he went to Korea and commanded the 3d Bombardment Group based at Kunsan.

From January 1953 to August 1956, General Moore served at Headquarters U.S. Air Force, Washington, D.C., in the Directorate of Operations. In August 1957 he was assigned to Headquarters U.S. Air Forces in Europe at Wiesbaden, Germany. He entered the National War College, Washington, D.C., in August 1961.

In August 1962 General Moore became Commander of the 314th Troop Carrier Wing, Sewart Air Force Base, Tenn. In September 1963 he was appointed Commander of the 839th Air Division.

From March 1965 until October 1966, General Moore was the Deputy Director of Operations, J-3, U.S. Strike Command, MacDill Air Force Base, Fla.

From November 1966 to December 1967, General Moore reactivated and commanded the 834th Air Division at Tan Son Nhut Airfield in the Republic of Vietnam. He was responsible for tactical airlift within Vietnam.

In December 1967 he assumed duties as Director of Operational Requirements and Development Plans, Deputy Chief of Staff, Research and Development, Headquarters U.S. Air Force. He became Commander of the 22d Air Force, Military Airlift Command, at Travis Air Force Base, Calif., in February 1970.

In September 1972 General Moore assumed command of 13th Air Force--known as the Jungle Air Force. He was responsible for U.S. Air Force units in Taiwan, Thailand, and the Republic of the Philippines. He personally greeted all returning prisoners of war from Hanoi and South Vietnam.

General Moore was assigned as Chief of Staff, Pacific Command, in October 1973. He became Assistant Vice Chief of Staff, United States Air Force, with the additional duty of Senior Air Force Member, Military Staff Committee, United Nations, in October 1976. He assumed his present duty on April 1, 1977.

General Moore is a combat veteran with 100 missions flown during World War II and the Korean War, and with more than 150 missions in the Vietnam conflict. His military decorations and awards include the Distinguished Service Medal with two oak leaf clusters, Silver Star, Legion of Merit with four oak leaf clusters, Distinguished Flying Cross with one oak leaf cluster, Air Medal with nine oak leaf clusters, Joint Service Commendation Medal, Air Force Commendation Medal with one oak leaf cluster, Army Commendation Medal, Croix de Guerre with palm, Vietnamese Air Force Distinguished Service Order, 2d Class, and Armed Forces Honor Medal, 1st Class, with one cluster (Vietnam).

General Moore is married to the former Marjorie Y. Gardella of Stockton, California. They have a daughter, Allyson Moore Phillips. His hometown is Stockton, California.

The Senate confirmed his Presidential nomination to the grade of general on April 1, 1977.

NATO STRATEGIC MOBILITY

A PRESENTATION BY

ADMIRAL ISAAC C. KIDD, JR., USN

TO

WORLDWIDE STRATEGIC MOBILITY CONFERENCE FOR 1977

NATIONAL DEFENSE UNIVERSITY

FORT McNAIR, WASHINGTON, D.C.

2 MAY 1977

Ladies and Gentlemen, I am honored to be with you today. I'll not bore this room full of transportation professionals with any of the usual cliches about the importance of transport and mobility in warfare, designed to impress you all that the speaker understands the subject. Probably the only reasonably fresh opening remark that can be offered is the idea that never before in the history of warfare has an alliance faced such a formidable strategic mobility problem as the one we face today--in the simplest of terms, ladies and gentlemen, we must develop the capability to move millions of men and millions of tons, across a hostile ocean, at a speed from a standing start that is beyond any previous conception. And if we don't, we may as well tear up the NATO charter, and some of our own national defense plans at the same time.

The agenda says that Ike Kidd is here today as the Supreme Allied Commander Atlantic. That calls for the NATO hat, and the rest of these remarks will not be coming at you from an American, but rather from the Commander responsible for maritime operations by the North Atlantic Alliance in the Atlantic--and that includes the air lanes above the surface of the sea.

Let's talk first about the mission of the NATO Atlantic Command, so that we can see how the basic Strategic Mobility Mission element is interwoven with other related mission elements. Then, we will consider all the different tasks that will have to be done in order to carry out the mission, so that we can ponder whether they can all be carried out simultaneously, or whether we are now forced to prioritize, and sequence them. Third, these remarks will expand on the NATO Strategic Mobility problem: The reinforcement of Europe from North America, and then resupply of American and Allied Armed Forces--plus the resupply of the economies and industries of the Allies, including the U.S. Finally, we will examine the question of control of the sea. In this connection, we will briefly review the size and nature of the threat against our transatlantic LOC's and then perhaps we can wind up by taking a realistic look at what may be the weakest link in our strategic mobility chain: the resources to ensure safe passage, whether by sea or air. All the sealift and airlift planning and investment in the world is a waste, unless the Atlantic Command can provide safe sea and air highways from America to Europe. Everything else would be a drill.

Let's begin with the NATO Allied Command Atlantic mission.

From the beginning of NATO, deterrence has been the dominant goal of the North Atlantic Alliance. The aim of the alliance has been and continues to be the security of our nations,

without resorting to war. Indeed, history will judge the NATO Alliance to have been successful if NATO military forces are never required to be committed to combat.

On the maritime front, the deterrent role of the Atlantic Command, has, from the beginning, contained three elements.

First, and most obvious, is the strategic deterrent role, played in large part today by the strategic missile submarines of the British and U.S. Navies.

The second element is the capability to confront the combat forces of the Soviet Navy--especially the northern fleet--with NATO naval forces in large enough numbers, sufficiently modern, sufficiently well trained, sufficiently experienced in working together, and in such fine materiel condition and so well postured as to make it clear to the Soviets that adventurism at sea would be too costly.

The third element of the Atlantic Command's deterrent mission is the one of direct and obvious interest to this group of professionals--this element is strategic mobility, or rather to be more precise, membership with a group of partners in the strategic mobility business. This job has two aspects:

First, to provide safe lines of communication so that U.S. and Canadian reinforcements can be delivered to the European mainland, along with the British and Netherlands Marines--in response to NATO's requests as to time and locations. We are talking about men, their arms and heavy equipment and their initial supplies, including ammunition and fuel, the vast preponderence of which will be moved by sealift.

The other aspect of SACLANT's strategic mobility role is the capability to control the sea for safe passage of merchant ships, so that NATO military forces can be resupplied and so that the economic requirements of the NATO nations for food, fuel, raw materials and the exchange of manufactured goods can be satisfied. Now, there is no presumption in this role of either a long war or a short one. So long as the Soviets perceive we have the capability to reinforce and resupply, they should realize that they can't win a war in the long term. This is <u>powerful</u> deterrence, often overlooked or insufficiently understood.

Now, how do we expect to carry out those mission elements? What are the individual tasks that must be accomplished if the Atlantic Command does its job?

First of all, we would probably take every advantage of the Soviets' geographic disadvantage. Actually, world geography

remains one of the bright spots in an otherwise darkening maritime environment. The main forces of the Soviet Navy are based far north, in the Barents Sea. If we played our cards with reasonable skill, the Soviet would have a difficult time getting out of his cage to fight. And that's not all. Whatever ships did get out and fired off their weapons would have difficulty getting back to reload and repair.

We would probably hit hardest in the north to close the Greenland-Iceland-UK gap, and attack as close as we can to the routes by which he must deploy to get out. Two major task forces built around aircraft carriers. . . these would be persuasive equalizers in the north.

Even before moving these ships into position, SACLANT might ask for SACEUR augmentation of our air forces along the Norwegian coast, to both interdict Soviet air strikes against our fleet, and to sink his ships as he tries to come out in force.

At the same time, we would be called on to deliver the U.S. Marines in a series of major amphibious lifts--to be protected en route, put ashore and supported where NATO requests.

Concurrently, we would need to deploy task forces, with aircraft carriers and other units, for control of the broad North Atlantic so that the American reinforcements can be delivered.

At the same time, we would be required to send merchant ships and tankers to Europe, in a combination of convoys and independent sailings, carrying the reinforcements' unit equipment, ammunition, fuel, and initial supplies plus resupply for the American reinforcements and resupply of NATO European forces. The minimum needs of the industries and economies of all the allies must also be supplied.

During all of this, we would, of course, have to carry on an antisubmarine campaign against the Soviet submarines that elude our strike forces. This campaign would be carried out with NATO surface, subsurface and air antisubmarine forces. It may turn out to be the key to our survival--including the success of the land war.

Concurrently, we would be engaged in a mine war, where we might seize opportunities to sow mine fields at choke points. At the same time, we may have to commit significant specialized forces to mine clearance.

Finally, and critically, all these ships and plans would require logistic support. Next to geography, NATO's ability

to refuel, rearm and repair far from home base is an advantage we hold, at the moment, over the Soviets. This requires oilers, ammunition ships, stores ships, repair ships and logistic aircraft.

Based mainly on this strategy, the SACLANT staff calculates the requirement for forces to meet the Soviet threat. It is no secret that these forces are not provided by the member nations.

Because of financial restrictions, the Atlantic forces are constrained to significantly fewer forces than required to do the full mission.

The SACLANT mission has not changed in over 20 years, yet our numbers are going down year by year, while Soviet strength increases. ACLANT can no longer carry out, simultaneously, the tasks it should.

Let's examine what that means to SACLANT's strategic mobility role.

North American forces intended for reinforcement of NATO Europe include troops, their unit equipment, their initial supplies of ammunition, fuel and other needs. There is a tendency to believe our considerable airlift capacity can solve the reinforcement and resupply problem. This is an erroneous assumption--on the contrary, by reason of sheer volume, the great bulk of the equipment, weapons, ammunition and other initial supplies--plus the follow on resupply pipeline--must be delivered on the surface of the sea.

Our total airlift capacity--without allowing for any combat losses--is capable of delivering most of the people and some of the light maneuver equipment during the buildup period. But this is only 5% of the requirement. It would remain for sealift to deliver 95%, or more, of the weapons and munitions these units must receive if they are to serve in the field as modern, mechanized forces.

There is a new and emerging appreciation of the immensity of sealift, as a key element of our deterrent posture. We have just finished a NATO exercise in which the sealift of the U.S. 101st Airborne Division to Europe was successfully tested. The Supreme Allied Commander in Europe, General Haig, the Commander responsible for military deterrence on the European mainland, is one of the foremost proponents of new initiatives to improve reliability and timeliness for the sealift of reinforcements. General Haig, the British Commander responsible for the English Channel, and ourselves in SACLANT have recently undertaken a joint analysis of our sealift situation. Here

are some of the things we've learned in our preliminary investigation.

First, the value to our deterrent posture of maximum possible warning time and early action is as important to the reinforcement of Europe as it is to our naval combat forces in any confrontation with the Soviet combat fleet. With early action, reinforcements can be moved to Europe in time to represent a real, meaningful deterrence on the land. And our weapons and equipment will thus not risk loss at sea.

Present arrangements by the NATO Planning Board for Ocean Shipping call for augmentation of the U.S. Merchant Fleet by NATO European merchant ships to help carry North American reinforcements--their equipment and ammunition. However, this arrangement does not provide for augmentation of the U.S. ships by European merchant ships unless and until hostilities have started. This is too late. In a time of rising tension, North American reinforcements could be delivered to Europe in about 15 percent less time if European merchant ships augmented the U.S. merchant fleet immediately.

Further, reinforcements by sealift before hostilities begin can be accomplished by independent, unescorted sailings of our fast merchant ships. This is dramatically faster than the formation and movements of convoys. The delivery could be made in another 20 percent less time if we do not procrastinate until we find ourselves faced with protecting convoys across hostile waters.

These are only some of the steps we must take to improve the response of our sealift to the reinforcement mission. These particular steps are noteworthy because they do not require new investments. The ships already exist. The steps necessary to make use of them can be effected through NATO and national determination and willingness to act early in a period of tension.

Looking beyond delivery of the American reinforcements, SACLANT's strategic mobility role calls for control of the sea so that NATO forces can be resupplied and the minimum economic requirements of the NATO nations for food, raw materials, and manufactured goods can be satisfied.

Although there is much left to do, we can, in general, agree that the fundamental lift requirements for strategic mobility can be satisfied.

Point: Merchant ships needed for delivery of the American reinforcements have been, in general, identified and committed by the U.S. and the NATO partners.

Point: The total requirement for resupply sealift in support of the NATO forces and minimum economic requirement is roughly estimated to be 6000 ships. Our nations own more than 10,000 ships capable of being used for this purpose.

Point: The peacetime port capacities of our nations are considerably larger than the projected wartime requirement.

Point: We have plans and we conduct exercises involving sea lines of communication across the North Atlantic.

Point: We have negotiations underway now to improve the mix of merchant ships committed to strategic mobility, and to speed up the turnover of ships in a time of tension.

In fact, so far as lift assets are concerned, we may soon have progressed as far as plans, negotiations, agreements, and analysis can take us. Unfortunately, there remains a big fly in the ointment--the Soviet Navy.

The main point I want to get across today is that we have some chinks in our strategic mobility armor that may not be getting enough attention. We who are engaged in the strategic mobility business these days may sometimes be mesmerized by the administrative and logistic romance of time phased force deployment computer runs, debates over RO-RO ships versus containerships, gnats' eyelash measurements of port capacities and the like--and don't believe for a moment we don't realize how important they are--but who the hell is worrying about the sea and air lanes themselves--across the Atlantic--other than to measure the expected times of crossing? What makes us so all fired sure any of the stuff is going to get there?

Sometimes we may be like the division commander who has a big river to cross. His staff has proceeded in a thoroughly professional way to measure the loads, mobilize the trucks, and organize the movement--just one thing--nobody has checked to see if the blasted bridge is out!

In the early years of NATO, the principal military concern and strategic thinking were directed toward defending the Alliance from military pressure on the mainland of Europe. The maritime situation in those times encouraged this orientation, because the Soviet Navy was small, unsophisticated, and capable only of defensive action in home waters. The naval forces of the NATO Alliance in those times were comparatively overwhelming.

Unfortunately, a deterrent posture cannot be bought once and be expected to retain its effectiveness forever. If a potential adversary produces new challenges, then these new challenges

must be met and answered--otherwise the original deterrent posture loses its credibility and eventually has no value at all.

In recent years the Soviet Union has, indeed, produced new military challenges--some, so far, have yet to be effectively met. It may be true, as some say, that the military concern and strategic thinking of our Alliance remain focused on the land and air threat to the mainland of Europe while the Soviets have expanded their military preparation to include a massive buildup of sea power.

Recent years have witnessed certain radical changes to the military development of the Soviet Union.

First: The Soviets have become a major global sea power. They have effected a dramatic qualitative improvement in naval forces. Long-range nuclear submarines have replaced conventional submarines. Modern missile equipped surface combatants and long-range naval aircraft with sophisticated electronics have been introduced. They have developed a nuclear power strategic missile submarine force capable of threatening the Alliance from any of the world's oceans. They have expanded their shipbuilding capacity beyond any reasonable defensive need. For example, they now have the capacity to build nuclear submarines at a faster rate than the Alliance. Their merchant fleet is now the fifth largest in the world, and it is complemented by a well equipped fishing fleet and a worldwide oceanographic research effort. The Soviets have linked their merchant and fishing fleets to their naval forces by an effective command and control system, so that the merchant fleet is an effective logistic and intelligence arm of the Soviet Navy.

Another Soviet naval development--this one a matter of direct interest to the audience--is the demonstrated new interest in NATO sea lines of communication. Articles by Soviet officers cite the importance and the vulnerabilities of NATO sea-lanes, over which reinforcements, military resupply and economic necessities must be delivered. In 1975, the Soviets executed the largest naval exercise ever conducted, Okean 75. In this exercise, they simulated NATO reinforcement efforts along the routes that NATO cargo ships must travel, and practiced interdiction strikes against those routes. The Soviets demonstrated both the capability and readiness to interdict reinforcement and resupply.

A third important change, also impacting directly on SACLANT's strategic mobility role, is the new projection of Soviet naval power far from Soviet home waters.

The nations of the Alliance depend on African, Mideastern, South American and Pacific nations for a large proportion of the raw materials they need. Together we produce about 40% of our fuel needs and import about 60--about one-half from Arabian and Iranian sources. Ninety-six percent of the world's chrome lies in Africa. Prosphate, bauxite, alumina, manganese and sulphur require delivery over the sea from outside the NATO area, bounded in the Atlantic by the Tropic of Cancer. Without imported fuel and raw materials, the industrial production and economic vitality of the NATO nations--including the U.S.--can be severly damaged. If the Soviets have the capability to interdict sea-lanes of the South Atlantic and the Indian Ocean, the economic lifeline of the NATO nations can be threatened by our potential adversary.

What have been the motives for their unprecendented expansionism at sea? Some obvious reasons include projection of sea power to distant areas in support of national policy plus a straightforward desire to be capable of interdicting North American reinforcement of Europe. Perhaps they perceive that, if they can frustrate the resupply of NATO Europe, they can destroy the military effectiveness of the Alliance--indeed they might be able to do so by interdicting the delivery of petroleum alone.

What lies ahead for the North Atlantic Alliance at sea? Which turns out to be another way of asking: How real is our strategic mobility capability?

If the NATO Alliance expects to maintain a posture of deterrence, then steps must be taken to counter and nullify the recent Soviet maritime initiatives--it's as simple as that.

You will recall that the second element of the Atlantic Command's deterrent posture is the capability to confront Soviet combat forces. I believe we still have the strength in ACLANT to confront the Soviet Navy at sea and persuade them that they would lose if it comes to a fight. For the time being, we still have geography on our side. If our Governments can make maximum use of warning time, if SACLANT forces can move when the political situation starts to deteriorate, we could meet the adversary in strength and with confidence at points of our own choosing in the world's oceans.

Now, this confidence could become transient. Why? Because we could all see the naval power balance shift in favor of the Soviets, just because he's trying harder.

Looking beyond the confrontation of combat forces, into the business of strategic mobility, we find a confused picture.

We have a dozen very fine officers in Norfolk who can tell you down to the last man and box, what moves to Europe in the reinforcement, through which ports, and almost, in which merchant bottom. On the other hand, I don't believe there is anyone in Norfolk--and maybe not in Washington either--who can provide a comparable handle on how we are going to move those men and tons and bottoms safely past the Soviet Navy.

As primitive and tentative as our handle is, on the protection of merchant shipping, things are even more vague when we address the protection of air lines of communication. Our staff does strategic mobility analysis using assumptions that combat attrition of the airlift will be nil, and I guess we all recognize that's nonsense. We find considerable attention being given to technical developments that will increase airlift capacity--and they are, of course, important and worthy endeavors--but I can't help but wish we in Norfolk had a better handle on resources and plans to protect the air LOC's. General Moore's very first worry, every morning, should be whether or not we in SACLANT can hold on to Iceland and the Azores. If we should lose them into Soviet hands, you would have to wonder what would happen to any plans to use airlift.

Returning to sealift--which is the main element in strategic mobility insofar as NATO is concerned. This is simply because volume dictates that 95% or more of the reinforcement will have to move by sea.

The reinforcement of Europe can be considered a viable strategy if and only if our Atlantic maritime forces can find and neutralize Soviet submarines. Now think about that statement, and challenge it if you can. I'm saying that our basic capacity for reinforcing Europe--and that reinforcement is the jewel bearing of the whole NATO strategy--I'm saying that our strategic mobility depends not mainly on cargo airplanes, merchant ship arrangements and negotiations, force deployment preparations, or port capacities--the strategic mobility of NATO depends mainly on whether the Atlantic maritime forces can find and neutralize Soviet submarines. It's that stark and simple.

What are we going to do about it? Well, first of all, there is a U.S. improved antisubmarine surveillance program that is addressed to certain radical improvements in our ability to detect enemy subs. The details of that program are, at this time, highly classified--but there is one thing we know: we're going to be damn sorry if we don't buy it. Everything

else we do and buy may just turn out to be academic.

Next, we need more escort shipping and antisubmarine patrol aircraft. Our problem here is with all the NATO partners--and it is not only involved with national defense budgets being too small, but also with allocation of funds within defense budgets for seagoing antisubmarine forces--ship and air. There's no point in preaching to the choir about this today, except to repeat an earlier point: fifteen years ago, the navies of the Alliance were overwhelmingly superior, and we all focused on the land and air war on the mainland. Today, we simply have need for a different psyche--the defense of Europe doesn't work unless the American reinforcements arrive; they and their gear basically come in ships; those ships are threatened by a vastly improved Soviet Northern Fleet, with about 150 first rate submarines; Point: Our national, and NATO, first order of business should be--must be--to recognize and counter that threat.

Let me sum up the points I have tried to make today:

First - The main mission of the NATO Allied Command Atlantic is deterrence, and the capability for strategic mobility--the reinforcement and resupply of Europe--is a keystone of our deterrent posture.

Second - The backbone of NATO strategic mobility is sealift--especially the movement of millions of tons of tanks, guns, ammunition, fuel and supplies from North America to Europe.

Third - Most of the resources for NATO transatlantic strategic mobility already exist, in the form of airlift plans, merchant ships, and ports plus plans and arrangements. The matter that should be the focus of our concern, the absolute first order of business, should be the resources we need to move those ships and plans safely across a hostile ocean.

This is old business. The strategic mobility role of the Allied Command Atlantic has not really changed since NATO was founded.

On the other hand, the Soviets have made significant changes to the military environment at sea. They have developed formidable new and sophisticated missile ships, submarines and long-range aircraft. They have developed and exercised the capability to interdict the reinforcement of Europe from North America and they have projected naval power far outside Soviet home waters, to areas vital to our nations' economies and astride our economic sea-lanes.

Unless we do counter these new Soviet initiatives, then we can expect our claims to strategic mobility to become empty of credibility.

I believe that precious funds must be diverted--in all the countries of the Alliance--to the ships and maritime aircraft we need for control of the sea. It has got to be recognized as the keystone, the primary requirement, for military defense against the Warsaw Pact. If this does not come to pass, and if the resources are not forthcoming, we will find ourselves--as did that division commander I spoke of earlier--ready to cross the river, but the bridge may be out.

BIOGRAPHICAL SKETCH

ADMIRAL ISAAC CAMPBELL KIDD, JR.
U. S. NAVY

Isaac C. Kidd, Jr., received a Presidential appointment, at large, to the U.S. Naval Academy. He was graduated from the Academy and commissioned Ensign on December 19, 1941, just 12 days after the attack on Pearl Harbor where his father, Rear Admiral Isaac C. Kidd, was killed on board his flagship USS ARIZONA; the first American flag officer killed in action in any war; posthumously tendered the Nation's highest award, the Medal of Honor.

The former Marie Angelique de Golian of Atlanta and Admiral Kidd were married in 1942. They have six children: Isaac III, Kevin, Angelique, Christopher, Regina and Mary Corrinne.

Admiral Kidd remained at the Academy until May 1942 as Company Officer for Reserve Officers and Executive Officer of the V-5 Instructors Classes. He then joined USS COWIE and took part in North Atlantic convoy duty and the invasions of North Africa, Sicily and Italy.

He next served in USS PUTNAM and saw action in Leyte Gulf; Saipan and Tinian operations; Iwo Jima; radar picket duty and gun fire support off Okinawa; rescued the few survivors of USS TWIGGS, which had been sunk by kamikaze; and assisted in salvage of USS PENNSYLVANIA, hit at Buckner Bay.

In April 1946 Admiral Kidd reported to the staff of Commander Destroyers, Atlantic Fleet and while there organized and started the Destroyer Gunnery and Engineering Schools. He served in the Bureau of Naval Personnel before serving in USS SALEM and commanding USS ELLYSON.

Admiral Kidd returned to the Naval Academy in August 1953 as Aide to the Superintendent and then returned to sea to commission and command USS BARRY from May 1956 until May 1958. For the next two years he was Assistant Head of the China-Northeast Asia Strategic Plans and Policy Division, Joint Staff of Commander in Chief Pacific.

He attended the National War College in Washington prior to joining the SIXTH Fleet as Commander Destroyer Squadron Thirty-two. He next commissioned and commanded the Navy's first all missile squadron, Destroyer Squadron Eighteen.

He subsequently served for over four years as executive Assistant and Senior Aide to the Chief of Naval Operations; as Chief of Logistics at NATO Headquarters in Naples, Italy; commanded Cruiser Destroyer Flotilla Twelve and the First and Sixth Fleets.

Admiral Kidd served as the Chief of Naval Material from December 1, 1971 to April 18, 1975.

He became Supreme Allied Commander Atlantic, Commander in Chief Western Atlantic area, Commander in Chief Atlantic and Commander in Chief U. S. Atlantic Fleet on May 30, 1975.

Admiral Kidd's decorations include the Defense Distinguished Service Medal, Distinguished Service Medal with two Gold Stars in lieu of second and third awards, Legion of Merit with two Gold Stars in lieu of second and third awards and the Bronze Star Medal with Combat "V".

BUILDING BRIDGES ... NOT BARRIERS

A PRESENTATION BY

MR. GERALD W. COLLINS

TO

WORLDWIDE STRATEGIC MOBILITY CONFERENCE FOR 1977

NATIONAL DEFENSE UNIVERSITY

FORT McNAIR, WASHINGTON, D. C.

2 MAY 1977

The theme of this conference is announced as "Strategic Mobility -- What Does It Mean To You?"

As a spokesman for the National Defense Transportation Association, I am going to respond to the theme on the basis of what I feel would be the response of the majority of members of NDTA. I admit that some of my comments will represent a JUDGEMENT CALL on my part, because in several cases, the issues may not have been formalized as policy by the Association and it will require some interpretation of moods and attitudes.

For those who may not be acquainted with the National Defense Transportation Association, I think it is appropriate to spend a moment to advise you that we are . . .

-- An organization of about 10,000 men and women who are affiliated because of our interest in defense transportation matters.

-- A large percentage of our historical activity has involved working with the Department of Defense and other government agencies in order to improve the nation's transportation techniques and service.

-- The organization is free-world wide with major chapters in Europe, the Far East, Panama and, of course, primarily in the United States.

-- Membership consists of people directly involved in the transportation function . . . approximately 10 percent hail from the government.

The theme of this Conference could not have a more direct application to NDTA goals. Strategic Mobility has been a fundamental concern of the members of NDTA and Transportation is the cornerstone of Strategic Mobility. Members of NDTA and the companies they represent, provide the actual capability that makes the U. S. Strategic Mobility a reality.

I am sure I don't have to remind this audience that today any military movement must depend primarily upon the commercial carriers (the rails, the trucks, the air, the marine systems) for implementation. DOD, of course, has a limited ability to respond with organic equipment, but the key word here is "LIMITED". No exercise of any consequence will move without primary dependence upon the commercial capability.

Some of us in this room are old enough to remember the pathetic transport resource available to the military at the time of Pearl Harbor. Then we witnessed the tremendous build-up during World War II, which produced the world's largest naval force and an air force second to none.

Following that war, we went through periods in which these great military transport systems were curtailed and then augmented as we experienced the Berlin Blockade, the Korean War and the Southeast Asian Conflict. In more recent years, budget reductions have been the order of the day and the Military transport capability has reached a point where, except for the Military Airlift Command Fleet, organic military transport is almost a non-factor.

The Military today structure their plans around the privately owned transportation systems for any large-scale move. Southeast Asia was a real test of this relationship and the military logistician and the private transportation executive became a pretty good team. The logistic lifeline from the States to Viet Nam was one of the longest in history and, of course, it continued for almost nine years. The demands on transportation were severe, but the companies were able to provide the shipping and the airlift and....at the same time.... the nation's commercial services functioned quite normally. That performance says a great deal for the ability of the various transport systems and it indicates a capacity to meet even more severe demands, should it be necessary!

We know that 95 percent of the tonnage moving to Southeast Asia moved in U. S. ships. I would estimate that 95 percent of that 95 percent moved in commercial bottoms rather than military owned shipping.

Also in Southeast Asia, the commercial air carriers carried almost 100 percent of the personnel who moved in and out of the war area. They also moved a substantial percentage of air cargo. However, the MAC fleet carried the biggest share of the air cargo.

The 1973 Arab-Israeli war provided a different scenario and a different solution. It was a good example of why we, as a nation, require a nucleus military airlift as well as a strong civilian support. Primarily for political reasons, the resupply effort dictated the use of military aircraft. We and the Israeli were fortunate indeed that the MAC fleet was available. This type of political situation could easily occur again and it is a valid reason for continuing the nucleus MAC airlift.

However, at this time, and for at least the immediate period ahead, we, as a nation, are committed to major reliance upon commercial transport to meet extended military requirements. I might add that U. S. shipbuilding has gone in much the same direction. Naval shipyard activity has been reduced significantly over the past 20 years or so, so that private yards are providing the bulk of the new construction.

Since our national direction is dedicated to a reliance upon the commercial sector, it is well to ask whether the civilian transportation systems can be fully responsive in military situations. Obviously there are risks. In a national emergency there is no substitute for instant understanding and instant response. Relying upon the private sector to respond to military directives, means that the transport executive must understand the problem fully and hopefully his response options anticipated. Thorough pre-planning between the Military and Industry is required. In this environment, teamwork and cooperation are the ingredients that will produce a responsive mobility. Team work requires pre-planning and then testing the plan with all concerned parties. Industry as well as the Military, must know what the goals and requirements are and each must be brought into the planning.

There needs to be a conscious effort on the part of the Military to seek out industry advice and counsel before plans are set in concrete. A <u>full partnership</u> concept needs to be developed.

Some eyebrows might have elevated when I suggest a "Partnership" . . . because of the competitive instincts that characterize all good free enterprise activity. However, the answer to that one is to work through the Associations. The Association can secure the same technical skill from Industry and they know how to avoid concern over charges of preferential treatment.

At this point, I would like to digress a moment to discuss briefly a development that could have a more adverse impact on our Strategic Mobility than any other single factor.

It has been apparent to those of us in the Defense Association field that a major change in attitude has been developing for the last two to three years relative to the so-called "Military-Industrial Complex". This came to a head about two years ago when a limited few individuals were found to have used bad judgement in accepting certain hospitality. Those involved were singled out and punished. Unfortunately, however, the few bad apples that were found in the barrel caused a major restatement of DOD policy applicable to relations between Industry and the Military. The new interpretations were intended to eliminate any possibility of abuse. The net result has been to build a major barrier between the Military and Industry representatives.

Those of us who have tried to work with these regulations over the past two years are keenly aware that it has severely limited the free exchange of information that was the hallmark of our conferences and meetings. The new interpretations created a great uncertainty over what conduct was approved and what was not. The officer is not sure whether he can sit down

and have a cup of coffee with a defense contractor. As a result, they usually will not. The industrial companies involved in defense business are likewise uncertain on how to deal with their DOD contacts. Normal interchange of views between the industry spokesman and the military personnel has been inhibited and that interchange could well be vital to a particular mission or project.

The real strength of this nation is its industrial base. The history of our nation shows that in contrast to the monolithic dictator-type governments, which we view as inferior to our own, the strength of America has been the inventive genius of our free society.

For this reason, I suggest that a recent statement by the Office of Management and Budget, which critizes industry advisory committees, is not well thought out. The nation's best technology, inventiveness and production capability rests in the private sector. These are the skills that win wars. Our problem as a nation seeking military strength at an affordable cost, is to successfully integrate the private sector's knowledge and capability with the needs of the Military. A good way to do this is through the exchange of information. . . . and Advisory committees are a logical mechanism.

Participation in industry associations such as the National Defense Transportation Association by industry and government people is another way to encourage the exchange of information. Conferences . . . trade shows . . . work shops . . . sponsored by Associations enables the Military and the Industry men or women to discuss common problems and to understand each other's responsibilities better.

Some of America's greatest successes have come about by virtue of a partnership arrangement between industry and government. We can all recall the Manhatten Project that gave the nation the Atomic Bomb at a critical point in our history...The fabulous space program that placed Americans on the moon within a limited time period...The U.S. aircraft industry which is the envy of the world. These are largely the result of joint efforts by the industry and government interests. The interstate highway system, often called the "EIGHTH WONDER OF THE WORLD" ... again the product of a joint effort between industry and government!! They were successful because these two groups shared knowledge . . . each knew the plan and each was a committed partner to the mission.

I suggest that building bridges of this type between the transportation industry and the military will give the nation the strategic mobility we need.

And to do this, we need MORE interface between the people in government and those in industry . . . NOT LESS!

We need MORE Advisory Committees in government and industry ... NOT less!

To overcome the prevailing antipathy to this type of exchange, however, will require each of us to stand up and UN-SELL the idea that a military officer cannot use good judgement and that U. S. Industry's only God is greed! I am certain from my twenty-plus years in this business, that such is not the case and I feel strongly that the security of this nation may well wind up in the hands of these two groups and I want them to know each other very well indeed!

I apologize if I have carried on a bit too long on this point of Industry-Military relationships. To me, it is quite important . . . I hope you agree!

LET ME SUMMARIZE MY MESSAGE IN THIS FASHION:

It is obvious that this nation, at least for the immediate future, will be following the policy of primary reliance on the commercial carriers to meet transport requirements. The industry is capable of handling foreseeable demands, provided that the commercial operator is fully informed and that he has a reasonable time to respond.

My major concern is whether full and open communication between these two elements can be achieved in today's climate. A significant interface is a prerequisite to a timely response.

I have made several suggestions as to how good communication can be achieved. I take some exception to current DOD Standards of Conduct regulations as being overly severe and with detrimental results on vital day-to-day contacts. I suggest that serious consideration be given to additional industry advisory committees in the defense transportation area. Specifically, I suggest such committees be formed by the Military Traffic Management Command and Military Sealift Command agencies. The Military Airlift Command already has a very active committee. Such an advisory activity will provide the Commander with a regular contact with the best experience and brains in his field. It will cost the government almost nothing.

Finally, I suggest that the Department of Defense encourage, to the maximum extent, participation in education-type exchange programs, such as the ones sponsored by NDTA where industry and government exchange personnel for a short period in order to understand each other's operations better. Over a period of time, the benefit from such a program can be significant.

In short, I am suggesting a more complete partnership between the transport man in uniform and his counterpart in industry. We need to know one another much better if the national goals are to be realized and if Strategic Mobility is to be achieved.

BIOGRAPHICAL SKETCH

GERALD W. COLLINS
EXECUTIVE VICE PRESIDENT
NATIONAL DEFENSE TRANSPORTATION ASSOCIATION

In September 1963, Gerald W. Collins was named Executive Vice President of the National Defense Transportation Association. NDTA, with international headquarters in Washington, D.C., is comprised of more than 13,000 professional transportation specialists with over 100 autonomous Chapters throughout the United States and overseas in twelve countries. As Executive Vice President, he oversees the activities of these Chapters and works closely with leaders from all segments of the military, government and commercial branches of the transport industry.

Immediately prior to this, Mr. Collins served eight years as Manager of the Transportation and Communication Department of the Chamber of Commerce of the United States in Washington, D.C.

Mr. Collins came to the Washington area in 1955 from Southern California where he served as Director of the Transportation Division of the Los Angeles Chamber of Commerce for 4 years.

Gerald W. Collins began his transportation career as a Rate Specialist with the California Public Utilities Commission at Los Angeles in 1941. In 1942 he entered military service with the Army Air Force. He qualified as a pilot and flew thirty combat missions in the European Theatre. He was discharged in 1945 with the rank of Captain.

He returned to the Public Utilities Commission and remained until 1951. During this 8 year tenure, he participated as a Rate Expert in formal rate and route cases pending before the Commission. Mr. Collins studied Law at Southwestern University for three and a half years at night.

He is a licensed practitioner before the Interstate Commerce Commission; a Founder Member of the American Society of Traffic and Transportation; a member of the Board of Directors of the Suburbia Savings and Loan Association, Bethesda, Maryland; and, a member of the American Society of Association Executives.

"Gerry" Collins, as he is known to his personal friends, was born in Canon City, Colorado and moved with his family to Southern California in 1930. He now resides in Bethesda, Maryland.

THE HORRIBLE MISTAKE

A PRESENTATION BY

MR. W.J. AMOSS, JR.

TO

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3 MAY 1977

The topic that was posed to me within the theme of this year's conference was How the Shipping Industry Fits in to Strategic Mobility.

I promptly accepted General Casey's invitation to speak to you this morning confident that I would have something useful to say. Perhaps I have even if I don't really know how the shipping industry fits into strategic mobility. Worse yet, no one in the Defense establishment has told me how they think the shipping industry fits into strategic mobility so that I might tell them what I think about how they think the shipping industry fits into strategic mobility.

In time as this date drew nearer, I called a few friends like Ed Heine, President of U.S. Lines; Norman Scott, President of American President Lines; Jim Horn, President of American Export Lines; Tom Smith, President of Farrell Lines; Captain Jay Clark, President of Delta Lines; and Bob O'Brien, President of Moore McCormack Lines, and they all told me they didn't know of any plans to utilize the strategic capability of their fleets beyond the routing control measures in place for the past 25 years. So the reality is that the shipping industry knows little or nothing about its sustained role in strategic mobility and it is with regret that I inform you that a horrible mistake has been made by inviting me to answer a question that the industry should be asking you.

Ever since Humphry Bogart and George Raft went over the side during World War II, an image of scruffy ships pounding their way across the main and grizzled woolly-hatted men glinting into the night has been attached to the Merchant Marine. And it is not easy to have an accurate idea of the Merchant Marine, many within the industry know their segments but little of the whole, fewer still have a concept of its total utility. Defense planners may not have caught up with the complexities and capabilities of today's merchant fleet, many of which impinge specifically on mobility functions. That would not be surprising because the Merchant Marine has virtually no visibility at the defense policy level. There are no consultations with the industry on long term needs and, therefore, no awareness of a strategic mobility role by the industry. If fifty percent of the logistic supply to overseas areas depends on sea transport that would be hard to understand. The fact is more than 90% of the material needed to maintain our forces depends on sea transport. Since the Merchant Marine has done its job with little fanfare in Korea and Vietnam, it just may

be that success is its own failure, and we are regarded as the family car that is on demand in the garage.

The fact is our Merchant Marine, while small, is a remarkably fit national asset of tremendous military potential. Lets take a look at the types of vessels that are presently in the active American merchant fleet and highlight some of their special characteristics that relate to mobilization utility.

Series of slides presenting cellular container vessels (five types), roll-on/roll-off vessels (one type), barge carrying vessels (two types), breakbulk vessels (four types), tankers (one type), LNG vessels (one type).

The American Merchant Marine consists of: 130 breakbulk vessels, 107 containership vessels, 21 partial containership vessels, 19 barge carrying vessels, 19 roll-on/roll-off vessels, no heavy lift vessels with the exception of the two LYKES ships equipped to handle 175 long ton lifts and 215 largely ancient tankers suitable for the most part for our coastwise trade. In construction or contracted for at this time are eight cellular container ships, four of which will be conversions of former LASH type barge carriers, two heavy lift carriers capable of lifting 500 ton loads, 20 tankers of various sizes, and 20 LNG vessels.

Some effort in the direction of organizing strategic mobility have indeed been made. For instance, captains of merchant vessels identifiable as useful auxillaries have been provided a special packet to be opened upon a broadcast emergency. These last testament documents will help in problems of communication, routing, and similar matters related to the immediate preservation of the vessel and cargo. The Military Sealift Command requires a partial fleet commitment as the price of admission to the bidding contest for their cargo. This is a formality that contractually delivers the option for 50 percent of each company's fleet under loosely drawn conditions and vague terms of compensation. All American merchant ships at sea provide the defense establishment with a noon position so that a continuous plot may be maintained. In peace time this has proved to be useful for rescue activity, and the like. It will, of course, provide the beginning for harnessing mobility but, as you have seen, today's Merchant Marine is a great deal more than ships afloat. Indeed it is the infrastructures somewhat peculiar to each of the companies where very special expertise exists not only in managing the fleets but in manning and maintaining mechanical and engineering readiness.

As you have seen, most of the modern cargo vessels are dependent upon containers, barges, and auxillary equipment of various types, not to mention special cranes for both container and barge loadings, and specialized terminal facilities, all of which are merely empty assets without a staff that understands the conceptual plans for coordinating this equipment with the ships.

Some of these vessels like the barge carriers have the potential to bring services into being that would be essential to the utilization of non self-sustaining container ships. By this, I mean barges that could be rapidly equipped with mobile cranes so as to operate as a floating harbor crane on short notice in emergency situations. Containers and seagoing barges present opportunities for mobilization of special functional equipment which could be rushed to the battlefront. I am not saying that an optimum strategic mobility plan would have provided us with all the containers of coke that President Mobutu needs out there in Zaire, but I am saying that a mobility plan could bring to a high state of readiness the people and facilities necessary to efficiently operate our sea transportation system; and if this has been done at all, it has not been exposed to key persons in the industry so that faults may be rectified. Clearly, much lost time will occur in implementing the use of a merchant fleet that is locked into special systems for many of its most effective ship types.

For many years, the Defense Department and the Maritime industry have had a tentative relationship. There has been very little input into merchant ship design other than a pass at approval of ship plans.

During the Vietnam War an understandable preoccupation with more pressing problems was recognized by the industry, but since then the relationship has not developed beyond one of supplemental cargo carriage, and we have failed to exploit the rich potential for planning and development. This, despite some conspicuously kind words that are cast in the direction of the Merchant Marine by the Navy's top brass.

It is high time to convene an appropriate forum between leaders in the Maritime industry and leaders in the Defense Department and the Navy to evolve a plan that deals directly with today's strategic mobility goals. An initial conference in a setting like this could be the beginning from which each of the company entities that make up the American Merchant Marine might become

acquainted with Defense needs under varying conditions then after they would prepare their strategic mobility plan for review by the Joint Chiefs and integration into an overall mobility readiness plan. The first time out there would, no doubt, be a great deal of rework and coordination to bring the thirteen or so plans into a coordinated whole but this is a reasonable goal. Defense objectives alter rapidly and so does merchant fleet composition and there would need to be regular updates to keep current. More dynamic developments whereby Defense could stimulate commercially compatiable ship and system designs might evolve, and what greater glory than meeting Defense needs on an off budget basis.

The Merchant Marine today is no longer a fleet of ships; it is a complex of systems that includes fleets of equipment essential to the utility of the ships themselves. The containership must have containers, containers must have chassis, chassis must have tractors, the system must have computers, computers must have programs and finally there must be people who work with these elements in a daily fashion. The barge ship and its barges must have landside cranes to load the cargoes, pusher tugs to move the barges, marshalling places to hold the barges, and the systems gear such as computers and their programs, to effectively handle its tasks. These are the elements that must be mobilized with the ships for strategic use. Without a plan in place to bring these systems to bear, we will have negated most of the American Merchant Marine, and that would be a horrible mistake.

BIOGRAPHICAL SKETCH

W. J. AMOSS, JR.
PRESIDENT, LYKES BROTHERS STEAMSHIP CO., INC.

Born in Lake Charles, Louisiana in 1924, Mr. Amoss has been a resident of New Orleans for most of his life. He entered Tulane University in 1942 and through its NROTC program was commissioned an officer in the U. S. Naval Reserve in February, 1945. In the Navy Mr. Amoss saw service in the Pacific from March, 1945 until discharged in June, 1946. He participated in the Philippines and Okinawa campaigns serving aboard a repair ship and a rocket launching vessel. Upon completion of his World War II service he was discharged as a Lt. (jg) and returned to Tulane University to complete his interrupted education, graduating in February, 1947 with a degree in Business Administration.

Mr. Amoss joined LYKES in 1947. He was given various assignments in the Traffic and Operations Divisions of the Company. In August, 1950, Mr. Amoss was recalled to active duty in the Navy serving as a Lieutenant in the Military Sea Transportation Service until September, 1952; he returned to LYKES on discharge. In 1953 he was transferred to Germany as Manager of the LYKES office with headquarters in Bremen.

In 1959 he was named Continental Director of LYKES in charge of the LYKES operations in Germany, Belgium, Holland, France, and Scandinavia. In 1963 he was recalled to New Orleans to become Vice President-Traffic. In 1970 Mr. Amoss was made Executive Vice President of LYKES and elected to the Steamship Company's Board of Directors. In the Fall of 1970 Mr. Amoss completed the 13-week Advanced Management Program course at Harvard Business School.

In June, 1971 he was elected to the Board of Directors of Lykes-Youngstown Corporation, parent company of Lykes Bros. Steamship Co., Inc., Youngstown Sheet and Tube Company, Continental Emsco Company, and other subsidiaries. Mr. Amoss was elected to the Presidency of Lykes Bros. Steamship Co., Inc. on January 1, 1973. He is also a Director of the Hibernia National Bank of New Orleans.

Mr. Amoss is married to the former Berthe Lathrop Marks of New Orleans. They have six sons ranging in age from 29 to 12 years.

THE TANKER ROLE IN STRATEGIC MOBILITY

A PRESENTATION BY

VICE ADMIRAL GEORGE P. STEELE, USN (RET.)

TO

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To sustain the projection of the United States military power abroad, an assured supply of petroleum fuels at the right place and at the right time is an absolute requirement. While the United States Navy has created a few immensely valuable nuclear powered surface task groups, these forces are too few in number and too expensive to threaten the primacy of oil as a military fuel. We do not see a substitute for petroleum on the horizon.

Nor is there any substitute for ships to take the crude oil in the amounts required today from the oil fields of the world to remote refineries. Imports of petroleum into the United States grew by twenty percent last year, amounting to about seven point eight million barrels per day -- and it will be more this year. Europe imports the lion's share of its crude, and Japan imports almost all of its crude requirements. Either that crude continues to flow, or strategic mobility for United States and allied forces will quickly diminish as fuel stocks decline without ready replacement, to say nothing of the acute economic distress that the West and Japan would suffer.

There is a linkage between the need for strategic mobility and the means for achieving it. In the immediate aftermath of the latest Mid-East war, an example of this can be seen in the Western Pacific and Indian Ocean through which passes a significant part of the crude supply of the non-Communist world. The United States was then importing nearly a half a million barrels a day from Saudi Arabia alone, and the exit of the Arabian or Persian Gulf was a place of extraordinary strategic significance for the U.S. and its allies. International tension was still high, and there was a military requirement to be able to prevent Soviet interference with that lifeline, and to be seen to be able to do so.

During early 1974, the embargo on oil from the Middle East was in full swing. A carrier task force was being maintained in the Indian Ocean to counterbalance the strong Soviet force there. Fuel for military forces in the Far East had largely come from Arab sources, but this supply was now almost entirely cut off. Reorganization of petroleum supplies was in progress so that U.S. sources could be used, because countries in the area needed what they had or could get, and most existing Far East U.S. defense contracts were cancelled, curtailed, or suspended. Petroleum storage for the Seventh Fleet was being drawn down. The tempo of fleet operations was slowed. For the first time anyone could remember, strict controls were placed on the use of fuels. Ships were tied up. Flying hours were cut back. Navy oilers were very hard pressed to keep up with the needs of the Fleet, stretched as it was from Japan to Saudi Arabia. All alternatives for tanker and oiler support were explored and tested through a technique of war gaming various scenarios to be sure that the most efficient method was chosen. All too frequently, the

operations to be supported by the fleet oilers would be drastically changed as some development of the international situation required. Then there would be a mad scramble to put together a new logistic support plan. Somehow there were no breakdowns, and the oilers made their rounds as fast as possible though the system was stretched almost to the breaking point.

As soon as one carrier task group left the Indian Ocean another entered. There was at the time a constraint against the use of nuclear powered ships in the Indian Ocean due to the prevailing political situation, and with one brief exception, all surface ships burned fossil fuel in the early aftermath of the war.

In recognition of the sensitive position of the Government of Iran as a member of OPEC, U.S. Navy ships were instructed not to take on fuel at Iranian ports, and of course, this order included U.S. Navy oilers. But the Military Sealift Command had one merchant tanker on charter in the area and this ship called without fanfare at Iranian terminals, loaded, and delivered fuel to the Navy Task Force at sea. That elderly U.S. tanker proved immensely valuable in that situation; it was crucial help at a crucial time. The Soviet force in the area was not so heavily dependent as we on a continuing large flow of fuel for a number of reasons.

Our aircraft carrier and its escorting ships stayed underway much of the time to give the pilots the flying that is essential to safety. In home waters, when it is necessary to enter port, the aircraft carrier can first fly off its aircraft to bases ashore so that proficiency flying can continue, but in the Indian Ocean there are no air fields that were available.

The Soviet Navy has placed its reliance on the cruise missile as a striking weapon in sharp contrast to the continuing reliance by the U.S. Navy on the manned aircraft. Since these cruise missiles require no proficiency flying, the Soviet squadron could simply anchor to conserve fuel, and it did so.

Soviet ships are considerably smaller than ours -- partly due to space economies gained from using the cruise missile battery, and also apparently because of the much lower standards of habitability and cramped quarters by American standards. Smaller ships need less fuel.

Soviet crews have not been so accustomed to visiting liberty ports frequently to let off steam. The American force would leave station for long periods to let the crews have a break. While it can be argued that this also showed the flag in the ports visited, the Soviet force usually remained where any real action would take place. One may draw his own conclusions about the toughness and discipline of the Soviet sailor.

So there was a spectacle of a formation of American warships with a big aircraft carrier using large quantities of fuel at the end of a logistic supply line stretching from California across two vast oceans, using every available Navy oiler to stay there, leaving station periodically to find rest and relaxation for its sailors. Cooly watching the Americans was a Soviet force of smaller ships remaining in the immediate strategic area, often at anchor in international waters, using less fuel, supplied by small tankers and apparently sometimes in ports of friendly local countries. The efficiency of the Soviet operation was remarkable.

Soviet Navy leaders have emphasized what they call the "battle of the first salvo". It is no secret that they intend to overwhelm enemy formations with a massive first attack of cruise missiles launched from air, sea, and undersea platforms. In major exercises at sea, they have demonstrated just how they would do it. The Soviet Indian Ocean squadron, supported by long range aircraft from the Soviet Union, and by nuclear and conventionally powered submarines, may have felt pretty smug as they watched the straining Americans who occasionally steamed in the vicinity.

It should be noted here for later examination that the Soviet commander could depend upon any Soviet merchantman be it cargo ship or tanker to supply his ships. If it had been required, dozens of Soviet merchant ships could have been diverted to the support of the Red Navy's Indian Ocean Task Force. Refueling methods might be slower than ours, but availability is assured.

Had there been a breakdown in a U.S. Navy oiler at the time, or had the Military Sealift Command vessel suffered from the infirmities of its age, American operations in the Indian Ocean would have been immediately curtailed. There was no nearby ship of the American merchant marine to come to the assistance in the U.S. Navy.

It may be asked why we did not send our oilers into other friendly ports in the Indian Ocean to buy fuel. None of our friends, none of the neutrals, and none of the unfriendly countries wanted to supply us with fuel. Indian Ocean nations were concerned about their own supplies and were unwilling to sell them to the target of Arab wrath. Anticipating such a need, the U.S. Navy had been arguing for years for a base on the British Island of Diego Garcia, but such strong opposition was encountered in Congress that by 1974 only a communication station and a small support airfield existed there. There were

no fuel stocks except for island use and for transiting aircraft; nor was the entrance to lagoon passable by large warships. We were paying dearly for this mistake policy on Diego Garcia. Our fuel stocks in Singapore were then under British control, and with Iran, were the only available resources short of the Philippines.

What if shooting had started? What if Soviet submarines or long range aircraft had sunk a few of our oilers? We did not have enough protection for our logistic support ships and it would have been child's play. The U.S. Navy's Strategic Mobility in that area would have collapsed. Of course, sinkings would have been acts of war, and we can, if we wish, comfort ourselves with the thought that the Russians would have not dared to do it. It may be believed that the Soviets would never interdict our far flung force at a critical time, but the extraordinary vulnerability of the supply of fuel to keep our force on station at a critical point is not open to dispute.

The situation has changed significantly even in the three years since 1974 -- and not for the better. Then we depended on the Middle East for about twenty-four percent of our total crude oil imports, but now this has soared to thirty-six percent. Saudi Arabia alone accounts for one-fifth of our foreign crude imports. The exit to the Persian Gulf is more important to the United States with roughly twenty-nine percent of U.S. crude coming through it, than is the Panama Canal. So, U.S. ability to sustain a force in that area to confront any Soviet force is more important than ever. Potential centers of confrontation are far removed from American shores, while the Soviet Union can achieve a concentration of force in the Mediterranean or in the Indian Ocean using shorter routes than can the United States.

The post World War II period was a time of plenty. Where we did not have bases we had friends, and where we did not have friends, we had many nations glad to get our dollars for fuel. In just the last few years we have been seeing the world turning upside down. Western Europe, Cuba, Iceland, Libya, Japan, Thailand, South Africa, Ceylon...that long friendly list of the Nineteen Fifties is now much shorter, for one reason or another, as welcome mats roll up. The United States has progressively lost many of its bases, and has been more and more restricted in the operation of its military forces in or over other countries -- even allied countries to which the United States used to look to for near automatic support now close their gates if some risk is perceived. Our military aircraft for a long time had overslight and refueling clearances in much of the non-Communist world. But how different it was when we tried to ferry replacement aircraft to Israel in 1973.

To see more clearly what this easy availability of bases has done to us, and perhaps to gain some insight into the future, we have only to look at what influence the lack of bases played in the post World War II development of Soviet military force. The Soviet military forces had to achieve the capability to operate without reliance on bases, and with only rare ship port visits. The design of their ships and their operating methods evolved along a drastically different pattern from those of the United States and its allies.

While maintaining the strength gained from such adversity, the Soviet forces are now achieving even greater strength and flexibility by gaining bases and friendly countries in vital areas. Somalia has a sizeable Soviet base; so of course does Cuba. Mozambique, Madagascar, Congo, and Angola are only examples of the titling toward the Soviet Union that is to be seen today.

The remarkable growth of the Soviet Navy and maritime aviation over the past thirty years has been paralleled by the precipitous decline in the number of ships and aircraft in the Western fleets, and expecially in the U.S. Navy. The U.S. Air Force and Army have also lost numerical strength. This has been well publicized recently. What has not been so well publicized is the decline in the U.S. flag merchant marine from its commanding position after World War II, so that it can now carry only about six percent of U.S. foreign cargoes and it represents only about four percent of the world's shipping.

In strong contrast the modern, automated Soviet Merchant Marine is as impressive to see underway as it is in total numbers. Today it represents about ten and a half percent of the world's shipping.

Pointing at the remarkable growth of the Soviet Merchant Marine, Admiral Sir John Treacher said recently as he gave up his command as Commander in Chief of the British Fleet: "If you look at the maritime scene today, you will see the Soviet Union, already with twenty million tons of ocean going shipping, with another five million tons of sophisticated ships laid down who are not in business commercially to make a profit in the carriage of trade."

While a major objective of this merchant marine is apparently to break the Western shipping industry by undercutting rates, as Admiral Treacher observes, "it is an integral part of the Soviet maritime strength." Admiral of the Soviet Union Gorshkov, who is the principal architect of the reconstruction of Soviet sea power and is certainly the most brilliant peace time naval leader of this century, puts it this way: "We are quite justified in treating the sea power of a state as a system which is characterized not only by the interconnection of its naval,

transport, fishing, scientific and other fleets, but by an indivisible unity with its dimensions with the World Ocean, for it is in its interactions with the World Ocean that sea power is expressed in its entirety."

That "interconnection" has been painstakingly built so that the Soviet Union could send and keep its naval forces anywhere in the world without having to wait for political gains that would enable the building of the traditional system of overseas naval and air bases. The ubiquitious presence of Soviet naval force sustained by merchant and fishing fleets has contributed in no small way to the remarkable gains that the Communists have made in obtaining just such a traditional base structure. Admiral Gorshkov goes on to say that the "most advanced technology and naval construction allows our squadrons to stay over long periods in the most distant areas of the World Ocean and satisfy all their requirements without having to sail to any land bases."

Unlike ships of the U.S. merchant marine, the Soviet merchant ships are often fitted with secure communications, and they are subject to central control from Moscow. It is easy for logistic replenishment underway or at anchor to be arranged and controlled by the Soviet Navy, and the naval reserve officers manning the supply ships must feel right at home since such work is primarily done by the merchant fleet.

This Soviet sea logistic force comprising the whole integrated merchant marine presents a much more difficult target in war than does that of the U.S. Navy, because of sheer numbers. There are more than 2500 Soviet merchantmen in service.

Of course, not all of these ships could be made available to the Soviet Navy, but they represent a huge, flexible resource that can take punishment. The far smaller, dedicated logistic support force of the U.S. Navy is efficient and capable; but significant losses could not be sustained without gravely weakening strategic mobility.

Since the closing days of World War II, there has been negligible enemy pressure on U.S. lines of communications to overseas theatres of war. Korea and Viet Nam were both fought with a kind of milk run safety for logistic ships of all kinds. In most instances, shuttling from Japan or the Philippines, they did not even require escort.

A series of crises have been weathered without fear that our tankers or other ships supporting our fleets and military forces ashore would be sunk. And these wars and crises have been faced with the comfort of naval and air bases in considerable profusion which enormously simplified the logistic support task.

This lack of pressure by an enemy on our logistic support lines has conditioned our thinking and contributed to the increase in size and cost of our logistic support ships. The economies to be achieved are attractive, given that one need not consider the effect of losses to enemy action.

The very size of U.S. Navy oilers or AOE's of the Sacramento class means that if one of them is lost, that loss is enormous indeed to a thirsty task force. The Soviet Navy has emphasized numbers of smaller ships; and they were wise to do so. For there is today a greater threat than ever before from hostile air, missiles, and submarines.

It is necessary to go back early in World War II to find anything to compare to the threat that exists to sea communications today from submarines and long range aviation. Nuclear propulsion and the ability to fire cruise missiles as well as torpedoes at ships have quite transformed the attack-type submarine -- it is so different from the World War II U-boat in mobility and firepower as to be an entirely new weapon system, and one as yet untried in battle. Statements by Western naval leaders about the capability of allied navies to cope with the present submarine threat range from outright pessimism, to a kind of cautious hope, or at best to a very firm statement that we have <u>got</u> to improve our antisubmarine warfare capability.

Long range shore based aircraft, as developed by the Soviet Union and deployed routinely against our transiting aircraft carriers, have the sensors and weapons to assist Soviet submarines to locate their prey, or to make the attack themselves. They constitute a particular danger in remote areas difficult to reach by our air power such as the Indian Ocean.

U.S. forces are now exposed as never before no matter where they are, at home or abroad. There is no U.S. base that if out of range of Soviet attack. U.S. surface forces at sea are under the surveillance of passive and active systems, ashore, afloat, or in the sky, that the Soviet Union has set up. It is increasingly difficult to hide on the ocean despite its vastness.

It does look like the Soviet Union has not tired at all in its historic struggle for the ultimate triumph over world capitalism. It has had many setbacks - witness the U.S. flag ships that even now are loading with grain for delivery in Russian ports. It has won some, as in Hungary, and it has lost some, as in Egypt, but it keeps on coming.

It is on the move at sea, building its already impressive strength toward complete domination both military and commercial. This maritime strength makes it possible to support and extend its strength ashore as it is now doing in Africa, and as it may yet try to do in South America.

We must look to our laurels; World War II, the last war in which there was significant conflict at sea, ended a generation ago. It is time to reexamine our methods and practices in the light of what the competition is doing, and to make any necessary changes before it is too late to ensure that we have the required strategic mobility.

During the campaign for the Presidency, Mr. Carter said, that if war comes, "...The absence of an adequate Merchant Marine could be a major contributing factor to a disaster." Measures to restore the U.S. Merchant Marine are under consideration by the Congress and by the Administration. The product of years of ineffective policy for the merchant marine will not be reversed for years to come, even if a sound program is produced; and there is controversy over what should be done. Both short range and long term solutions are badly needed.

The tanker industry now plays a role in strategic mobility, but it could and should play a much more important role. Most of the U.S. flag tankers carrying refined petroleum products have no capability to refuel U.S. Navy ships at sea. Such a capability on a large scale has not been thought to be required. We had bases, and we had the luxury, we thought, of safe lines of communications. But imagine a Navy commander at sea, having suffered losses to his oilers, looking at American flag product tankers in the vicinity and realizing that he cannot tap their precious cargoes.

There has been good work done by the Military Sealift Command in recent years leading to development of a rig that can be placed on board tankers for fueling fleet units astern. Even though this is a slow method to fuel, it works. Why not fit out a large number of tankers with these rigs now and thus quickly expand the emergency fuel supply of the fleet? Such rigs cost about one hundred thousand dollars apiece, so a hundred existing tankers could be made capable of at-sea refueling at a fraction of the cost of one new tanker.

The Soviet merchant tankers may use secure communications, and so should ours. We could begin with a rather low grade special system supplemented by scrambler voice -- and provision could be made that if time permits in a future emergency the systems could be upgraded quickly. I believe

that the security aspects could be solved; many civilians in the Government have for years been using cryptographic material. Secure communications would be immensely useful to the positioning of the tankers for fleet support.

Once fitted with fueling rigs, tankers should be periodically chartered for brief exercise with fleet units under fleet control to ensure that the equipment works, and that Navy and merchant marine crews work smoothly with each other. We can expect it to go smoothly. Merchant ships manned by civil service crews or under charter to the Military Sealift Command have been successfully refueling fleet units including aircraft carriers, in exercises since 1971.

An interesting article on this subject appears in the April 1977 issue of the Naval Institute Proceedings. Lieutenant Sidney Emery writes glowingly of the civilian manned tankers of the Military Sealift Command. He says, of civil service manned ships, "The men on board cruisers, frigates, and amphibious ships alike -- the essence of the surface Navy -- have swung around to supporting what has proven to be the best service available."

It can be argued that large numbers of the now small U.S. flag tanker fleet cannot easily be withdrawn from the American coastal trade, and that foreign flag shipping would have to fill in. Dislocations would occur, but the need to keep the aircraft flying and the warships on station in strategic areas in time of crisis or war seems to override such objection. After all, there will be much less employment for American tankers anyway if our crude supply is interrupted.

American companies own some 40 million deadweight tons of foreign flag shipping, mostly under Panamanian and Liberian registry. This shipping can be made available to the United States Government in national emergency or in war. Precedent indicates that it probably would be made available. But it is possible that the Governments of Liberia or Panama or of nations whose citizens man some of the ships might not agree with the policies or actions of the United States and attempt measures to inhibit U.S. Government use of these ships. Spanish, South Korean, Italian, Greek, Republic of China, and Philippine crews are used among others. It would probably be best to place these U.S.-owned foreign flag ships in secondary positions not exposing them to direct military confrontation situations, but where they could be used to replenish U.S. Navy or allied navy oilers. Selected U.S.-owned foreign flag product tankers should, therefore, also be provided with fuel rigs that would make this possible.

On the other hand, the utility of U.S. flag merchant ships or U.S.-owned foreign flag ships to lift petroleum fuels from otherwise constrained ports in emergency should not be underestimated. A nervous government might very well refuse to permit a gray Navy tanker from picking up military fuels in its ports, but freely grant the same privilege to a less obvious ship. Here the flag of convenience might even make all of the difference.

While it would be prudent to get on with inexpensive short range programs at once, just because the loom of the Soviet presence at sea is so large, a comprehensive statement of the kind and size of merchant marine required for U.S. security has not been made available to the public. A study intended to develop just such a set of requirements was directed by the Congress in 1970 under the provisions of the amendments to the Merchant Marine Act. This study has apparently never been undertaken and has again been recommended in the report of the recent Congressional Oversight Hearings.

Even if the study Congress wanted had been presented promptly, it is doubtful if it would have fully reflected the current urgent need of immediate fuel support for the fleet in a situation where losses, and very severe losses, can be expected at the very outset of combat with Soviet forces. Statements before Congressional committees on the fiscal 1977 budget made by the Defense witnesses do not reflect the concept of "interconnection" between the Navy and the Merchant Marine espoused by Admiral Gorshkov. There was only one Mahan in his day; and there is only one Gorshkov in ours -- and we would do well to heed him.

Once the study is made, it will have to be updated frequently, so fast is the U.S. dependence on imports, the international situation, allied defense posture, and the Soviet threat changing. The study would certainly focus our minds, and provide the basis for rational action to provide an American Merchant Marine as Congress expressed it in the policy section of the Merchant Marine Act of 1936:

"...capable of serving as a naval and military auxiliary in time of war or national emergency."

Perhaps we would find that the policy should be amended to include service in international crisis.

The average age of U.S. flag tankers is about twenty years and it is getting older. The number of American ships has been shrinking as ships reach the end of their useful

life and are scrapped. Independent owners are under great financial pressure due to the low freight rates caused by the world tanker glut; which is expected to exist well into the next decade. It has been estimated that at the end of 1976 surplus tankers amounted to 68 million deadweight tons -- some of these ships were slow steaming and others were layed up.

The major integrated oil companies can, of course, withstand losses by their tanker fleets. But in general, it can be said that there is nc profit now in ordering new U.S. flag tankers, which are much more expensive to build in U.S. shipyards and to operate with American crews than are foreign flag ships. The situation will continue to deteriorate in the absence of a determination of national need for U.S. flag tankers, and the necessary support by the taxpayers. This is a source of concern and distress to unions, owners, and it should be to the Defense Department as well, which has not provided the leadership that Congress apparently intended in directing the study of defense requirements.

In the absence of the official viewpoint it seems clear that for many years to come, the United States will require the services of relatively small tankers with shallow draft because of the shallow water ports along its coasts. The American flag fleet is going to have to be rebuilt unless we want to continue to see foreign ships hauling most of our petroleum products, and someday even from U.S. port to U.S. port.

The Navy has a program of construction of replacement oilers. And this has drawn the fire of labor unions, among others, who argue that the Navy oilers are basically inefficient and expensive, and that their task could just as easily be performed by using merchant tank ships. The Russian example is cited as evidence of what can be done when there is a true partnership between a nation's Navy and its Merchant Marine.

The Navy has valued its oilers for many reasons including their fine steering, fast pumping from an alongside position through multiple rigs, and for the extra degree of control inherent in a ship manned by a Navy crew equipped with the crypto devices necessary to receive secret instructions. The Navy has total control over its oilers and would not like to part with any of them. There is merit in this Navy view.

In addition to the Navy oiler program, tanker construction is needed which fits both domestic and military needs. On a rotating basis, the ships built to haul refined products

should serve the Navy, filling all but the most specialized of its needs. Certain aspects should be tailored to military requirements or capable of quick conversion. For example, it should be possible to augment any on board crypto equipment, adding Navy personnel too, if necessary; Navy bridge signaling equipment should be installed; decks should be fitted to carry electronic vans; and fueling rigs compatible with U.S. and Allied Navy requirements are important.

There is no need that all of these tankers be constructed exactly alike. Some could be optimized for service with the Navy, while others could be used in a back-up role with less conversion required. But, service with the Navy should become second nature. And for the Navy, service with the Merchant Marine should be routine.

A defense training program is required for Merchant Marine personnel if we intend to use it for underway support. It might be possible to compress it into two days every two years for licensed personnel, and unlicensed personnel could be schooled by visiting instructor teams aboard ship. Refueling methods, communications, and fleet operations should be the subjects covered. Perhaps deck officer examinations given by the Coast Guard could be used for upgrading the knowledge of Navy operations. Embarkation for short operations aboard Navy ships of selected Merchant Marine deck officers would help too.

Our concepts of refueling at sea should be reexamined in the light of the need to provide for many rather than few ships capable of refueling.

There is no question about increased vulnerability of a naval task group when it brings an oiler into the formation and conducts refueling of all ships in rotation. It may well be safer to have a more continual refueling process rather than concentrate the whole business of a formation at once on transfer of fuel from an oiler with ships on both sides and others waiting to go alongside or return to station. Certainly the presence in the general vicinity of a carrier task group of three U.S. flag tankers would greatly add to the survivability of its fuel supply, and permit random refueling.

It is going to be about four years before results are obtained with any new construction program. Placing orders today would not produce ships before about 1981, and a construction program of sizable proportions could not be carried out quickly without an unwise expansion of the present U.S. shipbuilding capacity. Orderly planning is,

therefore, imperative and an orderly program is long overdue.

In these days of nuclear confrontation, it is not fashionable to discuss the shape of the world after a nuclear exchange, perhaps because Nevil Shute's famous book, "On the Beach," was terrible enough to constitute the last word for most people. The mind cannot really comprehend the destruction of most of the productive capacity of a great nation, the death or injury of a great percentage of the population, and general havoc. But given that, it is obvious that the ships at sea with cargoes would be immensely valuable for the recovery of their homelands -- particularly those loaded with crude oil or petroleum products. With industrial and general usage low due to destruction, these ships could represent months of supply.

The slight trickle of our crude imports that comes to the United States today in U.S. flag ships is not worth talking about; almost all of our foreign crude comes to us in foreign flag ships. Where would the foreign manned ships at sea go when they realized the disaster that had come to the world? Would a foreign crew, in that extremity, obey a U.S. owner's orders to bring a cargo of such enormously enhanced value to the United States; or would they take it home where family and compatriots face an impoverished future along with the rest of mankind?

And what about the final settlement of the dispute that led to the nuclear exchange? Which nation will survive on the seas, and can utilize the seas to defend itself from invasion and occupation, or from pressure to capitulate finally and totally to the will of the other? Admiral Gorshkov would probably say that the nation that started out strongest on the seas in total terms would have the best chance to decide the future order of the world. Strategic mobility takes on new meaning in this context, but its foundation as before is a supply of crude oil, plus the ability to deliver petroleum fuels to military forces projected on and beyond the seas.

The fear of a massive nuclear exchange knows no borders, so it is generally thought to be unlikely. There is a more plausible danger that if the Soviet relative strength grows to a point where the United States with its allies cannot maintain its sealanes open with conventional means, the Soviet Union might decide to threaten interruption of the supply of crude oil to the Western world and Japan -- or even actually interrupt it. A major cause of the attack on Pearl Harbor was an interruption of the supply of oil to Japan; we ought to know how that works since the U.S. Government did it to pressure the Japanese Government into a change of policy.

Even if the United States tightens its belt and suffers extreme economic distress as a result of a Soviet interruption of the flow of crude, it cannot approach in suffering what would happen to Japan or Europe. Since these are the peoples we have pledged to protect through our treaty alliances, we could expect their governments to approach us urgently to take decisive action or to make some kind of accommodation as quickly as possible with the power interrupting the flow of their crude. We could not protect them or ourselves except by restoring that flow of crude oil.

In the rebuilt Red Navy, the Soviet Union has got a world ocean lever of immense utility and in order to inhibit its use against the alliance, U.S. military forces have got to be capable of moving into the threatened area as a counter weight to a Soviet presence. Credible force must be on station and stay on station to dissuade the Soviet Government from tampering with crude supplies to the Western world and Japan.

It would be nice to assume that the Soviet Union would not dare to play such a heavy role; or that the Soviet Union could not do so. The fact is that even now the Soviet Union is strong enough at sea to try it and they are growing stronger.

It should be our business to eliminate our present weakness to the maximum extent possible. A new focus on the problem of logistic support for our projection of military power is needed. We can no longer afford to wait until war or national emergency to use the Merchant Marine to support the Armed Forces. The Soviet Union has shown how to combine and coordinate maritime operations and the United States should follow suit.

BIOGRAPHICAL SKETCH

VICE ADMIRAL GEORGE P. STEELE
U. S. NAVY (RETIRED)
INTERNATIONAL OCEAN TRANSPORT CORPORATION

Vice Admiral George P. Steele, USN, (Ret.) is the Executive Vice President in charge of operations, Interocean Management Corporation.

Vice Admiral Steele joined the Interocean Management Corporation in 1976 after a distinguished career in the United States Navy capped by his serving for two years as Commander of the United States Seventh Fleet, the largest fleet in the world which is stationed in the Far East and Indian Ocean. During this period, the Seventh Fleet participated in the evacuation of Cambodia and South Vietnam, and the rescue of the SS MAYAGUEZ.

Some of his assignments after graduating from Annapolis in 1944 included commanding three submarines: the Hardhead, the nuclear powered Seadragon, and the Daniel Boone, a polaris missile submarine. He commanded the Seadragon on a voyage which took him under the ice pack to the North Pole via the Northwest Passage. In addition, he was head of the Europe and NATO Branch of the Politico Military Policy Division, Office of the Chief of Naval Operations in Washington. Later, he was Deputy Assistant Chief of Staff of the Plans and Policy Division on the staff of the Supreme Allied Commander Europe, in Belgium. Between these last two assignments, Vice Admiral Steele commanded the United States Naval forces in Korea and then AntiSubmarine Warfare Group Four.

During his career, he was awarded many medals including The Legion of Merit with four gold stars and the Distinguished Service Award.

In addition to attending many schools during his naval career, Vice Admiral Steele authored and co-authored several books about submarines.

He and his wife Betty are now living in the Society Hill section of Philadelphia.

EDITOR'S NOTE

TYPESCRIPT OF MR. RUSSELL F. STRYKER'S PRESENTATION ENTITLED "THE MERCHANT MARINE IN FUTURE CONFLICT" WAS NOT AVAILABLE FOR PRINTING WITH THESE PROCEEDINGS. WHEN AVAILABLE, COPIES WILL BE PRINTED AND FORWARDED UNDER SEPARATE COVER, UPON REQUEST.

BIOGRAPHICAL SKETCH

RUSSELL F. STRYKER
ASSISTANT ADMINISTRATOR FOR POLICY AND ADMINISTRATION
MARITIME ADMINISTRATION

Russell F. Stryker is the Assistant Administrator for Policy and Administration, Maritime Administration.

As Assistant Administrator for Policy and Administration, Mr. Stryker is responsible for the development of the U. S. merchant marine policies and programs, financial analysis and monitoring of the maritime industry, and internal administration and financial management of the Maritime Administration.

Prior to his appointment to this position in September 1975, Mr. Stryker was Director of the Office of Policy and Plans, Maritime Administration. Previously, Mr. Stryker served the Department of Defense in several positions concerned with operations, logistics and transportation. He was a project leader with the Institute for Defense Analyses prior to this and an intelligence research specialist early in his career.

Mr. Stryker was the recipient of the Department of Commerce gold medal, the Department's highest award, for major contributions in support of the nation's Merchant Marine Program that have been of exceptional value to the Government and the maritime industry.

Mr. Stryker was born in Brooklyn, New York. He attended Dartmouth College from 1941-1947, procuring an A.B. in history, magna cum laude, in addition to spending three years in the Army during this period. He obtained a master of arts degree in economic history from Columbia in 1948.

Mr. Stryker is a member of Phi Beta Kappa, the American Historical Association, the American Military Institute, and the Company of Military Historians.

THE NATIONAL ENERGY PLAN

A PRESENTATION BY

DR. JOHN F. AHEARNE

TO

WORLDWIDE STRATEGIC MOBILITY CONFERENCE FOR 1977

NATIONAL DEFENSE UNIVERSITY

FORT McNAIR, WASHINGTON, D. C.

3 MAY 1977

Today, I would like to explain the rationale behind the national energy plan, and outline some of its key elements.

The basic problem was described by the President in his speech on April 18th: Whether we like it or not, there is reason to believe that the world does not have enough oil to meet the growing needs of Japan, Western Europe, the United States and the developing nations much beyond the next five to seven years.

It is important to note that this observation is valid no matter how much oil OPEC chooses to produce in the future. OPEC's supply of oil is vast, but it is also finite. Let me take a few moments to go over the arithmetic that supports this observation. It is relatively straightforward.

The world now consumes roughly 60 million barrels of oil a day, and increases its consumption by about five percent annually. This means that on the average each year world supplies must be increased by more than three million barrels a day to meet the annual growth of demand and to offset normal production declines. This is like adding a new Texas to world production every year, and I am talking about Texas at its peak, before its production began to decline. We may be able to do this for a few years, but there is simply not enough oil production capacity in the world to keep it up for long.

Here in the United States, about two-thirds of our oil production comes from a few, very-large fields that were discovered more than thirty years ago. Only one or two new, large fields have been added to our domestic production capacity since the Second World War; the example that comes immediately to mind is Prudhoe Bay. Similarly, the rest of the world is no longer finding large, new oil deposits as frequently as it did in the 1940's, 50's, and 60's, when the world enjoyed an oil surplus.

Siberia is an exception to this trend, but despite large new finds there, the Soviet Union will join the United States as a world oil importer in the 1980's. The United States has been importing increasing quantities of oil for the past seven years, and our domestic oil production continues to decline. Estimates of oil production capacity elsewhere in the world indicate that it is not likely that a new Texas can be added to our supplies on an annual basis much beyond the 1983 to 1985 period. Even if Saudia Arabia--the oil giant--decided to increase its oil production in the future to the maximum level of output, it

would only buy enough time to meet world demand until the late 1980's or early 1990's. These calculations may not be precise, but they are correct, and they reveal some very clear handwriting on the wall about the limits of world oil supplies.

Over the past quarter century, the United States and the world assumed they could have all the oil they needed for as long as it was needed. This notion was reinforced by declining real prices for oil, which was a sure sign of abundance. Then, in the early 1970's, our dependence on foreign oil and the growing power of OPEC took us by surprise. The emergency of OPEC is often explained in political terms, but it must also be explained in economic terms--by the simple laws of supply and demand.

As you may know, OPEC was in existence for a decade before its Arab members used an embargo as a tool of diplomacy and before it attempted to increase massively and precipitously the world oil price. Why did OPEC take ten years off? Throughout the sixties, the United States had shut-in domestic oil production capacity of about three to four million barrels a day. In short, we had enough domestic supply to cover any losses of imported oil.

However, by 1970, that U.S. oil surplus had been consumed by our growing appetite for cheap energy. Demand had outpaced domestic supplies. Imports were no longer a discretionary item on our national shopping list--one we could do without, or turn down if the price did not suit us. Oil imports had quietly become a powerful necessity. The shortfall between domestic oil supply and demand gave our OPEC suppliers the sharp teeth of a monopolist, and in October 1973, OPEC used them to take a painful bite out of the U.S. energy supply.

Our domestic energy shortage made us vulnerable to an oil embargo; but it also made it possible for OPEC to raise its oil price--from $1.50 a barrel in 1972 to $13.50 a barrel today. We Americans have tended to think of increased world oil prices as something OPEC did to us, and have not always seen the connection between OPEC's ability to raise prices and our deteriorating domestic energy situation. This notion is reinforced by press coverage of oil ministers marching somberly into conferences held in distant lands to decide what price Americans will pay for energy. We must remember that it is <u>our own demand</u> for oil and <u>our inability to meet that demand domestically</u> that has enabled, and continues to enable the OPEC ministers to make such decisions.

The challenge we face is in taking the necessary steps today to keep our energy supply and demand in better balance tomorrow. The first step is conservation. No matter what the price incentive, new coal mines, oil wells or nuclear plants take years to bring on line. Conservation can start today.

It is the fastest, most economical and environmentally sound way to begin addressing our energy problem. For these reasons and others, conservation must be the cornerstone of our national energy plan.

The second thing we must do is make greater use of the energy resources we have in abundance--especially coal. The national energy plan proposes a number of steps to overcome the social, economic and environmental problems that continue to block the expanded use of coal. These problems are formidable, and will require the best of our imagination, ingenuity and technical ability, but they can be overcome.

The energy plan calls for increasing our coal supply by two-thirds, to more than a billion tons a year by 1985. It provides a number of steps to stimulate demand for coal. We will get to work on the tough problems that must be solved before coal production can be increased--problems with labor as well as potential shortages of essential equipment and materials. We must also get to work on developing and utilizing better technology to burn coal without polluting the environment. The energy plan will provide major new research initiatives to clean up the use of coal.

Even while America conserves all the energy it can and burns all the coal it can, there will be a gap between our domestic energy demand and supply. Nuclear power can fill that gap. To make nuclear power acceptable to the American people, the energy plan calls for greater use of known, safe technologies such as the light water reactor, and steers us away from risky, unnecessary technologies, such as the plutonium breeder reactor. The plan addresses the most important economic and social issues surrounding nuclear power from light water reactors. It proposes common sense answers to questions of where to build new nuclear plants, how long to take to license them, how to standardize plant designs, how often to require plant safety inspections, and what to do with nuclear wastes.

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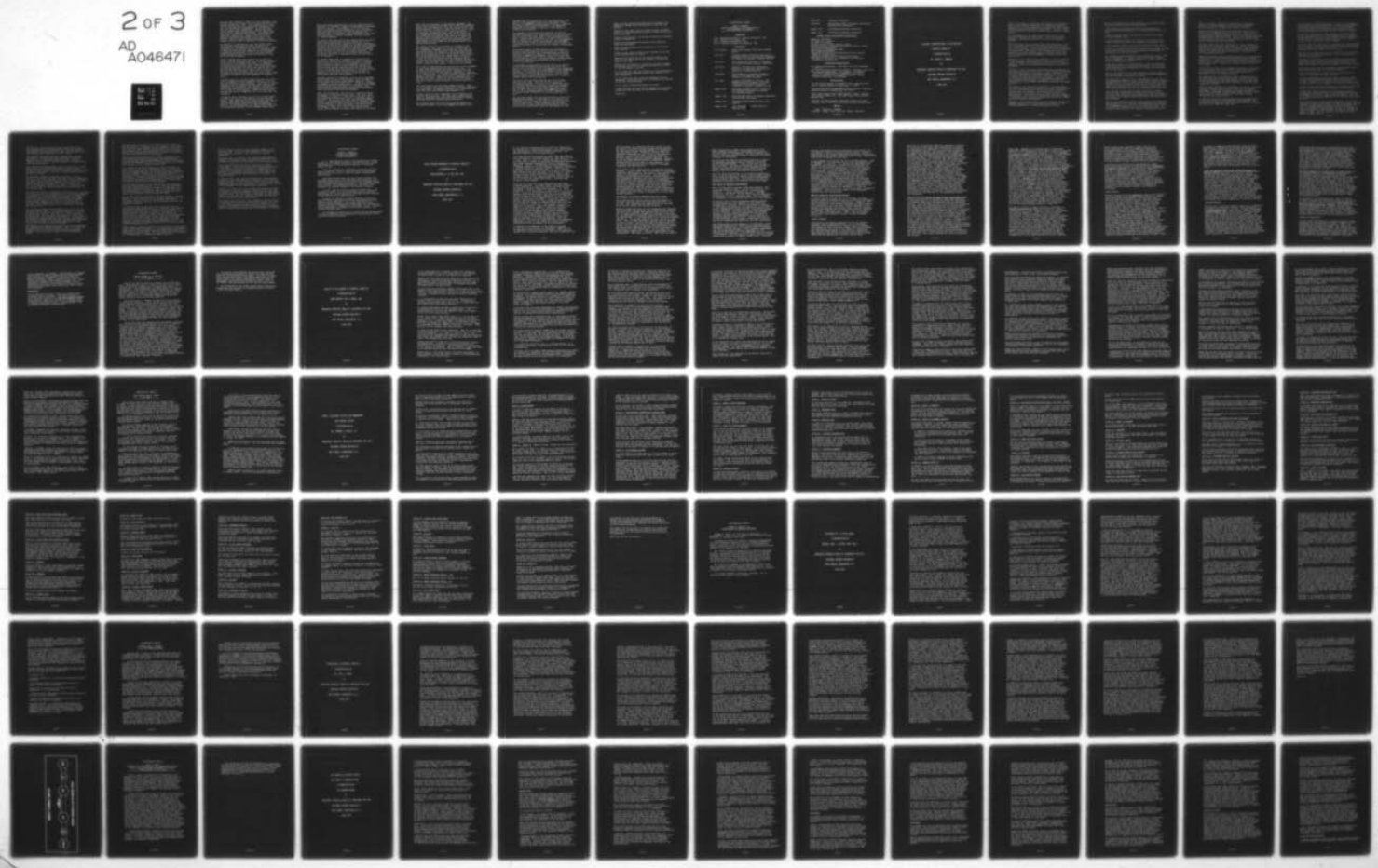

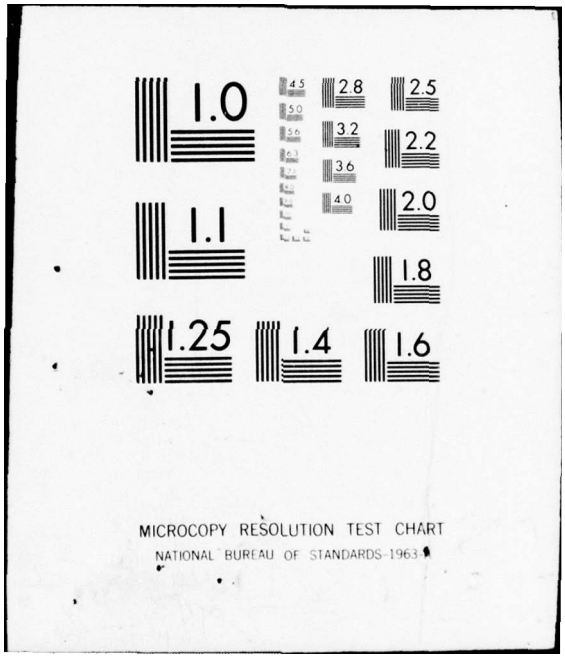
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The plan also proposes a number of very important, long-overdue steps with respect to the overall direction our nuclear program will take. Most importantly, it says "no" to the near-term introduction of plutonium as a fuel for our nuclear powerplants. As you may know, unlike uranium fuel, plutonium is highly toxic and it can be used to make nuclear weapons. The energy plan also puts an indefinite hold on the reprocessing of commercial nuclear fuel, which is the only way to separate plutonium from burned nuclear fuel. And finally, the plan defers further development of the breeder reactor, which is designed to produce plutonium.

In addition to conservation, coal and nuclear power, the national energy plan provides incentives for exploration of new domestic oil and natural gas. These incentives are not exactly what the oil companies had in mind, but they are very generous by any reasonable standards--more generous, in fact, than the present price incentives that have drawn the industry to the North Sea and elsewhere.

Today's maximum price for domestic oil is $11.28 a barrel, and for new natural gas in interstate commerce, it is $1.42 per thousand cubic feet. In response to these prices, the industry has doubled its domestic drilling in the past five years. The energy plan will provide maximum prices of $13.50 for new oil and $1.75 for new gas, and will allow these prices to move up with the rate of inflation. This is a very strong incentive to explore and produce, and in our view, there is simply nothing for the oil companies to complain about.

I should point out that the energy plan does not allow the oil companies to make windfall profits on old oil that is already in their inventory. But there is little evidence that such windfall profits would produce any additional oil or natural gas. However, they would involve the transfer of an additional, near one percent of U.S. GNP to the producers. Preventing that may be bad news for the oil companies, but it is good news for consumers.

It doesn't take a national poll to tell us that energy pricing is an area of great concern to the American people. Many Americans favor a free-market approach to pricing; many favor heavy government regulation. All want to see adequate supplies of energy reasonably priced. Let me provide you with some details about how we treated this question in the national energy plan.

While the market approach has a certain simplicity and neatness, it involves a degree of unfairness to consumers which we rejected. For example, if all oil and gas prices were decontrolled immediately, our calculations show that some $16 billion in what economists call economic rent, or advantage, would immediately flow from the pocketbooks of energy consumers into the coffers of energy companies.

Of course, this step would raise energy prices and would induce both conservation and new production, but it would also create unfair windfalls for energy producers. We had to find a way to provide the industry with adequate incentive for high-risk, high-cost resource development ventures, while at the same time, assuring the American people that no one would get an unfair advantage. And we had to find a way to do this without getting the government involved in regulating every nook and crany of our economy.

To achieve these ends, we proposed an excise tax on domestic oil production, designed to raise the general price level for oil, but we also proposed to continue price controls on what the oil companies can receive. The tax would be equal to the difference between the controlled price the companies would get and the world price. It would leave oil producers in the same relative position over time with regard to wells already in production, and would allow them to collect the full world price only for new production.

From the consumer's standpoint, the tax would encourage conservation, as well as confidence--since the American people would know that higher prices would not result in windfalls for the energy sector. Similarly, consumer confidence would be maintained by a guarantee that higher energy prices would not reduce net purchasing power. This would be accomplished by refunding all the energy taxes collected to the private consumer.

Under the energy plan, the tax on oil production would be imposed in three successive steps. The first would take effect on January 1, 1978, and would apply only to so-called old oil--oil from wells in production before May 1973. The second bite would come on the following January, and would bring the price of all domestic crude oil to about $11.78, plus inflation. The third would follow in January, 1980, and would bring the price of all domestic crude up to $13.50, the current world price, with provisions to adjust that price for inflation.

What will all this mean to the average consumer? The first bite translates into about $25 a year of increased energy costs per American. The next two bites will cost every American a little less than the first, for a total cost in the range of $50 to $60 a year per person. It is important to emphasize here, that every dollar of this added cost will be returned to the consumers who pay it through tax rebates. The idea is to raise the relative cost of energy compared to other items in the marketplace so people will buy and use energy wisely; these taxes will not reduce the purchasing power of the American wage earner.

The energy taxes will be returned to consumers under two programs. The first will be set up specifically for residential consumers of heating oil, who will get back every dollar of tax paid. The second program will provide an energy tax rebate for every American, which will be distributed on a per capita basis. We estimate that energy tax receipts will total about $12 billion a year, of which $2 billion will be returned through the heating oil program and the rests through the general rebate. The important thing is that there will be no sticky fingers on this money. It will all be returned.

The crude oil equalization tax--as we call it--is intended to spur both conservation and switching to coal. As the price of oil becomes more dear, industry will use it more rationally and will have an incentive to give it up in favor of coal. To reinforce these trends, additional taxes on industrial and utility uses of oil will be imposed over time. These will add an estimated $2.65 to the cost of using a barrel of oil--that's $2.65 above the world price, a good incentive to convert from oil to coal.

The equalization tax will have another benefit. Once it is in place, the United States will no longer subsidize the importation of expensive foreign oil by averaging its high cost with artificially cheap domestic oil.

Another issue of vital importance to our people is the pricing of natural gas. This has been a controversial topic in Washington for many years and we have proposed some new ways for resolving that controversy.

As you know, there are today two great gas markets in the United States. One is the interstate market, wh'ch

consumes about 65 percent of total gas production. The other is the intrastate market, or the market inside our few gas producing states--primarily Texas, Louisiana, Oklahoma, California and New Mexico. The important thing about this market is that it is not subject to federal price controls.

The tragedy of our natural gas situation is that for the past eight years, we have found only 10 trillion cubic feet of new gas per year, while annual consumption has grown to near twice that amount. To make matters worse, only a fraction of new gas has been sold to the interstate market, because the price is regulated. The producers have given first claim to those states where new gas is produced and where it can be sold at a higher, unregulated price.

The logical answer to this problem is to establish a single, national market for new natural gas. Some have proposed that this be done by deregulating new natural gas sold in interstate commerce. The problem with this approach is that it would likely result in a sharp rise in wellhead gas prices. This would happen as gas-starved interstate pipelines began bidding up the price of limited new supplies.

To establish a single market for new gas and to prevent prices from skyrocketing, the energy plan calls for a cap on new gas sales to both the interstate and intrastate markets. No one likes to see government controls expanded especially to a market where they did not exist before. But in the area of natural gas pricing, this is really the best way to assure that both markets will be able to compete equally for new supplies.

The cap on new gas sales would be set at $1.75 per thousand cubic feet. This is the Btu equivalent of the average domestic oil price, so it would help reduce artifically subsidized inter-fuel competition between oil and gas. It is also well above the current $1.42 per thousand cubic foot cap on new interstate sales, and it can be adjusted upward to reflect inflation--so it would provide incentive for new gas production as well.

The national energy plan has many more parts than I can describe here today. I have tried to hit some of the highlights and to convey the kind of thinking that went into our decisions. Before answering any questions you may have, I would like to mention briefly the six goals of our energy plan--goals we can achieve by 1985.

First, we can reduce the annual rate of growth in our demand for energy from four percent to less than two percent.

Second, we can reduce our oil imports from a potential level of 16 million barrels per day to under six million barrels per day.

Third, we can achieve a 10 percent reduction in national gasoline consumption.

Fourth, we can insulate 90 percent of all American homes and buildings.

Fifth, we can increase coal production by 400 million tons annually.

Sixth, we can install solar energy systems in two and a half million American homes.

These are the goals set by our national energy plan, and they are goals that we can achieve if we put our minds to the task.

America now has before it an energy plan that attempts to regulate as little as need be, but which is as fair to all our people as can be.

It is a plan that taps the wisdom of a free marketplace, while protecting consumers against the windfalls of a free marketplace.

It is a plan that calls upon our competence and our compassion--to protect the poor--to preserve the quality of our air, land and water.

It is a plan the American people can trust.

I hope you will join with me in supporting our national energy plan and the goals it can achieve for America.

Thank you.

BIOGRAPHICAL SKETCH

JOHN F. AHEARNE
SPECIAL ASSISTANT TO THE ASSISTANT TO
THE PRESIDENT FOR ENERGY

Education

B.S., Engineering Physics, Cornell University, 1957
M.S., Cornell University, 1958
M.A., Princeton University, 1963
Ph.D., Physics, Princeton University, 1966

Experience

1977-Present	White House Energy Policy and Planning Office
1975-1977	Principal Deputy Assistant Secretary of Defense, Office of the Assistant Secretary of Defense for Manpower & Reserve Affairs
1972-1975	Deputy Assistant Secretary of Defense for General Purpose Programs, OASD(PA&E)
1970-1972	Director, Tactical Air Directorate, Office of the Assistant Secretary of Defense for Systems Analysis
1969-1970	Staff Member, Air Defense Division, Office of the Assistant Secretary of Defense for Systems Analysis
1964-1969	Associate Professor of Physics, USAF Academy. Adjunct Professor of Physics, University of Colorado Extension. Lecturer in Physics, Colorado College
Summer 1968	Strategic Defense Division, Office of the Assistant Secretary of Defense for Systems Analysis
Summer 1967	High Altitude Group, AF Weapons Laboratory, Kirtland AFB, New Mexico
Summer 1966	USAF West Coast Study Facility, Los Angeles
Summer 1965	Yale University Graduate School of Applied Science

1961-1964	Princeton University
1959-1961	Theoretical Branch, AF Weapons Laboratory, Kirtland AFB, New Mexico
Summer 1958	Los Alamos Scientific Laboratory
Summer 1957	AVCO-Everett Research Laboratory

Honors, Awards and Special Achievements

Sigma Xi, Princeton
Phi Kappa Phi, Cornell
Tau Beta Pi, Cornell
General Electric Coffin Fellow, Cornell
National Science Foundation Pre-Doctoral Fellow, Cornell
Meritorious Service Medal
Joint Service Commendation Medal
USAF Commendation Medal
Department of Defense Distinguished Civilian Service Medal and Bronze Palm
Secretary of Defense Meritorious Service Medal
1976 Boss of the Year, D.C. Chapter of the National Secretaries Association

Community Organizations

St. Luke's Parish Board: 1970-1972, 1973-1975; Chairman 1974-1975.
St. Luke's Religious Education Council: Chairman, 1970-1972.
PAX Liturgical Committee: 1970-present; Co-Chairman, 1973-1974; Member-Steering Committee, 1972-1974.
Catholics Concerned for a Responsive Church: Member-Steering Committee, 1975-Present.

Publications

"On the Kinetic Theory of Plasmas," Ira B. Bernstein and John F. Ahearne Annals of Physics 49, 1 (1968).

"Introductory Physics Experiments Using a Digital Computer," American Journal of Physics 34, 308 (1966).

"HELP (High Energy Laser Panel) Report," John F. Ahearne and Jasper A. Welch, Jr., AFSC West Coast Study Facility, August, 1966.

Thirteen Air Force Weapons Laboratory reports on Argus, blackout, EMP, X-ray kill, and high altitude nuclear tests.

Family

Wife: Barbara H. Ahearne
Children: Thomas, Paul, Mary Ann, Robert, Patricia

AIRLINES' CONTRIBUTIONS TO THE NATION'S STRATEGIC MOBILITY

A PRESENTATION BY

MR. ROBLEY L. MANGOLD

TO

WORLDWIDE STRATEGIC MOBILITY CONFERENCE FOR 1977

NATIONAL DEFENSE UNIVERSITY

FORT McNAIR, WASHINGTON, D.C.

3 MAY 1977

Most of the people in this room are experts in the requirements of our Defense Department for worldwide strategic mobility and the role expected of airlines and other common carriers in augmenting these requirements. Yet the subject is so important to national security that a review is always timely.

As a spokesman for the nation's airlines, here is how I propose to approach my task today. I will move quickly through a three-part overview of our our air transport system.

The first part of the overview will cover the present scope of U.S. airline service to the private sector and to the U.S. Postal Service. In time of severe national emergency, the total capability of our airlines would be at the disposal of the nation. This part of the overview will show the generally civilian oriented phase of airline service that would be available to the Commander in Chief, should the need arise.

Secondly, I will follow with an overview of airline service to the military, including both a look at the airlines' record of support for the military during times of national emergency and the day-in-and-day-out service we provide in peacetime.

Thirdly, I will follow with what might best be described as the problem side of the overview -- the challenge of matching financial performance with capital needs. The airlines in the years immediately ahead will need billions of dollars to acquire new and more productive aircraft. Our success in acquiring these aircraft will be extremely important to the continued effectiveness of commercial airlines in contributing of the Defense Department's worldwide strategic mobility.

The executive and legislative branches of our government, for nearly a quarter of a century, have laid out good guidelines for the partnership role of the Defense Department and the nation's airlines. Although many of you are familiar with these guidelines, I think we should review them briefly. If they are followed, they can help safeguard a continued military-airline partnership effective in meeting future defense requirements.

Finally, I will suggest some concrete actions to insure the maximum capability of the airlines to contribute to the Defense Department's worldwide strategic mobility.

Here is the first part of the overview -- the current scope of airline service to the civilian sector:

---The nation's scheduled airlines last year carried a record 223 million passengers -- or 18 million more than in 1975.

---They produced nearly five billion ton miles of freight service, another record.

---They transported eight out of every ten intercity first class letters and millions of packages of air parcel post.

---Our airlines operate some 13,000 scheduled flights daily.

---The U.S. airlines perform their passenger and cargo services with a fleet of more than 2,200 aircraft, representing an investment of about $18 billion.

Our scheduled airline network covers 58,000 city pairs. This is the combination of cities in the United States between which a passenger, a freight shipment or a piece of mail can move in scheduled air service.

Among the airlines' 300,000 employees, there are thousands of mechanics and other highly skilled ground personnel who staff permanent bases throughout the country and throughout most of the world.

Now for the second part of the overview -- airline support for the military. Our nation's airlines have been augmenting military airlift for the past 35 years.

The partnership began with U.S. involvement in World War II. The commercial airlines, under contract with the Air Transport Command and the Naval Air Training Service, delivered more than four billion passenger miles and one billion cargo ton miles, and performed more than 1.4 million flying hours for the military overseas and in other international operations.

U.S. airlines helped make the Berlin Airlift a success. More than 600 transatlantic flights were flown in support of the airlift from June 1948 through May 1949, and operated more than 2,500 flights between West Berlin and points in West Germany.

Most of the additional airlift needed during the Korean War was provided by U.S. airlines. They carried 67 per cent of the passengers, 56 per cent of the freight and 70 per cent of the mail airlifted as a result of the Korean War. In terms of total traffic, U.S. airlines carried more than 1½

times the traffic carried by the Military Air Transport Service, the Royal Canadian Air Force, United Nations military forces and foreign flag carriers combined.

During the Vietnam conflict, U.S. airlines played an even larger role in augmenting military airlift. When this conflict was expanding in 1965 and 1966, U.S. airlines were transporting an estimated 88 per cent of the military passenger traffic going to Southeast Asia. Commercial carriers were airlifting more than 2,500 passengers and 180 tons of cargo daily to Vietnam during these years.

And there have been other instances of airline response to suddenly arising military requirements. During the October 1973 crisis in the Middle East, for example, the expanded airlift made available by the airlines for routine military traffic to Europe and Asia freed military transports for more specialized missions.

Commercial airlines have responded successfully in augmenting military airlift every time the industry has been called upon to do so. Even so, air transport operators and military planners got together more than 20 years ago to establish an even broader base of support for military airlift from the civil sector.

In 1954 the airlines and the Defense Department established the Civil Reserve Air Fleet (CRAF) to make available the most advanced airline aircraft and their crews to the military in time of national emergency.

In recent years, the scheduled airlines represented by the Air Transport Association usually have had more than 300 aircraft committed to the CRAF program. They include some of the most advanced long-range passenger, cargo and cargo convertible aircraft.

These aircraft represent an investment of billions of dollars the U.S. taxpayers have not had to make for the Defense Department. This CRAF commitment also makes available to the Defense Department an additional highly valuable investment in skilled people and ground facilities located throughout most of the world.

So far, we have been concentrating on airline augmentation of military airlift in extraordinary circumstances. But we should not forget the routine peacetime services airlines provide for the military every day.

Airlines handle a substantial amount of the troop movement required by the Defense Department. Within the Air Transport Association's Military Bureau there is a troop movement section serving as a coordinator in this activity between the Defense Department and the nation's scheduled airlines.

Airlines jointly operate ticket offices on military bases to meet the personal travel and shipping needs of service people and their families. These offices are now maintained at more than 100 military bases throughout the 50 states, in Puerto Rico and at some bases overseas.

Airlines regularly carry mail to servicemen and women throughout the world. They fly routine military cargo and have the airlift capability to handle much more of this cargo traffic than they have been offered in recent years.

And now for the final part of the overview -- the challenges involved in financing acquisition of the more productive aircraft now available.

According to projections of the Air Transport Association, acquiring the new aircraft that airlines should be introducing into their fleets from now through the end of the 1980's will require a capital investment of some $65 billion.

How the airlines succeed in matching financial performance with capital needs has far-reaching importance:

---It will determine how well airlines handle growth in demand for passenger and cargo servies.

---It will determine a great deal about the future course of commercial airframe and engine manufacturing in this country. Hundreds of thousands of jobs are at stake. So is continued U.S. world leadership in aircraft manufacturing.

---And it will determine the quality of expanded airlift the airlines are able to offer the military in the future.

To meet such capital needs, the airlines must realize -- consistently, year after year -- an average annual return of at least 5 ½ cents on each dollar of revenue. Thus, we are talking about annual earnings at the $800 million level, or above.

These earning levels have not been achieved. The airline industry's financial performance in recent years has not been adequate to meet capital needs and some other needs. The level of earnings established by the Civil Aeronautics Board as necessary in maintaining a strong U.S. scheduled airline industry has been reached only once in the past 10 years, in 1966. And the financial performance has been marked by sharp cycles.

In 1966 the U.S. scheduled airlines earned $428 million. Then earnings fell off sharply and in 1970 the airlines experienced a $200 million loss. Next came four years of low earnings and an $84 million loss in 1975.

Last year the airlines achieved a significant financial turn around. Earnings were about $400 million and are expected to be in the same range next year. Our 1977 financial outlook may be altered, however, by changing fuel costs and fare levels.

Our recently improved earnings, welcome as they are, represent a return of slightly more than two cents on each dollar of sales -- less than half the annual return that will be needed consistently if we are to finance acquisition of needed new aircraft.

The airlines' financial performance relative to that of other U.S. industries has been low, even when the comparison is confined to other regulated industries. During the years from 1962 through 1975, for example, the return on net assets for the airlines amounted to about 2.4 per cent. For the financially troubled U.S. Class I railroads it was 2.6 per cent and for investor owned electric utilities it was 4.1 per cent.

The return on capital of most major industries, both regulated and non-regulated, has exceeded that of the airline industry. A comparison of 30 major industries published by FORBES in 1976 showed all out-performing the airlines. The median return on capital for the years 1971 through 1975 ranged from a high of nearly 15 per cent for the health care consumer goods industry to a low of 3.5 per cent for the airlines. The average return for all industries combined was 8.6 per cent.

I do not wish to appear overly pessimistic, for there are some encouraging signs. The airlines contributed to their own financial turn around through self help in the area of stringent cost control. But there is a limit to how far we can go here. We have had a resurgence of traffic growth, coming mainly from an improved U.S. economy. Our yields per revenue passenger mile and cargo ton mile have increased. But we need a marked and consistent improvement in the current upward trend in airline earnings.

Maintaining a sustained upward movement in airline earnings will depend upon a number of factors. But it is likely to depend most of all on more traffic and more profitable traffic. This includes more regular military peacetime traffic.

We depend upon our traffic to provide both the incentive and the means for investment in new equipment -- new equipment that can better augment military airlift in time of extraordinary need. The concept that more military traffic should move via commercial carriers, as such an incentive, has been reiterated time and time again.

Landmark policy statements such as those contained in the 1955 Hoover Commission report report on transportation, the comprehensive Defense Department report on "the Role of Military Air Transport Service In Peace and War", and reports from Congress can be summarized as follows:

For reasons of national defense and simple economics, it makes good sense to have a substantial civil airlift as a ready reserve-standby that can be called upon at a moment's notice to augment military airlift whenever required in the national interest. Therefore, it makes sense that the Department of Defense should make substantial use of commercial airlines in moving commercial traffic, and that the use of military transports be concentrated on the specialized missions for which they have been designed.

Airlines moved quickly to buy conventional jet freighters and cargo-convertible aircraft in the early and mid-1960's. Then they invested billions of dollars in wide-body jets, including wide-body freighters. Now, as I have said, the airline industry is striving to make its fleet even more modern and productive, and more fuel efficient.

But as this audience well knows, military traffic -- particularly military cargo traffic -- has been declining for the airlines. And the decline is far sharper than can be attributed solely to the fact that our armed forces are not engaged in conflict.

It is ironic that the decline in the airlines' share of available military cargo occurs at a time when the extensive and regular peacetime use of commercial air transport to augment military airlift has taken on new importance. The new importance, obviously, stems from a dwindling fuel supply and the escalation of fuel prices. Using the capacity of airlines and other common carrier systems to optimum levels can help get the most out of each gallon of fuel consumed. Such an approach has the additional value to the Defense Department of helping conserve its own fuel for more specialized military uses.

Common carrier transport systems -- particularly in the long-range international transport -- have experienced technological improvements that have made them potentially more useful in helping meet defense needs. And I include here their potential for contributing to worldwide strategic mobility.

This is certainly true in ocean shipping, thanks to the container ship. And it is most apparent in the case of long range air transport. But there is no room for complacency.

Five years ago, in writing in the DEFENSE TRANSPORTATION JOURNAL, I discussed a trend in defense policy that I am convinced has become more important with each passing year.

I was commenting upon the trend toward new strategic sufficiency. I observed that the underlying characteristic of the new policy -- as it relates to transportation -- is the need for maximum flexibility in responding to the outbreak of hostilities, particularly in the capability for rapid mobilization, deployment and reinforcement of military forces.

I observed that, under these circumstances, transportation becomes an even more significant component of our national defense posture. I wrote that this will require even closer cooperation between those responsible for our national defense and the managers of the transportation industry.

I made a plea then that I will repeat now because the years have given it even more urgency. Foreign policy says give us maximum transport flexibility to meet any defense needs that may arise. Yet, the Defense Department has drastically reduced its reliance upon commercial airlift for the movement of routine military cargo traffic.

The reverse should be true. The commercial carriers should be moving more of today's military cargo traffic, not less -- if to make possible maximum transport flexibility and thereby to strengthen the historic partnership in strategic mobility between the airlines and the Department of Defense.

BIOGRAPHICAL SKETCH

ROBLEY L. MANGOLD
SENIOR VICE PRESIDENT
UNITED AIR LINES

R. L. (Rob) Mangold, senior vice president and general manager of the Eastern Division of United Airlines, joined the company as a cargo department employee at Portland, Oregon in 1942.

Prior to assuming the leadership of the Eastern Division on January 1, 1974, he was executive vice president-marketing for the airline, based at company headquarters near Chicago.

His previous positions with the airline include vice president-cargo sales, vice president-sales planning, vice president-sales and service for the Pacific Northwest region, vice president-marketing coordination, vice president-system sales, senior vice president-marketing, and senior vice president and general manager of the Central Division.

In 1959, Mangold received United's highest honor, the President's Award, for his outstanding work as developer and manager of a major program to introduce new jet aircraft to the traveling and shipping public.

Mangold has served as national chairman of Discover America Travel Organizations and has been chairman of that group's policy committee. He is past chairman of the National Defense Transportation Association and chairman of the Military Airlift Committee of the NDTA. He is a recipient of the Department of Defense's Public Service Medal, its highest civilian honor.

He attended the University of Oregon and has participated in special graduate school programs at both Stanford University and Harvard University.

TOTAL SYSTEMS APPROACH TO STRATEGIC MOBILITY

A PRESENTATION BY

MAJOR GENERAL H. R. DEL MAR, USA

TO

WORLDWIDE STRATEGIC MOBILITY CONFERENCE FOR 1977

NATIONAL DEFENSE UNIVERSITY

FORT McNAIR, WASHINGTON, D. C.

4 MAY 1977

It is a distinct pleasure for me to have the opportunity to address such a distinguished group...all working toward the improvement of that vital combat ingredient - the mobility capability of our Armed Forces.

I am sure that by now everyone is aware that the theme of this conference is "Strategic Mobility - What Does it Mean to You? - How Do I Fit in?" During the past two days, you have heard a number of excellent presentations addressing this theme from key organizations within the mobility community. However, in preparing for this presentation, it became apparent to me that perhaps I should be addressing a slightly different question; that is - How do we fit together?" This is the real issue. Do we fit together well enough to get the job done? If we don't fit together what can we do to make the pieces fall in place? This is what I would like to talk to you about this morning... the deficiences in the strategic mobility system...what we can do to make the system work better...and what MTMC is doing in this regard.

First of all, just what do we mean when we talk about strategic mobility. In simple terms, "strategic mobility is the capability to deply and sustain military forces worldwide in support of national strategy." It is not airplanes...it is not ships...it is not trains...it is not ports. It is all these things molded into an integrated, smoothly functioning system. The job to be accomplished by this system is the timely deployment of our forces from origin in CONUS to final destination in the theater and to sustain these forces in combat. If we don't look at the mobility problem from this total systems perspective, we face the real danger of systems failure when the time comes to put it to the test. One segment is just as important as another. They must function together like gears in a well-oiled machine. Ships and airplanes alone will not do the job. Forces must be ready. Installation support capabilities must be adequate. Linehaul assets in CONUS and theater must be available in sufficient numbers where and when required. Ports must be ready to efficiently outload and receive the type of strategic lift vehicles employed. Even more importantly, we must have integrated efficient management. Management is the oil that keeps the machine working. Without effective management, we have breakdowns.

To compound the complexity of the mobility problem, we must build and maintain our deployment capability in an extremely austere funding environment. This requires maximum use of existing resources, the scare funds that are

made available for enhancing mobility capability must be used in the wisest and most productive way possible. Our objective must be maximum increase in capability for each dollar spent. Parochial concerns with one particular mode must not play a part in the decision process. We need hard-nosed, objective trade-off analyses based on the total systems approach. None of the currently proposed mobility enhancement programs should be exampt from microscopic reanalysis. Every program should meet the test of this question: "Are we Getting the Maximum Return in Terms of Increased capability for each dollar.?

As if things aren't tough enough - now we have another problem! I am sure that most of you heard the President's "Doomsday" energy speech. The energy crisis compels this nation, at the highest policy level, to reassess its concepts and methods of operation. Adequate funds, both government andpublic, will need to be appropriated and diverted to this endeavor, with a corresponding program to make the venture attractive to the Government for defense reasons, and attractive to the commercial sector for economic reasons. The DOD must analyze its transportation and mobility policies in the light of fuel requirements. The use of fuel intensive modes must be carefully scrutinized. As you can see, conservation of energy, must also become a consideration in the total systems equation.

DEFICIENCES IN EXISTING STRATEGIC MOBILITY SYSTEM

Let's take a brief look at some of the deficiences in strategic mobility operations and planning which...in my view...are inhibiting our capability to get the most from existing assets and available dollars.

Mobility responsibilities are now fragmented and redundant. Within the DOD, the Services, the transportation operators, and many other commands and agencies play an active role. All of these functional elements are involved in planning for the employment of mobility resources and in the analysis of capabilities. If the Army wants to do a mobility analysis, they do it. If the Navy wants to do one, they do it--and so on. Most of these unilateral analyses are of necessity limited in scope. Usually the result is suboptimization of one portion of the system to the detriment of the total system. No one agency is pulling the requirements together and objectively analyzing the flow of men and materiel from origin to final destination. No one agency has a "Total System Capability." The OJCS concentrates on the intertheater - MAC looks at airlift - MSC looks at sealift--

MTMC concentrates on CONUS land transportation and water terminal operations in both CONUS and overseas-- the CINC looks at intratheater. The only analysis that looks at the total system is JSCP - and the FY 76 version continues to be delayed.

Not only are most mobility analyses deficient in scope - the movement requirement data is lacking in accuracy and the necessary detail. "Real" origin data is not made available. Tonnages are generally gross estimates. We have a pretty good handle on unit deployments but usable requirements data for mobilization of reserve units is for all intent and purposes non-existent.

With all these deficiencies in our analysis capability, there is no way that we are going to get reliable answers to our mobility questions. We are buying enhancements based on "half a loaf." The justification for mobility enhancement programs can't stand up to critical audit.

MTMC ROLE IN STRATEGIC DEPLOYMENTS

What is being done to correct these deficiencies? Well, I can only speak for MTMC -- and we are pushing in one direction -- origin to destination - total systems capability. As the DOD Traffic Manager, I see MTMC playing a unique role. We place the accent on management -- not hardware -- not a particular mode. The only answer is management of each movement from origin to destination.

We provide that critical management interface between the mode operators, the shippers and the commercial transportation industry. We have developed a reservoir of experience and expertise in planning for the optimum use of all transportation modes. We know cargo characteristics. Traffic management, transportability, loading and stowage are our business. With this experience and knowledge, we are in the best possible position for objectively assessing proposals for enhancement of all aspects of strategic mobility capabilities -- weighing the merits of such proposals in the context of the capabilities of the total transportation system and delivery requirements.

The capabilities of each segment of the deployment system must be analyzed with the objective of optimizing total deployment capabilities. Each analysis must be attacked in a basic two step process. First, movement requirements must be reviewed and validated independent of lift capability considerations. Non-essentials must be deferred or eliminated. Priority must go to early closure of combat forces with a balance of support capabilities. Secondly,

movement requirements must be translated into specific lift requirements - based on required delivery dates - optimum utilization of the unique capabilities of airlift and sealift - CONUS movement and theater reception capabilities - and thorough examination of potential trade offs.

Let me illustrate concretely the total systems approach. Look at REFORGER 76. For the first time, truly integrated joint management was exercised - in planning the deployment and controlling the movement of forces from installations in CONUS - to the ports of embarkation -- on to the ships and aircraft -- and in receipt, discharge and onward movement in the theater. Prior to ordering the first airplane or ship, the total deployment was analyzed from origin to destination. An optimum mix of airlift and sealift was developed that would minimize cost and meet exercise deployment objectives. The deployment plan was approved and its implementation intensively managed, every element of the strategic mobility system was exercised and managed in a coordinated effort of all the Services, the transportation operating agencies and the CINC. A repeat performance with different units is planned for REFORGER 77. With the coordinated efforts of us all, it will be as much a success as REFORGER 76. Once again every aspect of DOD deployment capabilities will be exercised.

MTMC KEY MOBILITY INITIATIVES/ACTIONS

To insure that we keep our eye on the target, strategic mobility planners at MTMC have built our mobility enhancement program within the "origin to destination" framework. The basic principles I have already discussed and these programs were incorporated into the Joint Posture Statement of the Secretary of the Army and Chief of Staff, and the Strategic Mobility Requirements and Programs Study recently submitted to Congress. They will be an integral part of the Army's Program Objectives Memorandum -- POM -- and DOD programs. Let me take a few minutes to review our major programs with you -

(CONUS LINEHAUL)

Installation's outloading capabilities must be adequate to support major OPLAN deployments. It is especially important that capabilities at installation's outloading both supporting units and major combat units be scrutinized and consideration be given to the effect of conflicting and competing requirements on the stations' capabilities. Those installations having outloading deficiencies must be identified and appropriate corrective action taken.

With this as an objective, MTMC has published a revision of the Joint Service Regulation prescribing procedures for computation and submission of installation receiving and outloading reports. The purpose of the revision is to simplify and improve the accuracy of the capabilities reported. The new capabilities data have already been analyzed by MTMC for the Strategic Mobility Requirements and Programs Study. Deficiencies were identified at three key Army installations. A "price tag" has already been put on the corrective actions required at one of these installations. The other deficiencies are being validated in a follow-on analysis. To further illustrate the significance of this area, a MTMC analysis of the simulated deployment of a modified corps to the Middle East indicated that the outloading capabilities reported by Fort Hood, Texas, with its heavy concentration of armored units, were questionable. An on-site traffic engineering survey by MTMC produced realistic outloading data for use in all future deployment analyses. In a MTMC analysis of the deployment of the 101st Airborne Division for REFORGER 76, it was determined that the rail network servicing Fort Campbell, Kentucky, could not support the deployment of the division to Europe without extensive repairs. Recommended repairs totaling $238,000 were completed on 1 July 1976. Installation receiving and outloading capabilities will be analyzed in detail for all Services in support of JSCP 76. Significant shortfalls identified will be reported to the appropriate Service for correction.

MTMC manages the Defense Freight Railway Interchange Fleet commonly referred to as the DFRIF. This fleet consists of railcars required to support DOD peacetime and wartime requirements that cannot be adequately met by commercial sources. This DOD-owned railway rolling stock is registered for operations in interchange service, as differentiated from the Services-owned equipment for intra-plant use. We at MTMC have the responsibility and authority to determine the optimum composition of the DFRIF so that it is managed and operated in the most efficient and economical manner. To insure that we do in fact have an "optimum" fleet, we have initiated two studies to determine requirements for -- first -- special purpose tank cars -- and -- second flat cars. We are looking to these studies for answers to operations, maintenance and funding questions. They will provide information pertaining to numbers and types of cars required to support the Military Services and Defense Logistics Agency, and cost analyses and decision dates for procurement actions. A general purpose tank car analysis was completed in June 1975 which resulted in cancelling the procurement of the remaining 588 -- 20,000 gallon tank cars on a contract for 750 cars. This action resulted in a cost avoidance of $20 million.

Civil transportation is an inherent part of deployment capability...it is essential that Defense needs be integrated into the civil transportation programs. A strong Highways for National Defense program exists in law. A viable railroad capability is also essential to the deployment of major, heavy combat units and the bulk of resupply. But, recent experience has indicated that the rail system is in dire need of rehabilitation. This deteriorating condition led to the passage of legislation to revitalize and regulate the rail system. It is essential that Defense requirements be recognized in the context of this legislation. Consequently, we are developing a Railroads for National Defense Program. We have identified five major tasks associated with this project...first, a draft legislative proposal was prepared which will lead to authority in law for the program. The Office, Secretary of Defense has approved the proposal and directed the Department of the Army to sponsor the legislation...second, an analysis of strategic railroad corridor network (STRACNET) for national defense was completed and furnished to civil transportation planners. The Federal Railroad Administration has designated class A mainlines in each STRACNET corridor which are eligible for Federal funding...third, a list of Defense installations requiring rail access to STRACNET is being prepared and will be furnished to FRA and State agencies for incorporation into civil transportation programs...fourth, the Department of Defense Directive, "Highways for National Defense," has been revised to incorporate railroad matters. OSD has requested the Military Services to review and comment on the draft revision...and...fifth, a Joint Service Regulation is being prepared to implement the program. The project is scheduled to complete its mission and achieve continuing program status on 1 June 1977.

The degree to which strategic mobility is dependent on highway transportation cannot be overstated. Highway transportation is a key element in nearly all deployments and resupply movements. Industrial plants producing military and defense supplies, as well as military installations, would be crippled without adequate highway facilities. The highways for national defense program insures that strategic defense highway needs are properly integrated into public highways programs. MTMC, as the DOD executive agency in all public highway matters, collates these strategic defense highway systems needs and insures that proper procedures for fulfilling these identified needs are established or that alternative programs will adequately facilitate movements within CONUS. Defense needs have been identified by MTMC in the present national system of interstate and defense highways which is now approximately 90 percent complete.

Future longer range strategic highway needs are now being determined by MTMC to include such aspects as - the identification of highways, bridges, and tunnels considered to be of major strategic mobility importance -- functional design or construction requirements to meet military and other emergency needs and -- existing or foreseen highway system deficiencies which might adversely affect the performance of an individual installation's military mission or other assigned defense responsibility.

A program was initiated by the DOD explosives safety board, from which a study was developed on the Prevention of Explosive Incidents in railcars to include containerized munitions in port areas and aboard ships. MTMC, in addition to conducting certain portions of the program, will act as program coordinator and prepare the final report and recommendations. On 4 August 1976, the Deputy Assistant Secretary of Defense for Supply, Maintenance and Services, approved the study plan as a management effort with funding to be provided by the DOD components conducting the study. This study is essential if we are to increase the safety of transporting munitions and preclude such disastrous explosive incidents as occurred in 1973 at Benson, Arizona, and Roseville, California.

(CONUS PORTS)

Hazards involved in moving ammunition require that separate government-owned ocean terminals be maintained to support peace and wartime requirements. The military ocean terminal Sunny Point, North Carolina, has been upgraded by installing two container cranes. This is the only ammunition terminal that can efficently load non-self-sustaining container ships. Navy terminals at Naval Weapons Station, Earle, New Jersey, and the Naval Weapons Station, Concord, California, provide fleet support and serve as common-user ammunition terminals. The capabilities of these terminals are supplemented in wartime by activation of the military ocean terminal Kings Bay, Georgia. MTMC completed comprehensive analyses of the east coast ammunition ocean terminal requirements and capabilities for the 1980 time frame. The results of these analyses indicate that there is a significant short-fall in ammunition outloading capabilities. We have developed the investment requirements for expanding the ammunition outloading capabilities at Sunny Point, and we are working with the Navy on an assessment of capabilities at Earle. Joint use of Kings Bay is also under discussion, since the Navy has identified it as their preferred alternative site for stationing the fleet ballistic missile submarine squadron which must be relocated from Rota, Spain.

To insure an adequate operations base under-less-than-mobilization conditions, it has been determined that MTMC's general cargo terminal facilities at Bayonne, New Jersey; Oakland, California; and New Orleans, Louisiana, should be retained. In an effort to reduce fixed costs and maintenance costs, MTMC is pursuing joint commercial military use of these three facilities. The proposal postulates that portions of these facilities be leased to the respective port authorities and maintained and improved by the lessee as an offset to the fair market rental value and, at the same time, be available for peacetime and emergency military requirements.

Ports for National Defense and Inland Waterways for National Defense are two MTMC initiated programs which DOD has recently approved. Our new port program encompasses the current predesignation of commercial port facilities by the Maritime Administration. These facilities form the operational base for the movement of DOD cargo under mobilization conditions. MTMC organizations -- augmented or activated by US Army reserve units -- will monitor contractor operations at these predesignated facilities in 21 port areas. Also, under the new port programs, the need to assign specific port facilities to major deploying units will be assessed.
-- The inland waterways for national defense program will be coordinated with the DA Corps of Engineers.
- In addition to examining current requirements and capabilities, we intend to investigate the potential for future expanded use of waterways. The Corps of Engineers has assured us of their support for a waterways program.

(SEALIFT/AIRLIFT)

The need for a responsive sealift capability is essential. Recognition of this has resulted in the development of the Ready Reserve Force -- or RRF -- within the National Defense Reserve Fleet. MTMC analyses indicate that the seatrain vessels are the most suitable of present NDRF assets for the movement of Army unit equipment. To emphasize the characteristics and inherent advantages of the seatrains to key combat and support commanders, MTMC sponsored a tour of the seatrains located at the James River reserve fleet site in late 1976. In addition, the Maritime Administration has advised that several relatively modern breakbulk ships would be available in the near future for inclusion in the RRF. These ships are self-sustaining and are capable of transporting large tonnages of heavy unit equipment such as tanks and self-propelled artillery. Based on Navy funding limitations and projected ship availability, MTMC has developed final RRF ship

composition and positioning recommendations which have been presented to the Navy as the official Army position. The recommended mix of 33 ships to be positioned at the James River, Virginia (19 each) and Beaumont, Texas (14 each) is based on the Army's programmed force for 1983. This positioning would support the movement of units from Fort Hood and Fort Polk out of the Gulf coast and units moving from Fort Lewis, Fort Campbell, Fort Benning, Fort Stewart and Fort Knox through the east coast. The total number of ships would be capable of lifting approximately two heavy divisions, either mechanized or armored, simultaneously, and closing them in Europe in less than 30 days.

The Rapid Movement of the Army's Major Combat Forces in the initial stages of a contingency is critical to the successful execution of wartime strategies. Accordingly, MTMC has undertaken studies of the deployment of each type of major Army unit. Our analyses of the 101st Airborne Division (Air Assault), the 1st Cavalry Division and the 6th Cavalry Brigade (Air Combat) have been completed. Work is now in process on the 4th Mechanized Division, which will be followed by the 9th Infantry Division. It was our analyses of the deployment of the 101st Airborne Division that led to its inclusion as the major Army unit deploying in REFORGER 76. Study results include optimum air and sea deployment mixes which minimize closure times in theater and the impact on available airlift.

In our role as the transportability agent for the DA, the MTMC transportation Engineering Agency is developing a software system, identified as The Transportability Analysis Reports Generator (TARGET). This system provides basic transportability data, computes transportation equipment requirements and analyzes CONUS and theater network capabilities. It will support MTMC analyses of the air and sea deployment of major units. When operational, target will be a major step forward in integrating transportability considerations into mobility planning.

(PORTS OF DEBARKATION)

A major recent breakthrough in unified worldwide traffic management was the assumption by MTMC of command of the Transportation Terminal Group, Europe -- TTGE -- the organization that exercises command over common-user military water terminals in Europe. The mission includes receipt, handling, documentation, and port clearance of DOD-sponsored cargo and privately owned vehicles. TTGE's manned terminals are located at Rotterdam, where the Group is headquartered, Bremerhaven, Liverpool, Felixstowe,

Lisbon, Mannheim, and Antwerp. Additionally, the assumption included 13 unmanned facilities throughout Europe which are operated as needed by personnel from the manned facilities. MTMC also picked up the terminal facility at Leghorn, Italy, during the past year. These acquisitions enhance centralized management of port operations; streamline the movement of DOD cargo; and provide for more useful audit trails and closer liaison with customers.

CONCLUSION

Let me conclude with this! There is a definite need to manage traffic worldwide, from CONUS origins to final overseas destinations - The Total Systems Concept. This objective requires a look at all segments of the transportation system and the effective implementation of systems improvements based on responsiveness, cost and national resource considerations.

BIOGRAPHICAL SKETCH

MAJOR GENERAL H. R. DEL MAR
U. S. ARMY

General Del Mar was born on 19 August 1921 in New York City. He enlisted in the U.S. Army on 27 June 1942 to attend Infantry OCS at Ft. Benning, Ga., launching his career in the military. After graduation and commissioning as a second lieutenant, he joined the 77th Infantry Division, the famous New York "Statue of Liberty" Division. For 20 months in the Pacific Theater he fought through assaults on Guam, Leyte, Samar, Keramo-Retto, Io Shima and Okinawa and was wounded during the Guam, Leyte and Okinawa campaigns.

After World War II, General Del Mar left active service to further his education. After receiving his Baccalaureate Degree (Biology) from Washington Square College, New York University, he returned to uniform on 1 October 1948. Five years later, as a captain, he transferred to the Transportation Corps. In August 1962, he received his Master's Degree (Cum Laude) in Political Science from Long Island University. His military education includes the Transportation Corps Advance U.S. Army Command and General Staff College, the Command and General Staff Special Weapons Course, the Traffic Management Course at George Washington University and the Industrial College of the Armed Forces.

He has held many key transportation assignments including the position of Chief Transportation Advisor to Dr. Wernher Von Braun and the Commanding General, U.S. Army Missile Command, Redstone Arsenal, Alabama during the early missile program which successfully launched Explorer I, the Free World's first satellite. General Del Mar also served as the Representative of the Commander in Chief, Southern Europe (NATO) to the NATO Civil Emergency Planning Committees, Naples, Italy; and as Chief, Operations and Plans, Review and Analysis Branch, Special Assistant for Strategic Mobility to the Chairman, Joint Chiefs of Staff, Washington, D.C. He has been an instructor at the U.S. Army Transportation School, Ft. Eustis, and Commanding Officer, 106th Transportation Battalion in France and Germany. From April 1969 to November 1970, he served in Vietnam as Commanding Officer of the 124th Transportation Command (Terminal A), Cam Ranh Bay and later Commanding General of the U.S. Army Support Command, Cam Ranh Bay. From November 1970 to July 1973, he commanded the 14-state Western Area, Military Traffic Management Command, at Oakland Army Base, Oakland, California.

During his career General Del Mar has been decorated with the Bronze Star Medal for Valor four times and also holds the Distinguished Service Medal, the Legion of Merit with 1st Oak Leaf Cluster, the Purple Heart with two Oak Leaf Clusters, the Bronze Arrowhead for initial assault beachheads, and the Meritorious Service Medal as well as the Combat Infantryman Badge and JCS Identification Badge.

He is married to the former Angela Francis Boscarello of New York City and has two teenage daughters, Patricia Francis and Debra Sharon.

SEALIFT AS AN ELEMENT OF STRATEGIC MOBILITY

A PRESENTATION BY

REAR ADMIRAL SAM H. MOORE, USN

TO

WORLDWIDE STRATEGIC MOBILITY CONFERENCE FOR 1977

NATIONAL DEFENSE UNIVERSITY

FORT McNAIR, WASHINGTON, D.C.

4 MAY 1977

It is traditional for a speaker to begin his remarks by noting how happy he is to be taking part in an occasion--no matter what it might be, or whoever his audience.

Despite the fact that we in the Navy have a high regard for tradition, I am going to deviate from that practice. It is not because I am a reluctant participant in the Strategic Mobility Conference, but because I am somewhat wary about the opportunity I am being given.

In his letter of invitation, General Casey asked that in my comments concerning strategic mobility I "tell it like it is." That is a rare opportunity. It is a very tempting opportunity--a chance to expound on every problem or issue of personal interest.

It is interesting to note that the word "opportunity" is derived from the Latin term, "ob portu." It described a situation where ships had to wait to ride a flood tide into port before there were modern harbors.

In recent years there has been a strong tide of criticism concerning the decline of our merchant marine. But, I would prefer not to ride that negative tide, even though I could do so with some inpunity.

Since I will retire from active duty at the end of June, it is not likely that I would feel the heat of my fire which might result if I focused a magnifying glass on our maritime problems. But, on the other hand, I am reminded of Major General John Sedgwick's comment just before he was shot dead by a Confererate bullet under his left eye. He said: "They couldn't hit an elephant from that distance."

His opinion was proven to be inaccurate. Most of us have had a similar experience, although the consequences were obviously not as disasterous. So, I plan to "tell it like it is," focusing on the strengths and weaknesses of our sea transportation assets and systems--both military and commercial--and to offer a few suggestions of my own.

Recognizing that my views will reflect my personal interest and experiences, I intend to be as positive and yet as objective as I possibly can. Negativism does not contribute to the solving of problems. What is needed is light--not heat--as we consider where we are, and where we are headed.

Rather than go into great detail, obviously unnecessary for this audience, I will only outline some of our strengths and weaknesses in the sealift area.

First, some general observations. It is axiomatic that strategic mobility requires that we take the total systems approach in funding, operation and management of available resources. General Del Mar has already made that point. We must exploit current commercial and Defense capability, and we must develop an even more effective intermodal delivery system. This trend will continue, and its impact will be felt on financial investment, on changes in design of carriers and boxes, and on use of ADP systems necessary to handle the flow of data. Intermodalism must be accompanied by increased management expertise.

In our efforts to expand systems capability, emphasis should be placed on the complementary nature of the varied modes of transport. The entire system must be exercised in peacetime by movement of Defense cargo in a volume that justifies our investment. At the same time, we must continue to conduct realistic exercises involving air, land and sea transport modes. Reforger '76 and planned Reforger '77 are two excellent examples.

A realistic and integrated Department of Defense transportation policy is as vital to the maintenance of a responsive mobility team as are the transportation operating agencies--and the sources of commercial transportation augmentation.

Defense policy must accommodate both the legitimate pressures exerted by commercial interests--and the requirements of the military organizations responsible for fulfilling unique service requirements. It also must be coordinated with policies and programs implemented by the Department of Commerce's Maritime Administration which has responsibility for the development of a strong U.S. Merchant Marine.

The Navy's Military Sealift Command has two primary mobility responsibilities, and there is an inherent conflict between the two. In peacetime, MSC provides efficient and economical sea transportation for the military Services. At the same time, we are responsible for developing assets, systems and procedures to support the deployment and resupply of troops in a contingency situation.

In a peacetime situation, cost is a driving factor. In a contingency operation, responsiveness would be the dominant consideration.

In either case, the small ready-response peacetime fleet which MSC operates is inadequate to meet anticipated requirements. We rely on augmentation by the merchant marine in peacetime. We would need to do so even more heavily in an emergency.

Currently 97 percent of military dry cargo that moves by sea is carried in privately-owned ships. Eighty-two percent of MSC booked petroleum products moves in privately-owned ships. And, with a revenue of roughly $1 billion annually, MSC pays about 80 percent of its earnings to private industry for services they provide. Much of our surge ability would come from the merchant marine.

In an emergency short of mobilization, such as deployment of NATO forces prior to a declaration of war, it is likely that the United States would have to call up essentially the entire U.S. oceangoing fleet to support that deployment.

We have never taken such an action, and should we need to do so it would have a great impact on both our economy and the everyday lives of our citizens. However, I am certain we could adapt to the situation in the short term. One reason for my confidence is the growing awareness of our reliance on transportation for both our economic and military survival.

This conference is evidence of the military's concern. Participation by industry representatives illustrates their concern. In contrast to the era immediately following the establishment of our current Department of Defense organization, a period when there was some rivalry among the Services, we now have an effectively integrated military department. As commander of MSC, I have been impressed by the strong support for sealift provided by the Air Force, particularly the Military Airlift Command. The Army and its Military Traffic Management Command are equally forceful in promoting a unified approach to the meeting of our mobility requirements--and the solving of transportation problems.

The Maritime Administration is working with the Department of Defense to improve the responsive capability of the merchant marine. However, there are some unresolved problems, including: the need to modernize the NDRF, the need to develop a meaningful national defense features program for U.S. merchant ships; the need for assured availability of those ships under less than mobilization conditions, the need to bridge the gap between commercial and military interests, and a more effective use of the subsidy programs to create the responsive military auxiliary intended by the Merchant Marine Act of 1936.

Congress also is taking an analytic view of the merchant marine--and its ability to augment Navy resources in an emergency. I understand that hearings will be held this summer during which the military Services will be asked to identify their sealift requirements so that subsidy programs designed to provide military capability in merchant ships can better serve that specific purpose.

In the past, new types of ships have been built without adequate research as to whether or not they could be profitably employed. Speculation has, at times, been a motivating factor. American technology is the greatest in the world, but technological superiority has little value if it does not produce what we need. We perhaps could have done a better job of identifying the types of ships needed for national security purposes, and then developing those types. But, it is also true that someone has to bear the cost of such development, and Department of Defense has probably relied too heavily on the commercial industry for the necessary investment. Can we expect company stockholders to finance ships, or to include defense features in new ships which limit the profitability of their investment?

There is one other observation I would like to make--and it also relates to private ownership of the American merchant marine. In the past few years, there has been a surge in maritime nationalism, particularly so among Third World nations. Many developing nations want their own merchant marines. They want to carry their cargo in their own ships. Some have already passed cargo preference legislation--or made agreements to finance construction of ships which would fly their flags.

There is no shortage of shipbuilding capability. World yards can produce more merchant ships than can possibly be used. But, the supply of cargo is finite. Competition among merchant fleets is great, and it is getting tougher. Every action we may take to improve the strength of our own merchant marine is bound to have a significant international impact.

The Soviet Union is an excellent example of the advantage of state versus private ownership of merchant fleets. With no need to make a profit, the Soviet Union has been able to penetrate new markets with its modern merchant fleet, to exert its economic influence on a global scale, and to develop the ability to project its military power on all of the world's oceans. In terms of ship numbers, the Soviet Union merchant fleet is already larger than that of the United States. And it is growing at a faster rate.

Soviet emergence as a global maritime power has had an impact on U.S. military strategy, on the configuration of our Navy combatant fleet, and on the development of our strategic mobility systems. All must be simultaneously capable of counteracting a Soviet threat--and of meeting demands of less major conflicts.

That brings me to the adequacy of our sealift resources to support military operations.

As I have indicated, MSC is the Defense immediate-response sealift force. It is small--only 27 dry cargo ships and 28 tankers. Only six of the cargo ships and 7 tankers are government owned. The remainder are chartered from private owners. At best, MSC could handle the initial requirements of a limited deployment--and would require immediate augmentation.

There has been a very limited Defense investment in support type ships in the past 27 years. That pattern is not likely to change; although it is possible that pressures might dictate a revision of present thinking, and provide for a meaningful ship replacement program in future years.

Basically, sealift resources available for logistical support of the military are those of MSC, the merchant marine, the National Defense Reserve Fleet, the Effective U.S. Control Fleet, and those of nations with which we have collective security agreements. Let me touch on each of these in turn, except for MSC which I have already commented on.

The United States came out of World War II with the world's largest merchant fleet. Today we have about 525 oceangoing merchant ships. In 1950, our merchant fleet transported 42 percent of our foreign trade. Today it moves 5 percent, and U.S. tankers carry 4 percent of U.S. oil imports and exports. Bulk ships deliver only 1 percent of the 250 million tons of dry bulk materials we use annually, and we would need at least 50 million tons a year to maintain our economy on a wartime footing. We are dependent on foreign ships in peacetime. Withdrawal of our merchant ships for military support in an emergency would make us completely dependent on foreign vessels for fulfillment of non-military requirements.

With regard to the composition of the U.S. Merchant Marine, there are a number of factors which limit its mobility potential. First, are the small numbers of ships that reduce logistical flexibility and make it difficult to absorb the heavy losses we can anticipate in the initial stages of a war. We might expect heavier losses in the initial phases of a major conflict than we experienced in World War II when ships of Allied nations bore most of the losses while we were rebuilding our Merchant Marine. Replacements of our losses would be very costly, and would require time to build.

The newer vessels, such as the 105 container ships now in the merchant fleet, are highly specialized. They are generally non-selfsustaining and less than ideal for over-the-beach logistical operations. And, while there are still 143 breakbulk ships in the U.S.-flag inventory, the tramp ships of this type have largely disappeared. We would have to withdraw breakbulk ships from scheduled routes to meet emergency requirements.

The trend in ship construction is toward large, specialized, highly productive ships. The 1970 Merchant Marine Act supports this trend, thus emphasizing commercial utility and profitability in new ship construction. Typical are the container ships, very large crude carriers, liquefied natural gas ships, and oil-bulk-ore vessels. The basic problem is that the more productive and competitive the ship for commercial use, the more limited is its capability to support over-the-beach military operations.

Historically, ship construction and operating differential subsidies have been paid to increase the ability of merchant ships to meet national security needs. And yet, as voices in Congress and in the industry are now pointing out, the military has not established requirements as to types and numbers of merchant ships it requires. We have limited our effort to suggesting defense features to be incorporated in ships designed to be commercially productive. In some instances, the two interests--security and profit--may be in conflict.

The NDRF now contains only 132 Victory hulls and 11 self-sustaining Seatrain Puerto Rico class vessels of potential military value for dry cargo lift. This reserve resource which we used extensively during the wars in Korea and South Vietnam has primarily a short-term value. Time is its natural enemy. We withdrew about 172 ships from the NDRF for Vietnam. Care has to be taken in the highest councils of government that we do not rely too heavily on resources that are obsolescent by every commercial standard, not only ships currently in the NDRF but also those that will be traded in within the next decade.

With regard to the availability of Effective U.S. Control vessels--U.S.-owned ships sailing under foreign registry--there are two negative points to consider. The first is whether the foreign government and crews would make the ships available if called. The second is the composition of the EUSC fleet. It contains less than 20 general cargo ships and transports. The bulk of the fleet consists of large tankers and bulk carriers. There are about 200 tankers that have a defense application.

We rely very heavily on Allied resources, particularly NATO shipping. In a NATO contingency, these resources would be adequate. Short of that, their availability might depend on the military and political situation.

There are a number of other factors in the minus column which I might note. Communications is one. While both the Navy and merchant ship operators are moving toward satellite systems, most merchant ships still rely on Morse code to receive and

send messages. Diversion and control of merchant ships, and accountability of their cargo, thus become problems.

Ports and port facilities are causes for concern. To increase their productivity, intermodal ships make fewer port calls. The result is concentration of traffic in fewer and bigger ports with feeder ships providing service to other areas. Reliance on land-bridge operations also is growing. While this allows maximum exploitation of our intermodal distribution system, it also tends to reduce the number of ships in operation and to concentrate traffic in the larger and more sophisticated ports.

At present, no ports in the continental United States can handle ships of more than 100,000 deadweight tons. As larger ships are built, port deficiencies are limiting factors in planning for movement of military supplies and equipment on a large scale.

As I indicated in my opening remarks, I believe that actions are being taken which increase the probability that Defense can rely upon augmentation by the merchant marine. But, the military planner must always take into consideration whether or not political decisions necessary for call-up of merchant ships can and will be made in any situation short of mobilization.

One necessary factor is the close working relationship between the Navy and the Maritime Administration. The latter agency is responsible for implementation of the Merchant Marine Acts of 1936 and 1970, and for development of a strong fleet to carry U.S. trade and to serve as a military auxiliary in time of war. Here again, I offer a note of caution. To achieve the most productive joint effort, the legitimate responsibilities of each must be respected and recognized.

MARAD provides direct and indirect financial aid for ship-builders and operators through Title XI financing guarantees, operating and construction differential subsidies, and capital construction funds.

They also spend $20 million a year on research and development efforts--on programs which already have led to U.S. dominance in employment of intermodal carriers.

MARAD also helps develop a segment of the seagoing labor force, graduating 600 deck and engineering officers each year from seven federal and state maritime academies.

MARAD representatives meet regularly with Navy officials to coordinate joint programs, and they have also established a National Maritime Council with broad industry membership. That council has implemented a strong marketing effort to convince American shippers to use U.S.-flag ships, and to promote unified effort within the maritime industry.

Under the 1970 Act, subsidies have been provided for construction of 66 new ships and the reconstruction or conversion of 27 vessels for use as container ships. These new vessels are equivalent to 45 percent of the carrying capacity of the U.S.-flag fleet. Totaling 6 million deadweight tons, they are valued at $3.3 billion. An additional $2 billion in ship construction has been generated by Title XI financing. U.S. shipyards have invested $1 billion in modernizing their yards, and another $132 million will be spent this year. Since financial guarantees and subsidies for shipyards and for shop operators are often made in the name of national security, responsible authorities both in Defense and the Maritime Administration, must satisfy themselves of the tangible security benefits that result from such investments.

In the 4 1/2 year period ending in December 1976, U.S. shipyards delivered 98 commercial vessels. Another 71 are under construction or on order, and 26 of these will be delivered this year.

The U.S. intermodal fleet is already the largest in the world. It includes 105 container ships, 23 lighter and barge carriers, and 13 roll-on, roll-off ships. Another 15 ships, primarily container vessels and barge carriers, are expected to be ordered in the next two years.

Approximately 80 percent of military resupply cargo now is containerizable. By using containers for military equipment and flat racks for vehicles, up to half of unit equipment tonnage can be moved in container ships when and if support facilities and equipment are available. However, the funding responsibility for the flat racks has not yet been resolved. RO-RO's and barge carriers differ in that they have a high potential for logistical support even when complete support facilities are lacking.

The 143 breakbulk ships in the commercial inventory are especially advantageous for support of deployed troops, and it now appears that this type of ship will not be replaced completely by the intermodal carriers as we once anticipated.

I previously noted that the small number of merchant ships was a disadvantage. But, each of the newer ships in our current inventory is several times more productive than its World War II counterpart. They also are much faster. Some can sustain

speeds in excess of 30 knots and thus operate independently with a good chance of survival. That would be especially important in the early stages of a contingency before mobilization of Navy reserve units and before establishment of convoy control systems. However, high ship capacity is also a disadvantage in terms of cargo loss in the event of sinking.

It is apparent that reports concerning the demise of our merchant marine have been premature. We are improving our capability and some 95 percent of the ships built in recent years can be used for Defense in an emergency.

Progress is being made on several fronts. Congress is now considering varied proposals which would reserve a portion of U.S. trade for U.S.-flag ships. The Alaskan pipeline soon will begin transporting oil, and other forces are at work which will tend to attrack investment capital necessary to expand our merchant marine.

Efforts also are under way to improve our port structure, including the construction of two offshore terminals to handle huge tankers.

I understand that Congressional hearings will be held this summer during which Defense will be asked specifically to identify the types and numbers of merchant ships it needs as a basis for required supportive legislative programs.

The Congress and the administration also are concerned about regulatory and anti-trust policies which affect the ability of the U.S. merchant fleet to compete for world cargo. Changes in these areas may be forthcoming.

Several programs have already been revised or implemented to strengthen our sealift capability. I will mention some.

MSC now has about 125 dry cargo ships committed for call-up short of mobilization under its Sealift Readiness Program. They represent about half of the assets operated by shipping companies who carry military dry cargo in peacetime. Twenty percent would be available within 20 days, another 10 percent in the next 10 days, and the remainder in 60 days.

Navy also has established a program of readiness funding for a limited number of dry cargo ships. When there is no cargo for them, they are maintained in a reduced operating status and would be available almost immediately in an emergency.

MARAD and the Navy have also begun a program to bring 30 ships in the NDRF up to readiness within five days. They would provide the initial surge needed in a major emergency and could handle smaller contingency requirements without call-up

of active merchant fleet ships. Funds provided for the first year's work will cover seven ships--two Victory hulls, four relatively new C-3s and a Seatrain Puerto Rico class ship able to move helicopters.

Another Navy-MARAD initiative is establishment of a system whereby all merchant ships report their speed, course, and position every 48 hours. That information could increase their responsiveness in an emergency.

In addition, it is hoped that high frequency selective calling radio teletype equipment will be installed on all U.S.-flag merchant ships to improve responsiveness to emergency calls. MSC already is installing this system in its controlled fleet.

Last year, for the first time in many years, sealift assets were used in a joint military exercise when four MSC controlled ships moved equipment of the Army's 101st Airborne Division from the United States to Europe. It is planned that MSC controlled ships will be employed in Reforger '77, including a Seatrain class vessel from the NDRF.

Several tests have been held to evaluate the military capability to offload ships offshore, and to deliver cargo over the beach. Emphasis has been on learning to use cargo handling gear existing in the military and commercial inventory--since that is what we will have in a rapid-response situation.

The industry has been especially cooperative in providing assets for these tests and for other evaluation efforts over the years.

That type of military-civilian cooperation--existing as it does at all levels--is one good reason why I think that we need not dwell on the negative elements when assessing our ability to support U.S. commitments. We have sometimes tended to do that. Perhaps we have been the victims of our desire to absolutely guarantee that we can fulfill any requirement assigned us.

Certainly, we should not strive for less. But, we must also be realistic in determining what those requirements may be. We must be diligent, flexible and innovative in adapting the resources we have--to any situation.

In World War II, U.S.-flag ships carried 80 percent of all military cargo moved from U.S. shores. During the war in Korea, 95 percent of the sealifted cargo moved in U.S.-flag vessels. And in South Vietnam, more than 95 percent of the cargo delivered to Southeast Asia by sea moved in U.S.-flag ships. From the American Revolution to the present, the U.S. merchant marine has played a vital role in deploying and supporting our military forces. It can do so in the future.

There are, however, some suggestions I would like to leave with you. I hesitate to call them recommendations since I offer them for your consideration rather than as courses of action we must support.

First, as I have said, I think that we in the military services must carefully identify the types and numbers of ships we require as augmentation resources from the U.S. Merchant Marine. If subsidy programs are intended to serve national security purposes, military needs must be known, and ships built should support those needs. I would suggest that the Department of Defense might consider the possibility of funding Defense features we unilaterally want incorporated in new ships.

As an alternative source of ships, notably those types not available in the merchant marine inventory, I would hope for Congressional passage of legislation which would allow their procurement by build and charter financing. Private investors would capitalize ship construction on the strength of a long-term charter commitment by the Navy. Proposed legislation has been submitted by the Navy.

I strongly recommend that realistic exercises continue to be held which involve all elements of the Defense transportation team--commercial and military.

Finally, I am very much encouraged by a recent statement by Secretary of the Navy W. Graham Claytor. In a speech to the Navy League he said, and I quote: "I intend to pursue a closer working relationship between the Navy and the commercial maritime industry to coordinate and better plan for emergency sealift."

"However," he added, "since the Navy must be able to respond immediately and effectively in an emergency, I am convinced we must upgrade our own internal capability to rapidly deploy military equipment by sea." Unquote.

There is no question as to U.S. capability to deploy its troops by air. Our modern airlift force can deliver much of the high priority cargo needed to resupply those forces. But, from 90 to 95 percent of the volume in a protracted conflict must be moved by sea.

We are headed in the right direction. But, there is much more that needs to be done to strengthen our sealift resources, and the challenges which must be faced are not those of the Navy alone. They involve us all.

BIOGRAPHICAL SKETCH

REAR ADMIRAL SAM H. MOORE
U. S. NAVY

Rear Admiral Sam H. Moore was born in Rugby, Texas, on April 11, 1918, the son of the late Mr. and Mrs. Sam H. Moore. He was graduated from East Texas State University in September 1941 and was commissioned as Ensign in May 1942. He then attended Cornell University for instruction in diesel engineering. His first assignment at sea was as Engineering Officer of the minesweeper USS UMS-6 with the Atlantic Fleet.

He served with both the Atlantic and Pacific Fleets and earned campaign medals for duty in the Okinawa campaign and for service with the Third Fleet in the East China Sea and Japanese Empire waters.

In 1945 he became Commander of Mine Squadron 102 and in 1946 served as Commanding Officer of the minesweeper USS DENSITY. The next year, he attended the Guided Missile School at Fort Bliss, Texas. During 1948 and 1949, he served on board USS ADIRONDACK, flagship of Commander Operation Development Force, Atlantic Fleet.

In 1950 he attended the General Line School, Monterey, California, and from January 1951 until October 1952 was on the staff of Commanding General, Sixth Army. From then until August 1954 Admiral Moore served as Flag Secretary to Commander Mine Force, Pacific Fleet.

He then became Executive Officer of the radar picket destroyer USS HENRY W. TUCKER until March 1956 when he took command of the destroyer USS CUSHING in the Pacific Fleet.

From September 1957 until June 1958, he attended the Senior Course at the Marine Corps School, Quantico, Virginia. From there, he was assigned to the Office of the Deputy Chief of Naval Operations for Research and Development. In July 1960, Admiral Moore became Executive Officer of the first Talos guided missile cruiser, USS GALVESTON, in the Atlantic Fleet.

In March 1962, he assumed command of Destroyer Division 102 and was involved in the Cuban missile crisis of October 1962. During that period, he was the on-scene commander for boarding at sea and search of SS MARUCLA during the Quarantine operations.

In April 1963, Admiral Moore became Director of Plans and Programs for the Surface Missile Systems Project, Bureau of Naval Weapons.

He served in that capacity until March 1965 when he was again assigned to sea as Commanding Officer of the guided missile cruiser USS CHICAGO. He subsequently attended the National War College, Washington, D.C., graduating June 9, 1967. He was selected for flag rank one day before graduation. The following month, he took command of Cruiser-Destroyer Flotilla Seven in the Pacific Fleet.

From April to October 1968 he served concurrently as Commander Cruiser-Destroyer Flotilla Seven and Cruiser-Destroyer Group Seventh Fleet in the Western Pacific.

Admiral Moore then became Commander of Military Sealift Command, Far East, and had under his direction approximately 60 tanker, cargo, landing and other types of ships, in addition to numerous MSC chartered ships. Also in his command were MSC offices and units in Japan, Korea, Okinawa, Guam, Vietnam, Taiwan, Thailand and the Philippines.

After being relieved as Commander Military Sealift Command, Far East, he served as Director of Budget and Reports for the Navy from August 1970 to July 1972 when he was named Deputy Comptroller of the Navy until December 17, 1974. He assumed command of the Military Sealift Command on January 10, 1975.

Among his citations are the Distinguished Service Medal and three Legions of Merit. He also has three Navy Commendations.

In addition to the Combat Action Medal and the Meritorious Unit Commendation for distinguished service in the Western Pacific, he wears the Navy Unit Commendation, Navy Expeditionary Medal, Asiatic Pacific Area Medal with four stars, Navy Occupation Medal (Asia Clasp), China Service Medal, American Theater Medal, World War II Victory Medal, National Defense Medal with bronze star, Armed Forces Expeditionary Medal, Vietnam Service Medal with two bronze stars and the Vietnam Campaign Medal. For duty as Commander of Cruiser-Destroyer Group Seventh Fleet, he was also awarded the Republic of Vietnam Cross of Gallantry and the National Order of Vietnam Fifth Class.

Admiral Moore is married to the former Charlene Blair of Orange, Texas. They have one daughter, Margaret Ann.

TRAIN II NATIONAL FREIGHT CAR MANAGEMENT AND CONTROL SYSTEM

A PRESENTATION BY

MR. THOMAS H. GARCIA, JR.

TO

WORLDWIDE STRATEGIC MOBILITY CONFERENCE FOR 1977

NATIONAL DEFENSE UNIVERSITY

FORT McNAIR, WASHINGTON, D.C.

4 MAY 1977

Let me say first off that I'm very happy to be here today and I'm especially grateful for the opportunity to participate in this outstanding conference.

General Murray had originally intended to be here this morning, but unfortunately had an unexpected conflict in schedule.

In any event, his game plan for this morning was to comment briefly on Railroads and Defense and how the two interrelate.

The question frequently arises in Defense planner's minds as to how the right freight cars are gotten to the right places to deliver all of the goods Defense and the Nation needs.

So, with that in mind, this morning I'd like to share with you some thoughts about one of the railroad industry's major on-going projects, namely the TRAIN II National Freight Car Management and Control System.

I'll be using a set of slides during my presentation so that you'll be able to grasp the full impact of our program and develop an understanding and appreciation of both the immediate necessity and future potentiality of the TRAIN II System.

However, before we talk about our TRAIN II System, let me give you a little background information about the AAR.

The Association of American Railroads is the organization of the principal railroads of the United States, Canada and Mexico.

The Association represents the common interests of the railroad industry in such matters as law, operations, maintenance, research, management systems, economics, finance, and public relations. We also represent the railroads in certain types of proceedings before the Federal Courts, Congressional Committees, and regulatory agencies.

The AAR operates under a board of directors elected each year by member railroads. The board establishes policy and elects officers. The president of the Association is the national spokesman for the railroad industry and the other officers carry out national policies in their respective fields.

The railroads of the United States, Canada and Mexico which are members of the Association represent approximately 96%

of the mileage in these countries, and approximately 97% of the business handled by railroads. Numerous other railroads in North America and all over the world are associate members, and receive the benefit of the reports of the Association's various activities.

TRAIN II INTRODUCTION

I'd like to begin my comments on our TRAIN II System by pointing out the fact that the American Railroad industry is not a monolithic enterprise. It is, in concrete terms, a collection of private businesses which cooperate in the movement of freight traffic.

However, from the vantage point of the railroad-using public, the railroad industry is a national system. A shipper thinks in terms of moving a cargo from point A to point B. The number of individual railroads which handle the cargo are irrelevant to his main purpose. If there are problems on one of the railroads, the shipper is not particularly interested in assigning good marks to the others; he perceives the situation not as an individual company problem, but as a railroad problem.

In coming together to create TRAIN II and make it work, the separate railroads, while maintaining their autonomy and identity, are committing themselves to operate the industry as a national transportation system.

SLIDE 1: TRAIN II (Editor's note: Slides are not available)

What exactly is TRAIN II? TRAIN II is a computerized effort to track freight cars. The System itself is located at the Washington Headquarters of the AAR. However, the information base comes from the individual railroad computers.

The ultimate objective of TRAIN II is to provide better support, not just to the railroads involved, but to the shipping community and to the consuming public at large.

The primary objective of the TRAIN II System is to provide car control information to the Car Service Division of the AAR. Why? Because the Car Service Division has been charged by the railroad industry with the responsibility for the equitable distribution of the National freight car fleet among the various railroads. This is not an easy assignment!

Not when you consider that there are over 2 million freight cars in the North American fleet. At any given moment a freight car may be found at any point along some 330,000

miles of track or on the lines of anyone of 73 or more railroads. It may be moving under load or it may be moving empty; it may be awaiting loading or unloading; it may be undergoing classification in a yard; it may be awaiting repairs, or it may be standing idle in surplus.

As you can see, this poses a rather unique problem in equipment inventory, and an even tougher problem in distributing freight cars to the areas where they are needed.

SLIDE 2: ORIGINATING--TERMINATING--BRIDGE LINES

As most of you are probably aware, some railroads originate more traffic than they terminate. Some roads terminate more traffic than they originate. And finally, some roads serve primarily as bridge carriers between the other two. These conditions can and frequently do cause imbalance in car location and car supply.

The often used term - a car shortage - doesn't necessarily mean that there aren't enough cars; it may mean that the cars are simply in the wrong part of the country. A car standing empty in the east, when a shipper needs it in the west is a double loss. Not only does the empty car cost money to maintain, but the inability to supply a potential customer could mean business lost to the railroads forever.

So you can see how important it is that the Car Service Division have current and reliable information on which to base decisions for correcting such imbalances. And the basic function of the TRAIN II System is to provide that information.

SLIDE 3: CAR CONTROL HISTORY

A little history or background as to how the TRAIN II System came into being helps set the stage to what we are doing today.

In pre-computer days all of our data was received from the railroads in the form of periodic, manually prepared reports. Ownership information was reported monthly. Inventories of freight cars on-line came in on a semi-monthly basis. Reports of freight car shortages, surpluses, loadings and unloadings came in weekly. These manually prepared reports obviously involved lengthy time lags and the chance for human error was magnified by the number of clerical operations. Often, our car control decisions were based on experience and instinct rather than fact. There was little doubt that significant improvement in car distribution would require more accurate and more timely information.

The TRAIN I computer system, implemented in 1970, was our first computerized effort and the initial breakthrough in our efforts to develop a timely and accurate National freight car management system.

SLIDE 4: TRAIN I CYCLE MOVEMENT

The TRAIN I System provided only location information, that is, the interchange of a freight car from one railroad to another. The timeliness of our car inventory data was greatly improved inasmuch as we could now receive accurate car inventories within 4 days. However, TRAIN I didn't accumulate loadings or unloadings, bad order, storage, or hold information. Nor was it able to make the very important distinction between loads or empties. We were still relying on manual reports for a good portion of the data necessary to make informed decisions on car distribution.

SLIDE 5: TRAIN II CYCLE MOVEMENT

I have tried to depict here the entire cycle of car movement and, if you will follow me around the spokes of the wheel, you'll see that beyond the interchange, we have the placement, the unloading, the pull empty, the storage and hold operation and again, the placement for loading, the loading and the pull loaded. I have inserted bad order status as the next step in the car movement cycle. However, bad order, storage, or hold operations could occur at any point in the car movement cycle.

From this slide, you can see that TRAIN II follows the cars all through the loaded to empty cycle. It also gives regional boundary crossings, which I'll explain later, and certain of the information appearing on the waybill, such as origin of the load, the waybill number, the commodity, the connecting carrier and the destination of the car.

So, while I might characterize TRAIN II as a logical step from TRAIN I, you can see from this illustration that it was really a giant step, since we're now computerizing the entire spectrum of information concerned with the freight car cycle.

SLIDE 6: SCOPE OF EFFORT

As additional background, looking at the scope of our effort, you can see that within the U.S. we are locating 2 1/4 million freight cars, trailers and containers on approximately 330,000 miles of track and we're approaching one trillion ton-miles per year of revenue traffic. We also have information on

Canadian cars moving in the United States and U.S. cars in Canada. And we also track U.S. cars moving into Mexico and Mexican cars in the United States.

SLIDE 7: TRAIN II INPUT

To give you some idea of the volume of information we are dealing with, let's take a look at the input side of the data that we receive from the railroads.

SLIDE 8: MOVEMENT DATA

This slide shows you various types of movement data input to the system and the approximate volume in which they occur. Over 900,000 total movement transactions per day.

SLIDE 9: WAYBILL DATA

In addition to movement data, we receive waybill data which enables us to generate information on origins, destinations and types of commodities moving. When we add these together, you can see that our processing work load exceeds one million transactions per day.

SLIDE 10: REGIONAL BOUNDARY MAP

As information, we've divided the United States into 11 geographical areas. We've done this, so that from a car distribution standpoint, we may determine where cars are located on a particular railroad. You'll note that we've also assigned regions to Canada and although not shown on this slide, Mexico and Alaska.

SLIDE 11: COMPUTER SCHEMATIC

Having briefly described the input data to the TRAIN II System, I believe it worthwhile to comment on the computer hardware that we have at the AAR. This slide traces for you, beginning at the top, railroad terminals inputting over communication lines to our network monitoring capability.

This information passes through our communication lines to one of two communications processors. From the communications processor the data is then routed to one of two central processing units. The actual processing occurs in the central processing unit and the information is then either routed by the communications system back to the appropriate railroad, to a high speed printer for various management reports, or placed on tape or disc storage for periodic retrieval of historical data. One other output that we handle is accumulating

information for video display in our Car Service Division. The TRAIN II statistical data base is updated on a daily basis thus enabling our transportation analysts to retrieve and display current information on the entire fleet of freight cars.

SLIDE 12: TRAIN II OUTPUTS

Thus far we've talked about the history of how we've approached the problem of car control and distribution, the size of our effort, and our hardware processing capability. But what most people are generally interested in is what benefits do we derive from the TRAIN II System.

SLIDE 13: TRAIN II RAILROAD OUTPUTS

Individual railroads, of course, benefit from the improved car utilization inherent in more timely and accurate freight car information. But, aside from this, there are additional specific benefits which accrue to each individual railroad:

a. TRAIN II provides junction reports to railroads showing the off-line interchange of their freight cars. This is information from which the railroads base their car accounting.

b. Data on oncoming traffic is forwarded to all roads participating in the traffic. Receiving roads can anticipate traffic enroute to them and plan their operations accordingly.

c. Railroads know the last commodity loaded in an empty car which they receive. This enables them to determine car-commodity fitness and avoids the placement of unsuitable cars for loading.

d. TRAIN II provides a message switching capability which allows roads to route messages to other roads.

SLIDE 14: SUMMARY TRAIN II

In summary, we believe TRAIN II provides current car cycle data to include the entire spectrum of the freight car movement cycle. As we accumulate this information, we build an historical data base that allows us to analyze more precisely the movement of cars, perform service measurement studies, and to make more dependable forecasts for requirements for cars.

We feel that TRAIN II has provided us with the tools for positive control and the result can only be improved freight

car utilization with the advantages accruing not only to the railroads but also to the shipper and the consuming public.

SLIDE 15: CAR SERVICE DIVISION AND NATL. CAR INFO. SYSTEM

That's a thumbnail sketch of what TRAIN II is and some of the types of basic information it provides. And now I'd like to explain how the Car Service Division, the primary user of the system, benefits from TRAIN II.

A few moments ago I mentioned that the Car Service Division is charged by the railroad industry with responsibility for the equitable distribution of freight cars among the various railroads. In practice, this means the Division must seek to provide cars to the railroads that need them and exercise the kind of control over the flow of the fleet that will prevent the kinds of imbalance that defeat good freight car utilization.

This is accomplished thru the issuance of various orders and directives. Although there are always some orders of the Division in effect, special orders or directives are issued to meet special problems.

SLIDE 16: WHEN CSD TAKES ACTION

The Car Service Division takes action when a car supply problem or actual shortage appears likely, when a request for assistance is received from a railroad, or when shipper complaints are received and, upon investigation, reveal a car supply problem.

SLIDE 17: CRITERIA

The primary criterion used by the Car Service Division in determining whether a railroad qualifies for assistance is the number of cars on the line of the railroad requesting assistance in comparison to the number of cars owned by that railroad.

However, the weight of this consideration may be modified by such additional factors as heavy bad order percentage on the requesting road, the proximity of providing and deserving roads, and current loading trends compared to cars on-line.

SLIDE 18: CAR CONTROL CENTER

We've established a car control center in the Washington Headquarters of the Car Service Division with four Transportation Analysts who monitor information gathered by TRAIN II

on a full time, region by region, and railroad by railroad basis.

People frequently ask us "What do we do with this mountain of information?"

To try to answer that question, I've put together three very short examples. They are just that - examples. We have many options with the TRAIN II System and we're not by any means limited to the types of actions displayed in these examples.

The first example I've titled "Moving the Annual Grain Harvest". We feel confident that the information made available through TRAIN II will assist us greatly in pinpointing and reacting to probable difficulties with grain movement.

SLIDE 19: TEXAS & OKLAHOMA

Our harvest begins in late May with the winter wheat crop in Texas and Oklahoma and spreads northward from there.

SLIDE 20: COMBINES

These are combines in a Texas wheat field. With our modern machinery and techniques, and given good weather, harvesting progresses rapidly.

SLIDE 21: COVERED HOPPER

This is a new Santa Fe covered hopper car getting ready to go to work. The bulk of the grain now moving by rail is shipped in covered hoppers -- more efficient vehicles with about 70% greater carrying capacity than the standard box car.

SLIDE 22: COVERED HOPPER BEING LOADED

These covered hoppers are loaded thru roof hatches in 12 minutes and unloaded from the bottom in 3 minutes.

These are special type cars not in the common pool for use by other railroads. One of the Car Service Division directives in effect requires other railroads to return them empty to the owner after unloading. In this way they won't be contaminated with other commodities.

There are more than 228,000 of these cars in service and the number is constantly growing.

SLIDE 23: BOX CARS AT QUAKER OATS

Box cars are also used for grain. These are 40 ft. narrow door plain box cars which in normal times can be used by any

railroad for various commodity loading with only minimal restrictions.

However, harvest periods are not normal times. Because of their sudden impact on freight car supply for temporary periods, most railroads then need and are entitled to assistance.

And it's the job of the Car Service Division to provide that assistance.

Six primary railroads are involved in the early harvest in Texas and Oklahoma.

SLIDE 24: TOTAL INVENTORY ON-LINE/6 RAILROADS

This is a TRAIN II video display, instantly available on our video data terminals giving us a very basic picture of 40 ft. narrow door box car inventories on the 6 roads involved in the Texas and Oklahoma winter wheat harvest. For simplicity, we'll focus our attention on the ATSF and the SLSF.

This tells us that the ATSF owns 9787 cars, has 5432, or 55.5% of their own cars on-line and a total of all ownerships of 7653, equal to 78.2% of their ownership.

You'll remember that the per cent of ownership on-line is our primary factor in considering eligibility for assistance.

The SLSF, with a lesser ownership, is in a relatively similar position with respect to cars on-line.

Both of these railroads qualify for assistance since they have an immediate need for cars for the harvest and have considerably fewer total cars available to them than they own.

SLIDE 25: LOCOFOWN-ATSF-ALL REGIONS

We're going to help both of these roads secure the return of their cars from other railroads and our first step is to determine where these cars locate.

This is our "Location of Owner's Cars" display, again instantly available on our video terminals, which shows on what railroads ATSF cars locate in all regions, nationwide, and in what number.

SLIDE 26: LOCOFOWN-ATSF-REGIONS 8&9

Here, we've narrowed this down to regions 8 & 9 and we find that 6649 ATSF cars concentrated in these two regions, or 68% of their ownership of 9787.

SLIDE 27: REGIONAL BOUNDARY MAP

Once again we'll look at our regional car utilization map. You'll see that region 8 includes the states of Col., Neb., Kansas & Missouri, while region 9 consists of Texas, Okla., Ark. & Louisiana.

SLIDE 28: LOCOFOWN-SLSF-REGIONS 8&9

This display is similar to the previous ATSF one and shows SLSF cars locating in regions 8 & 9. The 1539 cars in those two regions constitute 67.5% of SLSF ownership.

SLIDE 29: KANSAS CITY-ENID-FT. WORTH

The heavy concentration of these cars in regions 8 & 9 is not unusual because much of the grain from this area moves to terminals such as Ft. Worth, Enid and Kansas City for storage.

SLIDE 30: TEXAS GULF PORTS

And also to the Texas gulf ports of Beaumont, Port Arthur, Houston, Galveston and Corpus Christi for export.

SLIDE 31: CAR ASSISTANCE DIRECTIVE

So, based on the information provided by TRAIN II, the Car Service Division has decided to issue a Car Assistance Directive for ATSF and SLSF cars and here it is. It's a limited order that applies only against railroads in regions 8 & 9 because that's where most of the cars are.

This Directive permits use of the cars for loading only to, via or to a junction with the owner, and cars empty at a junction must be delivered to the owner there. They cannot be removed to another station for loading.

SLIDE 32: CARS IN STORAGE

Also, a number of railroads to the north have been scanned for possible car assistance. From this video display we see that the CNW, for example, has 1385 cars in storage. These and similar storage cars from other roads not yet engaged in their harvests will be directed to the ATSF and SLSF for temporary use.

SLIDE 33: RAIL GRAIN CAR UNLOADING CHART

This chart shows the number of rail cars unloaded at ports, both ocean and Lake, on a calendar year basis.

The low for the period was 300,000 cars in 1969 and the high was 857,000 in 1973. So you can see how prominent a part the railroads do play in these export movements.

Not all of the rail grain for export moves through the Gulf, but much of it does, particularly thru Houston. As a point of fact, during the great Russian grain movement in 1972-1973, 75 to 80% of the entire national movement was channeled by rail through Houston.

SLIDE 34: DAILY GRAIN CAR SITUATION REPORT

This is a daily grain car situation report for the four principal gain elevators at Houston. The report shows cars on hand, those held short of Houston, the cars enroute, the total of the above and the number of cars unloaded the previous day. It's evident from this report that Houston Public Elevator, number one on the list, is headed for trouble. The cars are showing signs of bunching up and we find that the reason is that the elevator is almost full and a ship isn't scheduled to load grain for several days.

SLIDE 35: EMBARGO

So we've decided to issue this embargo to prohibit further shipments to the elevator until the congestion has been cleared up. This will help us conserve our car supply for shipments that can be handled currently.

SLIDE 36: COMBINES

So you can see by this example that TRAIN II has helped us to find the best and most practical way of securing their cars to these railroads for the early gain harvest, has helped to provide additional assistance from other neighboring railroads and has assured efficient use of the available cars by preventing undue accumulations of loaded cars at destination points.

Our second example deals with a gondola car problem.

SLIDE 37: CONRAIL LOGO

One of the many regions served by the newly formed ConRail System is the highly industrialized eastern seaboard.

SLIDE 38: STEEL MILLS

Included in this area are these large steel mills.

SLIDE 39: LONG GONDOLAS

These mills require a large number of long gondolas, that is, those 61 ft. in length and longer. ConRail owns just over 5000 of these cars.

SLIDE 40: LOADING CHART

However, since much of the steel moves to destinations off-line, ConRail usually has a rather low percentage of their ownership of this car type on-line.

This slide shows that generally their long gondola traffic from the steel mills we mentioned terminates in the area east of the Mississippi River.

SLIDE 41: PORT OF PHILADELPHIA

ConRail also serves the port of Philadelphia.

SLIDE 42: DOCK SCENE

On April 9, in this example, ConRail advised the Car Service Division that they would have a movement of import pipe thru Philadelphia beginning April 20, and that they would need approximately 75 long gondolas per week to protect their portion of the movement. They also advised us that the loading would continue for six weeks.

SLIDE 43: ConRail TOTALINV

By utilizing this TRAIN II video display, we can readily review ConRail's current situation. As of April 9 they owned 5512 long gondolas and had 3127 or 62.3% of their own cars on line. They also had a total of 3474 cars on line or 69.3% of their ownership on line. Thus, they would qualify for assistance.

SLIDE 44: ConRail EMPTY INVDCT

This video display illustrates their empty car inventory. As of April 9, they had 2478 system and 73 foreign empty long gondolas on-line. However, 261 of these cars were billed off-line, 425 were heavy bad order, and 52 were overhead cars, this is, cars moving from one railroad to another via ConRail. Subtracting these 738 cars gives us a figure of 1813 net empties available for loading. ConRail

requires at least this number of cars to protect their regular steel loading, so they will require assistance from the Car Service Division to protect the import pipe movement.

SLIDE 45: SOUTHERN TOTALINV

Once again utilizing a TRAIN II video display, those railroads that connect directly with ConRail were examined to determine whether any of these railroads were in a position to assist.

Using the Southern Railroad as an example, we found that they might be in a position to help since they had 74.5% of system and 98.3% of total cars on-line.

SLIDE 46: CS-44 REPORT-SOUTHERN

We then reviewed our weekly shortage and surplus report. For the week ending April 3, we see that the Southern reported an average daily surplus of 193 long gondolas.

We contacted the Southern and they agreed to deliver ConRail 100 of these cars.

These cars furnished by the Southern would enable ConRail to protect the first week of pipe loading. But we knew that in order to protect the remainder of their import steel loadings, ConRail would need a better return of their own long gondolas from other railroads.

SLIDE 47: ConRail LOCOFOWN

Our next step was to locate ConRail's long gondolas. This TRAIN II video display showed the number of ConRail's cars locating on other railroads.

SLIDE 48: B&O MAP

Many railroads, for example, the Baltimore and Ohio, operate in more than one region. Here you can see that the Baltimore and Ohio operates in regions 2, 3, 4, & 6.

SLIDE 49: LOCOFOWN OR ON B&O

This TRAIN II display pinpoints the number of ConRail long gondolas locating on the B&O in each region. As you can see, 42 located on the B&O in region 2 and 58 in region 3.

SLIDE 50: MAP REGIONS 1-5

We learned from another TRAIN II display that as of April 9, 71% of ConRail's long gondolas that were off-line were located in regions 1, 2, 3, 4 & 5.

SLIDE 51: CAD 575

As a result, the Car Service Division issued this Car Assistance Directive on April 12, against all railroads operating in regions 1 thru 5.

This Directive required that during the period April 19 thru May 28, ConRail long gondolas locating in these regions must be withdrawn from distribution and returned to ConRail empty, or they may be loaded provided that the load terminates on ConRail.

By issuing this type of Regional Directive, the remainder of the country is not affected, just the railroads in regions 1 thru 5.

So, once again as illustrated in this second example, TRAIN II has enabled the Car Service Division to take positive action within hours after receiving ConRail's request for assistance.

The third, and final, example concerns the assemblage of an adequate number of flat cars to protect a large military movement.

For more than 60 years, the railroad industry has maintained a liaison office for cooperation with the military in matters pertaining to military rail transportation. The objective being to provide a single contact through which the military could handle rail transportation matters without having to go to the individual railroads.

The Military Transportation Section is an integral part of the Car Service Division and is physically located at the headquarters of the Military Traffic Management Command. The Section supports the Command in a variety of ways embracing many phases of assistance relating to rail support of military requirements.

Data provided by the TRAIN II System greatly enhances our ability to provide current and accurate rail transportation information to the military.

SLIDE 52: FLATS LOADED WITH TANKS

In this example, the Car Service Division was asked to help the Illinois Central Gulf RR. secure an adequate number of general service flat cars to facilitate the movement of two army divisions, since the ICG's own supply of general service flats would not be sufficient to meet the requirements.

SLIDE 53: ICG MAP

Both army divisions are located at posts within Kentucky. The Armored Division at Fort Knox and the Airborne Division at Fort Campbell. Both within the same state but on different operating divisions of the ICG.

SLIDE 54: USAX FLATS

In addition, 181 government owned flats would be used to transport the Armored Division. All of the railroad equipment would be required at both locations within 20 days.

SLIDE 55: VIDEO DISPLAY TERMINAL

By accessing TRAIN II data for video display, a military transportation analyst would first determine the net empty general service flat cars currently available on the ICG and each of its major connections. By scanning only the net empty car supply, we can eliminate those empty cars which would not be immediately available for the military shipment.

SLIDE 56: EMPTY INVENTORY DETAIL - ICG

This is an empty inventory detail display for the ICG.

SLIDE 57: EMPTY INVENTORY DETAIL - MP

And here's a similar display for the Missouri Pacific RR, one of the major connections of the ICG.

SLIDE 58: ICG CONNECTIONS

In a similar manner we found that the ten major connections of the ICG, shown in the block on the left, have the same general car supply situation. That is, they have a fairly high percentage of their ownership of flats on line. In fact, some are well over 100 percent.

TRAIN II showed 7989 net available empties on those ten major connections. It also indicated that ICG would be able to furnish a maximum of 500 flats, which would mean that 1675 would be required from major connections.

Our transportation analysts were able to determine that the number of cars from each connection averaged out to 21 percent of their net empties available.

Since we considered this situation to be a limited emergency, the normal criteria for providing assistance was not strictly adhered to.

SLIDE 59: CAD 541

To secure these needed flat cars for the ICG, quota orders were issued to each connecting railroad requiring them to deliver a specific number of flats to the ICG per day.

This is Car Assistance Directive No. 541, for example, requiring the ATSF to deliver 10 cars per day for 10 days.

So just as in our two previous examples, TRAIN II has provided current and accurate freight car information which our Car Service Division has utilized to solve an industry transportation problem.

SLIDE 60: TRAIN II

TRAIN II is not a finished product! There are still many programs to be implemented and additional benefits will be achieved as the railroads improve their individual reporting systems.

However, the system, as it exists today, is a major factor in the reduction of wasted car days. This is true both in terms of short supply, when each wasted day resulted in lost business opportunities, and in terms of normal freight car demand, when an empty car still costs money.

Railroad operations are benefiting through better scheduling of resources made possible by TRAIN II's transmission of data concerning the movement of inter-line traffic.

For railroad customers, quality of service is being enhanced through waybill and movement data which allows railroads to measure transit time on all their traffic so that they can better identify and resolve problems.

And finally, in the long run, the improvements in freight car utilization made possible by the TRAIN II System should significantly help to reduce the amount of capital needed for rail equipment to satisfy any given level of future business.

Once again, let me say that I'm grateful for having had the opportunity to share with you our thoughts about a program that we in the railroad industry are both proud and optimistic.

Thank you for your attention!

BIOGRAPHICAL SKETCH

THOMAS H. GARCIA, JR.
ASSOCIATION OF AMERICAN RAILROADS

Thomas H. Garcia, Jr. was born in Washington, D.C., on December 4, 1943. He was graduated from Wheeling College, Wheeling, W. Virginia in May 1966.

He began his career in 1968 as a systems representative with RCA's Computer Systems Division, Government Marketing Office, advancing in 1969 into the Navy sales department where he was involved in the marketing of large-scale computer systems to the Department of the Navy.

Mr. Garcia joined the Association of American Railroads in 1972. He has served as Assistant Manager in the Shipper Relations Department, Project Officer for the Car Service Division, and is currently Manager of Data Control for the Car Service Division. In his present position, he directs the operations of several transportation analysts assigned to the Car Service Division's Car Control Center.

Mr. Garcia is a member of the Washington Traffic Club and the National Defense Transportation Association. He has taken graduate courses at American University and is currently a student of the College of Advanced Traffic.

Mr. Carcia resides in Arlington, Virginia. He is married and the father of two children.

AIR MOBILITY - A VITAL ASSET

A PRESENTATION BY

GENERAL JACK J. CATTON, USAF (RET.)

TO

WORLDWIDE STRATEGIC MOBILITY CONFERENCE FOR 1977

NATIONAL DEFENSE UNIVERSITY

FORT McNAIR, WASHINGTON, D.C.

4 MAY 1977

Strategic Mobility -- Although I think we all know what it is and why we're here to talk about it -- General Casey asked me to prepare my remarks so that they would respond to the question -- "What Does Strategic Mobility Mean to Me?"

I guess most important -- to me -- is the fact that strategic mobility is a military force multiplier of the first order. Rapid mobility of integral fighting forces can make them available on a global basis to meet threats to our national interests regardless of location. To a degree we can fulfill our objective of deterring conflict through what has been described as an "unseen presence." This follows from the belief of a potential adversary that we, in fact, do have -- both the forces and the mobility which can respond in sufficient time and sufficient size to make a military adventure on his part imprudent.

A force multiplier is always important but certainly it is extremely important today -- when we consider the cost of military forces and the cost of solving other national problems like energy -- environmental pollution, unemployment, inflation -- and a host of others. Nevertheless, our first priority is to assure freedom and security for our people. Remember that part of the preamble to our constitution that says it so well -- we will "provide for the common defense and promote the general welfare." We must accomplish not one -- but both. As a matter of fact our forefathers may have implied a priority between these tasks when they put "provide for the common defense" first.

Assurance of security and freedom is growing more and more complicated. We no longer can isolate ourselves from the rest of the world. Technology has made the world a collection of close communities. We are dependent upon others for many of our needs -- just as they are upon us. The major societies and nations of the world have become interdependent. We cannot ignore our responsibilities to our friends around the world nor can we ignore the fact that we have evolved as the leader of the free world.

Responding to our international commitments -- which are made -- not just for moral reasons -- but because they are essential to our own freedom and security -- identifies certain places in the world where our national interests are most threatened and where we stand to lose the most. Western Europe and Northeast Asia are prime examples. But there are many other places -- like the Middle East -- where

conflict can occur and where American action becomes necessary -- yet we know how extremely expensive it is to garrison our fighting forces in large numbers throughout the world to meet these threats. We have, therefore, adopted a strategy of flexible response with these features --

1. Maintenance of strategic nuclear forces which provide an aggregate balance.

2. Limiting the use of American fighting forces in offshore conflicts that perhaps can be handled by the involved nations' manpower and American advice, weapons and financial support.

3. Reduction of American garrisons overseas, and

4. Development of highly mobile, hard hitting, general purpose fighting forces ready for use when and where required.

We hope such a military strategy will permit the nation, with acceptable risk, to provide for effective defense forces and -- at the same time -- provide adequate resources for the solution of domestic problems.

Let me make another point. I don't think anyone disagrees with the accepted fact that we must prevent nuclear war -- we must prevent it and at the same time retain our freedom -- our way of life. To do so recognizes positive deterrence at that level of conflict and focuses on the need for highly capable sub-nuclear general purpose forces -- the most probable level of conflict.

Perhaps you remember a young President during his inaugural address who said -- "Our strength may be tested at many levels. We intend to have at all times the capacity to resist non-nuclear or limited attacks, as a <u>complement</u> to our nuclear capacity, <u>not</u> as a substitute. We have rejected an all-or-nothing posture which would leave no choice but inglorious retreat or unlimited retaliation."

It is these forces which must embrace heavy fire power, flexibility and mobility. We simply cannot afford to develop these forces without enhancing their mobility. Fortunately we have the technology which makes such enhancement possible and practical.

Reinforcement of NATO is our most demanding task. Further, there is no question that warning time and the speed and size of our reinforcing deployment determines the size and structure of our forces garrisoned in Western Europe. We must exploit strategic mobility -- particularly the air portion -- if we are to achieve the most efficient forces that meet the strategy.

I find the question to be -- not should we enhance strategic air mobility -- but how. The current DOD efforts to assure the availability of the C-5 force through the proposed wing modification, the modification of the CRAF widebody aircraft, the stretch of the C-141, the provision of refueling for MAC's C-5/C-141 force, and providing the resources for their higher utilization, are absolutely necessary and positive steps in the right direction.

Beyond these relatively near-term efforts we are aware of the remaining deficiency in the speed with which we can move our general purpose fighting forces -- particularly as they change in character. Improved agility requires the ground forces to be on tracks or wheels. Survivability requires increased size and weight of Army equipment. We have an ever-increasing need for outsize airlift.

Much has been said about the greater use of the private sector -- Civil Reserve Air Fleet -- in filling these increasing requirements. This could come about if the commercial air cargo market developed in a way that would make it profitable for our commercial carriers to invest the substantial capital -- perhaps as much as $2 billion -- to develop and buy a new all-cargo airplane. Much as I would like to see it happen I just don't believe that this "sleeping giant" -- the commercial air cargo market -- will fully awaken in the next 15 to 20 years. The cargo market is an entirely different breed of cat than the passenger market. It has always been more expensive to travel by air than by surface mode -- for people as well as cargo. The most significant advantage of air is the saving of time. But, the value of time is entirely different for passengers than for the typical cargo shipper. The passenger weighs the value of his time lost in transit against the premium he must pay for speed. Using that type of analysis, it is over twice as expensive for a $40,000-a-year executive to take the train from New York to Los Angeles instead of an airplane. Travel fatigue is also an important factor for consideration.

On the other hand, if you are considering shipping a product rather than a person from New York to Los Angeles, the circumstances are entirely different. Suppose you manufacture precision tools in New York and you ship some of your product to an outlet in Los Angeles. The market for your product is quite competitive and price-sensitive. As an example, you produce a 1000-pound saw which you sell for $1600 FOB Los Angeles. To ship that saw by air would cost you $235, but the rail rate is only $175. The time required to ship by air is one day, while it requires about five days to transport by train. Therefore, in order to justify shipping by air, the value of time must be at least $75. The fundamental question is, will the customer pay $75 in order to receive his saw four days early, and the answer, invariably, is no.

Furthermore, the actual time saved in shipping cargo by air is frequently not as great as experienced by the typical air passenger. For example, on routes of less than 1,000 miles, the transportation times can be similar for the two modes when the transport time to and from the air cargo terminal is considered. Yet, the average length of haul for freight by rail is only about 300 miles.

A final problem is related to the physical characteristics of cargo vs. passengers. Cargo comes in all different shapes and sizes, whereas passengers are all pretty much alike. In addition to freight cars, the railroads can provide flat cars, refrigeration cars, tank cars and other specially designed vehicles to meet individual shipper requirements. Not so the airlines.

Even as the commercial air cargo market develops it will be a long time before the present commercial air freighters, the lower lobes of the passenger widebodies and utilization of combined passenger/cargo loads in present widebodies will be insufficient to carry the amount and type of cargo generated.

Not only must the air cargo market increase dramatically -- to justify the development and procurement of a new all-cargo aircraft the commercial carriers must achieve a substantial reduction in direct operating costs. I am not sure the technology is available today that would permit such a reduction.

As I mentioned, new, large airplanes are expensive -- it would cost nearly $2 billion to develop a C-5 or a 747-size

airplane at today's prices and, because of the high degree of sophistication reflected in aircraft design, the costs of development of new aircraft are going up at a rate greater than general economic inflation. When coupled with the uncertainties of future cargo growth predictions it is not likely that private capital can be motivated to make the heavy investments necessary to bring forth the next generation commercial, all-cargo airplane -- the Boeing 747-200F replacement. The risk is simply too great.

Nevertheless, from a military point of view, the existence of a commercial fleet of large, all-cargo aircraft would, of course, represent a reserve of airlift capability that would be extremely useful in an emergency. Such a fleet -- particularly if the aircraft had been configured with a CRAF requirement in mind -- would ease the economic burden of maintaining a larger organic inventory of military airlifters.

Thus, it seems clear that there will be a growing military need for outsize strategic airlifters with the capability of moving the growing inventory of heavy Army equipment. Is there a way that the differences between the military and commercial needs can be reconciled so that the concept of a joint military-commercial large, all-cargo airplane program (the C-XX concept of General Carlton) can be implemented? The obvious advantages to the military -- and to the defense of the nation -- surely make such a program worth pursuing. Let's look at how this might be done.

First, I believe we should acknowledge that it will be a military requirement that drives such a program and that the resulting aircraft must satisfy the military need as the prime criterion for design. I don't believe that a joint venture airplane must be optimized for commercial use, with the military absorbing the configuration penalties, in order to attract commercial participation. With the uncertainties of commercial air cargo market development -- both in the rate and distribution of the market -- and with the small increment of economic gain (DOCs) that can be attained with available technological improvements, it does not appear reasonable that the industry can build a solely commercial, all-cargo transport that would be attractive enough to wean the operators away from what they are flying now.

Therefore -- in my opinion -- further near-term needs will best be satisfied with derivatives of our current aircraft -- the C-5 and 747 -- capable of meeting our

outsize cargo requirements. Hopefully, we could make it attractive for commercial carriers to procure a number of such aircraft by DOD paying that part of the purchase price that would offset any increased DOCs caused by unique military features.

While the philosophy of providing emergency airlift thru the use of the CRAF is a most noteworthy use of a national resource -- and I highly commend it -- I must hasten to add that the organic military airlift force is the fundamental requirement. Military forces operated by military pecple using aircraft precisely designed for the military tasks, under the constant and absolute control of a military commander, provide the flexibility and responsiveness that are essential to overall mission performance.

We must improve and modernize our organic airlift forces, recognizing that CRAF is an augmentation of that vital part of our military force structure.

In summary then --

- Strategic mobility is an effective and necessary force multiplier.

- Our strategy demands increased speed and size of general purpose force deployment.

- While the air portion of our mobility force is substantial -- it is deficient.

- Outsize airlift requirements significantly increase as our ground forces modernize.

- There are effective and practical solutions to our strategic air mobility problems.

A parting thought -- in these most threatening and difficult days -- let us not forget that freedom and security are the things we cherish the most -- we can remain secure without freedom -- but security without freedom is of no value. It was on the basis of this knowledge that America was born.

BIOGRAPHICAL SKETCH

GENERAL JACK J. CATTON
U. S. AIR FORCE (RETIRED)

General Jack J. Catton, vice president-operations for Lockheed Aircraft Corporation, retired from the Air Force in August of 1974 after nearly 35 years of distinguished service with U.S. Air Force.

At one time our nation's youngest general, he served 15 years as a general, five of which were as a four star. Achieving his third star as DCS/Programs and Resources during a five-year tour in the Pentagon, he later commanded Strategic Air Command's 15th Air Force in 1968-69 prior to gaining his fourth star as Commander, Military Airlift Command. During this three years as MAC's commander, the unprecedented airlift in support of the Southeast Asis conflict was effectively carried out and the C-5 Galaxy was introduced into the Military Airlift Command significantly increasing U.S. strategic airlift capacity.

During the two years immediately preceding his retirement General Catton commanded the huge Air Force Logistics Command responsible for providing worldwide logistic support to the entire Air Force. It was during this assignment that he was identified by many, including the Deputy Secretary of Defense, for leading the way toward reducing the cost of DOD logistics through greater interservice efforts while maintaining highly responsive support within each service.

A very active pilot throughout his Air Force career he has been qualified in many bombers, fighters, and transports including the B-52, C-5, and the F-4. He has logged some 15,000 hours of military flying, including combat in World War II, Korea and Southeast Asia. General Catton has also recently received his type certificate in Lockheed's L-1011 TriStar.

Schooled at Santa Monica Junior College and Loyola University, General Catton is married to the former Jo Beth Nelson of Shreveport, Louisiana. They have three children: Jo Beth, married to Lt. Colonel Thomas W. Williams, USAF; Cheryl Lee, widow of the late Major F. E. King, USAF; and Jack, Jr., a second lieutenant, Class of '76 at the Air Force Academy where he served as Cadet Wing Commander and achieved top military and high academic honors.

General Catton's decorations include the Distinguished Service Medal with two oak leaf clusters, Legion of Merit with one oak leaf cluster, Distinguished Flying Cross with one oak leaf cluster, Air Medal with three oak leaf clusters, Army Commendation Medal, and the Purple Heart.

He is President of the American Defense Preparedness Association, a member of the Air Force Association, and an honorary life member of the National Defense Transportation Association and the National Security Industrial Association. He also serves as a director of United Services Life Insurance Company, the Falcon Foundation of the U.S. Air Force Academy, and the Howmet Turbine Components Corporation.

Selected as the ROA 1973 military man of the year, he is also the recipient of the George Washington Medal from the Freedoms Foundation and the Harrison Award from the National Defense Preparedness Association.

General Catton was born in Berkeley, California, on February 5, 1920.

CONTAINERS IN STRATEGIC MOBILITY

A PRESENTATION BY

MR. PAUL J. HYMAN

TO

WORLDWIDE STRATEGIC MOBILITY CONFERENCE FOR 1977

NATIONAL DEFENSE UNIVERSITY

FORT McNAIR, WASHINGTON, D. C.

4 MAY 1977

I greatly appreciate the opportunity to address this distinguished group. The challenges ahead for us in the realm of material distribution for deployment and resupply of our forces are tremendous. I hope today I can be the catalyst for all here to meet those challenges; providing fast, effective and efficient deployment and support of forces in contingencies.

With a continuing emphasis on the reduction of defense spending, new and improved methods to fulfill our requirements and the continuing game of cat and mouse with our advisaries, meetings such as this become necessary and worthwhile as it gives us the opportunity to exchange ideas, to seek and find new and better methods to get the job done.

The theme for this conference is an appropriate one, "Strategic Mobility: What Does it Mean to Me and How do I Fit In?" I have to answer the theme by saying it means change, to adapt to new techniques available to us and I, each one of us, must review the methods we now use and determine if there is not a better way to accomplish the task.

Since the Korean War we have witnessed a revolution in the shipping industry. It has been a successful revolution for the commercial seafaring interests, but while we watched the revolution take place, we, for the most part, marked time. It wasn't until the late 60s that we in DoD realized that there would be a profound effect on the way we do business as a result of the container.

During the Vietnam era DoD did begin to move considerable quantities of combat related materials by containers and containerships but this was done only after breakbulk ships and their cargos cluttered the harbors and waterfronts. Until that time we have been living in a world of fantasy, believing that our lack of ships in the Navy and Military Sealift Command would always be overcome by a large and ever present National Defense Reserve Fleet. While many of the Reserve Fleet ships were broken out and used in Vietnam we all know many cruises were one way, CONUS, Vietnam and the scrap heap. Most NDRF ships had outlived their usefulness. With fewer breakbulk ships plying the seas for commercial carriers DoD was forced to look toward containerization. Sleeping Giant - Air Cargo - Olympic Giant.

Everyday it becomes more and more apparent that we must pursue the use of containers for the movement of military hardware and supplies. We must become forward thinkers and look for new ways to use containers, we must know how to use them and use them to our best advantage.

All of you know that with the use of containers came some new problems. Some are simple problems which require little effort to resolve, others are not so small.

To start with, containers required a special ship configuration. In order to realize the most efficient and productive flow in loading and offloading ships a specially designed port facility was required. We have become limited to the number of ports through which cargo can efficiently flow when it is containerized. A serious problem directly related to the military is the handling and movement of containers over undeveloped beachheads, where there are no container ports or when we have been denied access to them. These problems are recognized and are being addressed for resolution. While not all have been solved, solutions are within sight.

In 1970 OSDOC I, Over the Shore Discharge of Containers, was conducted at Fort Story, Virginia to look at problems related to the movement of containers in an undeveloped beach atmosphere in hopes of identifying the problems for eventual resolution. In 1972 another test, OSDOC II, was conducted to further define the problems and to experiment with some newly developed equipment and concepts.

This August-September, again at Fort Story, a comprehensive test of Logistics Over the Shore will be conducted. A 21 day exercise, the LOTS test will pull together all the lessons learned in OSDOC and LOTS pre-test exercises. It will be a multi-scenario which calls for around-the-clock operations. The exercise will be accomplished in a manner as close as possible to an actual operation. Included in the exercise will be a non-self-sustaining containership which will be loaded with 600 containers carrying clothing and construction material on loan from the Defense Logistics Agency, A LASH or Seabarge and a heavy-lift breakbulk ship. The latter two ships will provide the lift for selected heavy and outsized items which are part of the deployment evolution. During the exercise containers will be moved

through a marshalling yard to the consignees. They will then be backloaded via the marshalling yard to the ship to provide backloading experience and to provide the opportunity for additional container movement from the beach. This will also present the opportunity to exercise beachmaster doctrine and equipment in a realistic exercise involving containerized cargo.

The Standard Port System (SPS) will be an integral part of the exercise for the identification, control and movement of cargo which transits the beach requiring onward routing through the marshalling yard, to the consignees. The Navy will test their elevated causeway and turntable system for moving containers from lighterage over the surf line to the beach. The Army will utilize a DeLong pier. If a Seabee ship can be chartered and some legal questions ironed out, it will move the DeLong to the offload area.

The Army will have the opportunity to test their new container-handling terminal service organization to determine if they have the proper equipment, the correct Table of Allowance and sufficient personnel. This new organization established to handle containers will have 72 people less than a comparable breakbulk organization. They will be equipped with cranes, front/side loaders and other equipment required to sustain a capability of 720 containers per day through a fixed port or 300 in a LOTS operation.

The purpose of the exercise is to assess the capabilities of the Services to conduct logistics over the beach operations. The objectives are to provide information that can be used by the Services to alter or confirm operational techniques, planning factors, and equipment requirements, and to determine the best force structure.

Let there be no mistake, over the beach operations with containers is not going to be the ideal way to provide resupply. Many innovative ideas have been looked at, tried and tested. Other new ones are still in the concept stage. Some techniques looked promising. The static balloon for example. This concept is used daily in the lumber camps in Oregon to lift logs over terrain where no other access exists. Because of its application in the lumber industry we knew the concept worked so we applied it to over the beach operations. We found it was usable but not highly effective. The skills required to lift a container

from one pitching, rolling ship to a smaller craft for movement to the beach is difficult at best and would require considerable training. Before we would elect to use such a system the training requirements necessary to keep a crew ready for deployment would have to be given a critical review.

Presuming that the upcoming LOTS exercise proves out the concept and equipment, then the next step will be to develop new doctrine and planning factors for the employment of the concept in our OPLANS. The necessary equipment to support our contingency requirement must be procured and placed in our inventory. Where necessary as has been done with the container handling terminal service organization, our organizational alignment must be revised accordingly. It therefore becomes extremely important that we closely review the results of LOTS in order to ensure we have the capability to handle containerized cargo in future deployments.

I have been talking about problems. With such problems one might ask, "Why do we want to use containers?" The answer is simple, breakbulk capacity is no longer available in the quantities necessary to support a contingency and it continues to decline. It becomes continually more difficult to justify to the Congress DoD's requirements for a dedicated breakbulk fleet. The roll on/roll off ship concept is only a partial solution if we can justify the need for these to Congress. One must remember also when we talk of Ro/Ro ships we need special facilities for offloading.

Containerization is now a way of life and we must learn how to live with it and obtain the most from it. We must learn to benefit from the advantages offered by the container, to outweigh, if you will, the problems. We can not utilize containers for our peace time sealift requirements and expect to revert to a breakbulk operation in a contingency, nor can we cling to breakbulk methods now, hoping we won't need to use containers in an emergency. We as planners must adjust our thinking to the container and revise our planning factors accordingly.

We can presume that we will have containerships for use in the early time frame of a contingency. With the utilization of these ships and if we have access to container ports we will be able to move equipment and supplies in a far more efficient, effective and timely manner. A recently completed NATO Study shows that if we use containers for

the maximum containerizable material will reduce the closure date as much as 10 days, by using containers in conjunction with flatracks to the maximum, an additional 10 days can be realized as compared to using the old breakbulk ships. This reduction of days to meet closure dates is due to the reduced load/offload time of a containership, their larger capacity and their shorter transit time between ports.

Approximately seventy percent of todays dry cargo shipped under DoD sponsorship moves in containers. One large exception to this is ammunition. Today in peacetime only about 4 percent of our ammunition is moving by containers, yet it is a commodity which is adaptable to containerization. In a contingency ammunition will comprise over a third of the movement requirement. Today we are moving about 320 MILVAN container loads in three months. In an emergency we expect to move about 50,000 commercial container loads in 3 months. Because of its hazardous nature and potential for catastrophe in case of unintended detonation, we are extremely careful with munitions in design, engineering, production, handling, transport and storage - and well we should be. The container, contrary to the apparent fears of some, does not add to the hazards of munitions movement. The Department of Defense Explosive Safety Board has told me that containers are a qualitatively safer method of movement. I believe that we face some challenges in learning how to use containers for munitions distribution - but I also believe that there is great benefit to be derived from developing a system which can put 10,000 tons of munitions through a port and on a ship in 36 hours - traditional methods could require 5-6 days for that tonnage.

Sorting, segragating, and staging breakbulk munitions in preparation for ship loading is a time-consuming process. This led to planning factors calling for cargo arrival at the port not earlier than six days nor later than 3 days prior to arrival of the ship scheduled to lift it. In container operations sorting and segregating should take place at the shipping origin where containers are stuffed - the time required for staging input should be reducible and port congestion avoided.

Those rail cars and trucks which arrive at the port during the later hours prior to the ships sailing can be moved right to pier side for loading, eliminating double handling.

Capability to containerize munitions in large volume is absolutely necessary if we are to effectively supply munitions to deployed forces in time of emergency and not waste available ship capacity. We can and should use commercial containers for this purpose. They should be stuffed at source - depot or production plant - shown on this template - to avoid reducing munitions terminal throughput. This is a tough order because in peacetime, low volume of munitions movement will not generate economies large enough to justify the outlay necessary to provide the facilities and equipment needed. On the other hand unless we invest in container stuffing capabilities now, the risk is an inability to supply munitions when they are needed most for lack of that capability.

To illustrate the challenges that lie ahead in this area, I think that a recent test which involved the shipment of munitions in commercial containers serves as a case in point. This test involved the planned movement, and I would like to reiterate the term "planned movement" of 10 commercial container-loads of munitions from 3 major shipping depots to meet a specific ship at a specific berthing point on a specific date. 8 of 10 containers arrived to meet the ship under such conditions. There is no way that we can graphically relate the results of the test to those requirements and conditions that would exist during a national emergency or contingency situation. I would term the test useful only in the context that it vividly illustrates our current lack of capability in this area.

We cannot overlook the capability of source loading that the container gives us in moving material and the flexibility as to how it is moved. Let me pause and return to the words source loading and define what is generally meant by that term. Source loading is the stuffing of containers at the place of manufacture or at the depot where the goods are warehoused. If you look at your template you will see the point I refer to. About 70 percent of DoD cargo shipped in containers is source loaded today. When the goods are moved from the point of manufacture or the warehouse to a central point, port or depot, for loading with other goods, it is not source loaded but consolidated. See the consolidation point on the template, let me give you a brief example of each. Ammunition loaded in a container at Letterkenny for direct delivery to the consignee is source loading. Material shipped from several activities to the military ocean terminal Oakland for loading in containers for Anderson Air Force Base, Guam is consolidated.

Today, for example, the Defense Logistics Agency procures subsistance for the direct commissary support program and when the quantity for one overseas consignee is a full container it is shipped from that source to consignee without handling at an intermediate stockpoint. This provides faster, more direct services. We must revise our planning factors to utilize this same procedure for our military resupply.

We must learn to take advantage of the potential of intermodal movement which containerization offers. To make my point let me use a hypothetical but not so unrealistic case. During this conference there has been much talk of deploying a unit to Europe. Lets assume such a unit is deployed on short notice and due to an urgent requirement there was insufficient time to properly outfit the unit with organizational clothes. It is required that this clothing, stocked in the western states, be outloaded on the next containership departing the east coast. The material can be loaded in containers at the stockpoint lifted by air to the east coast port within a very short timeframe, far shorter than movement by breakbulk, requiring handling at several intermediate points, truck terminals, air terminals, port facilities, to name a few.

In adopting new planning factors we should presume that what can be containerized will be in fact loaded in a containership. Outloading ports whether they handle general cargo or ammunitions have been receiving outbound shipments in railcars or truck which have required unloading. It therefore becomes apparent that the evolution of unloading cargo from containers for breakbulk sealift should be routine.

I am sure that many in this room remember the sand bag problem in Vietnam which resulted in the necessity to fly plane loads of them from Travis AFB to Danang because no one could pinpoint stock in the pipeline. The commercial container industry has developed a system similar to the railroad to keep track of container locations by use of scanners and a coding system. DoD plans to depend on the carrier's system. We are however, looking for a system which will provide data beyond container location, a system which identified the cargo in each container and its consignee or consignees. Had we had such an intransit visibility system in effect and were using containers to the maximum during the period of the sand bag shortage we might have been able to satisfy the requirement.

Intransit visibility will provide the planners with the added tool of being able to have the transporter divert urgently required material which is intransit. Obviously, no one can divert a container which is on a ship already at sea but the planner can be advised of its location and take whatever appropriate action is required on the basis of that information. By using containers in conjunction with intransit visibility we gain additional control over our resources. Through the use of this system we will provide better support in a more timely manner.

Earlier I talked about our over the beach capabilities. Hopefully LOTS will resolve most of these difficulties, however, we the policy makers, the planners and the operators in the field must develop the ways to best utilize the hardware which comes out of these tests. We must learn the new ways and we must continue to look for methods to improve on the system.

We all know that within DoD there are always ongoing studies to review mobilization requirements, how to best move material to meet closure dates, how to best utilize available shipping assets. Here is where we must first revise our planning factors and our thinking to containerize to the maximum, utilize flatracks for material too large for a standard, closed container. We must further consider combinations of modes for use in routing material. In essence we must answer questions posed by containers.

One area in which it is felt there is a potential development in today's commercial market which would also be of great benefit to the military is the use of intermediate size containers in conjunction with flatracks. Let me just hit on two areas in which there appears to be commercial markets Which would utilize a system of 5-10 small containers on the flatrack. The small shipper who is now shipping breakbulk and must face pilferage, breakage, high insurance rates and poor schedules. Certainly he is a candidate for such a system. In Africa there are many newly developing countries who have no need for a 20-30-40 foot container, nor do they have the roadways to handle them. They would better utilize a smaller container which would fit their organic trucking for inland movement and which they might well have a return load for.

In the military we have a need for such equipment now. The Army's direct supply support system could utilize intermediate size containers and flatracks and provide better service to the consignees. Instead of material for five consignees in one 40 foot container each consignee would receive his own. In contingencies flatracks loaded with intermediate size containers placed on the top tiers of containerships would provide the capability to offload by helo and move to the consignee even if there were not port facilities or over the beach capability yet in operation.

Often an OPLAN is developed here in Washington for development of forces which addresses the CONUS and lift portions of the exercise. It is then forwarded to the CINCS for theatre segment development. I wonder in most cases if the two segments never mesh. The CINCS must know how and what is coming, he must know how he will keep the port area clear of congestion, we must know what reception capability exists. All of these things must then be converted to shortfalls, if such is the case, so they can be properly addressed for resolution. It does little good to plan for maximum container usage on this end without knowing that while reception capability is acceptable.

Now is the time to ask the question "What does Containerization Mean to the Planner?" This template and discussion is meant to stimulate your minds. We must weigh the effect and from these effects develop new planning factors, new tactical doctrine and new equipment. As an example, in some cases we might consider using government owned or leased containers for the storage of material and ammunition overseas where real estate is scarce and expensive. A test has been conducted and such storage has had no ill effect on ammunition stored in containers for up to two years. Additionally, the results of the LOTS exercise should provide planners with many of these new factors. We have the expertise, we are developing the methods and equipment where they are not available and we must now put those factors in our plans. We must have a system as you see on your template.

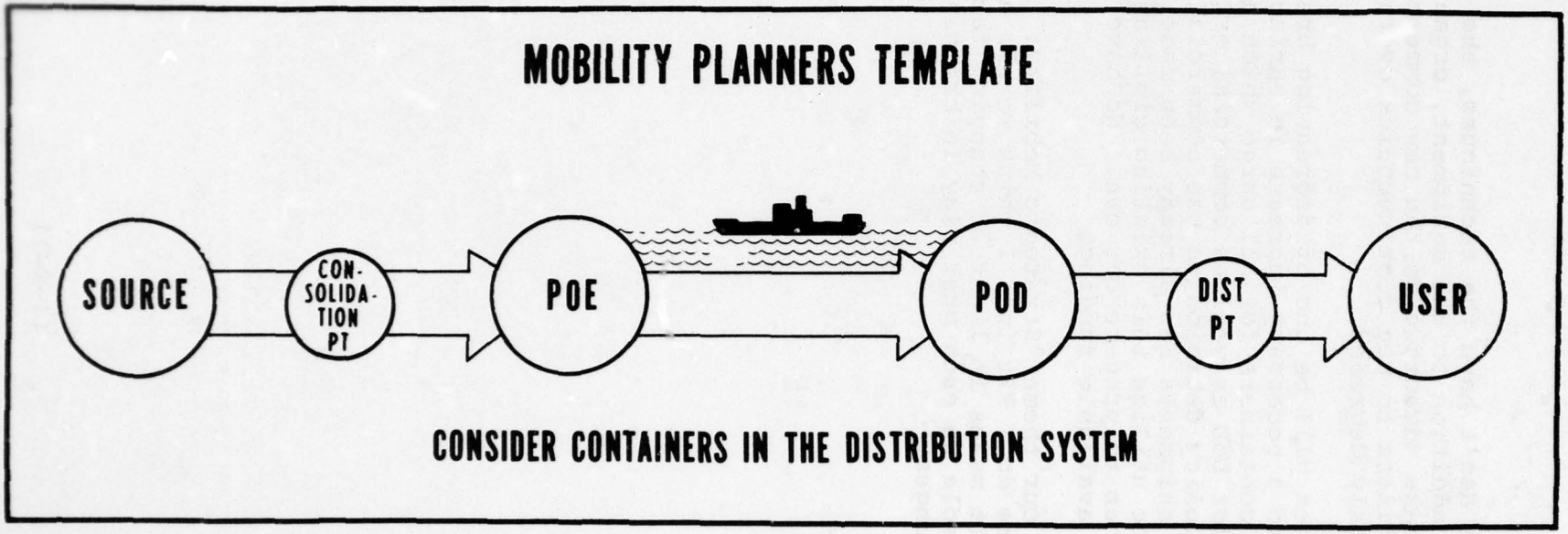
Of major concern to us is that we have not been moving forward at a sufficient pace to take advantage of the changes which have taken place in the commercial shipping

world. If we don't have the techniques, the doctrine and the plans in addition to the equipment, organizations and manpower to take advantage of the new commercial concepts then our readiness to use contingencies overseas will be and is seriously degraded.

The future then will be one of decreasing breakbulk capability and a necessary increase in surface shipment dominated by containers for all cargo which are containerizable both for DoD as well as commercial originated cargo. The policy decision to use commercial containers for most DoD shipments has already been made. It is more appropriate to utilize this existing civilian commercial capability than to procure our own. We have many other uses for the available funding.

Returning to our theme "Strategic Mobility: What Does it Mean and Where do I Fit in", I think we all have to look to see what it means in light of changing factors and examine the role we each must play in bringing about these necessary changes.

Thank you.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BIOGRAPHICAL SKETCH

PAUL J. HYMAN
DIRECTOR FOR TRANSPORTATION AND WAREHOUSING POLICY
OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
(INSTALLATIONS AND LOGISTICS)

Paul J. Hyman is Director for Transportation and Warehousing Policy within the Office of the Secretary of Defense. In this role he directs and coordinates the development of programs, systems and procedures needed to provide effective transportation support throughout the worldwide Defense Establishment. This responsibility includes policy direction of military single manager operating agencies for Transportation (Military Airlift Command, Military Sealift Command, and Military Traffic Management Command).

From 1973 until early 1975, Mr. Hyman was the Director of the Office of Supply Management Policy in the Office of the Assistant Secretary of Defense (Installations and Logistics). In this position, he was responsible for the design and supervision of policies and programs in such areas as military supply systems, provisioning and positioning materiel, logistics system automation as well as inventory control and cataloging systems. He had served as Staff Director of the Materiel Management Systems Division with responsibilities for policies on the selection, acquisition, use and management of Automatic Data Processing (ADP) systems in the Defense logistics systems. During 1961-1966, he worked on the development and implementation of the Military Standard Requisitioning and Issue Procedures (MILSTRIP) and other programs designed to promote the interchange of information among ADP systems of various DOD organizations and industry. He has chaired several joint DOD working groups designing automation applications for contract administration, inventory control and transportation information systems. He is a contributing editor to the "Handbook for Production and Inventory Control."

His military service included a tour of duty with the U. S. Army Seventh Infantry Division in Korea as a supply officer. He holds a Bachelor's Degree from Cornell University with major studies in economics and public administration. In 1970, he attended the Harvard Business School program for management development.

Mr. Hyman has lectured on developments in management information systems at the Army Logistics Management Center and the School of Logistics, U. S. Air Force. He has been Professorial Lecturer in the Center for Technology and Administration of The American University and in The Graduate School of Business Administration at George Washington University.

THE THREATS TO UNITED STATES SEA LINES OF COMMUNICATIONS

A PRESENTATION BY

MR. NORMAN POLMAR

TO

WORLDWIDE STRATEGIC MOBILITY CONFERENCE FOR 1977

NATIONAL DEFENSE UNIVERSITY

FORT McNAIR, WASHINGTON, D. C.

4 MAY 1977

I appreciate General Casey's kindness in inviting me to discuss the threats to US sea lines of communications. I am less happy, however, about General Casey's request for me to "tell it like it is."

I am not certain that I know "how it is;" indeed, I am becoming increasingly convinced that no one is certain either how it is or how it will be when we attempt to move our forces and military equipment by air and by sea into overseas areas against military opposition.

There are some basic factors that emerge and, working backward from these with historical and operational analyses, and forward with extrapolative analysis, we may be able to gauge the threats and potential countermeasures.

First, there appears to be at least three general categories of scenarios for our use of the sea lines of communications.

Scenario No. 1 is overt Soviet combat operations against United States SLOCs, probably in the North Atlantic, and probably in connection with a NATO-Warsaw Pact conflict in Europe.

Scenario No. 2 is a situation involving a Third World nation, in which an African, Asian, or possibly South American nation seeks to interrupt our SLOCs as part of a local effort against our interests. Potential antagonists include Cambodia (again), India, Somalia, Iraq, Angola, or, in the future, Ethiopia. This category of attack against our SLOCs could be through independent national actions, or with the coercion and support of the Soviet Union. The key factors are the non-participation of Soviet forces and an extremely limited attack capability by the Third World nation.

Scenario No. 3 is an attack by a major Soviet or Chinese ally. North Korea and Libya especially come to mind. This type of attack against United States SLOCs would employ advanced Soviet weapons, possibly with indirect Soviet or Chinese assistance, and with the threat of limited Soviet or Chinese intervention to support their ally.

I submit that these three scenarios describe different types of threats to the SLOCs, requiring different political and military considerations, and different consequences to our ability to attain national goals. All require different actions and countermeasures on our part.

Most US considerations of strategic mobility deal with the problems of reinforcing Europe in a NATO-Warsaw Pact conflict. Study of North Atlantic and Mediterranean scenarios profits from lessons of the U-boat and anti-submarine campaign of World War II.

Similarly, there are some lessons from the great success of US submarines against the Imperial Japanese Navy and Merchant Fleet in the Pacific theater.

With respect to the lessons of the German submarine campaign, the indomitable Winston Churchill declared that "the U-boat attack was our worst evil. It would have been wise for the Germans to stake all upon it," and, "the only thing that ever really frightened me during the war was the U-boat peril...."

Capabilities

Several significant factors emerge in comparing German and Soviet submarine capabilities for waging war at sea. The value of this apprcach recently was noted in the Soviet journal Morskoy Sbornik, when two naval officers wrote: "it is of considerable interest to study the experience of the SLOC's battle in World War II and the possibility of employing it under today's conditions, taking into account the quantitative and qualitative changes in forces and hardware...."

The comparative factors include:

- Force levels: The German Navy on September 1, 1939, had 57 submarines in service, of which only 46 were considered to be operational, and of these only 22 were suitable for operations in the Atlantic.

Today the Soviet Navy has approximately 250 torpedo and cruise missile attack submarines plus 85 ballistic missile submarines in service, almost all of which can be deployed on the world's oceans. Thus, there are almost five times the number of attack submarines available as when the last submarine campaign in the Atlantic began.

- Surface support: The German high command failed to understand the need for surface forces to support submarines. This is understood by the Soviet naval leadership. Properly used, surface ships (and air forces) can spoil hostile anti-submarine efforts, attrite ASW units, and provide cover and deception to

enhance one's own submarines. Today the Soviets regularly operate surface forces with submarines, and public statements by Soviet flag officers discuss the support of submarines by surface forces. In this context, the Soviet Navy now has a force of major surface combatants slightly larger than that of the US Navy.

- Reconnaissance: Probably the greatest handicap of German submarines in World War II was the lack of aerial reconnaissance to find their targets. The submarine was a poor "hunter" because of its limited horizon, slow speed, and primitive sensors.

Admiral Doenitz, commander of German U-boats from 1935 until January 1943, when he became Commander-in-Chief of the Navy, wrote: "The U-boat will achieve far more if, instead of having to hang about for weeks on end waiting for some victim to run fortuitously into its arms, it can be directed straight to a target, which had previously been discovered for it by air reconnaissance. Every arm of the Services possesses its own means of reconnaissance--except the U-boats."

This situation was caused by the demand of Marshal Goering, head of the German Air Force, that everything that flew in Germany belonged to his Luftwaffe.

In sharp contrast, today the Soviet Navy controls its own air arm of over 1,200 aircraft, which includes almost 90 medium-range BADGER and long-range BEAR aircraft dedicated to maritime reconnaissance and surveillance. In addition, during the past few years the Soviets have orbited two satellite surveillance systems for the detection of surface ships, one using active radar and the other passive electronic intercept.

With these aircraft and overhead systems the Soviet submarine commander enjoys a reconnaissance and weapons guidance capability undreamed of by his German predecessors.

- Sensors: German submarines were fitted with very primitive sonars which could provide only marginal, close-range detection or targeting. Radar was introduced in the U-boats in 1943 and while it initially increased their effectiveness, Allied radar and countermeasure development far outpaced the equipment available to the German U-boats.

Modern Soviet undersea craft have advanced sonars, radars, and electronic warfare systems. The last include electronic intercept devices as well as countermeasures. These onboard sensors coupled with the external sensors described previously provide a highly credible complement to the weapon systems in Soviet submarines.

- Propulsion: All German U-boats which were operational during World War II were diesel-electric propelled. Initially they had to surface about once a day to recharge their batteries, increasing their vulnerability to detection. German introduction of the snorkel in 1944 permitted U-boats to charge their batteries while submerged, considerably complicating the ASW problem. At this time almost half of the Soviet Navy's submarine force is nuclear propelled. Soviet conventional submarines have advanced diesel-electric propulsion machinery, superior to that of their U-boat predecessors.

- Weapons: During World War II German submarines were armed with torpedoes, guns, and mines. Acoustic homing torpedoes were developed for use in attacking convoy escorts. However, most torpedoes were "straight runners," which travelled on a preset course against a slow-moving surface ship.

Soviet submarines are equipped with several advanced torpedoes for use against surface ships and submarines. More significant for use against surface ships, Soviet submarines also are armed with cruise missiles; these permit the submarine to stand off at distances up to several hundred miles and launch guided weapons against surface ships. Shorter-range weapons, especially the SS-N-7 launched from the CHARLIE-class submarine, can be fired while the submarine remains completely submerged. This weapon, with a range of 30 miles and supersonic speed, provides the target ship with minimum time and space in which to react to being attacked.

There have been indications of a submarine-launched tactical ballistic missile, the SS-N-13. The SS-N-13 has not been deployed, but Soviet development of the weapon indicates an imaginative and flexible approach to the problems of war at sea.

Finally, the Soviet Navy continues to place heavy emphasis on offensive and defensive mine warfare, with most Soviet submarines being capable of laying mines. A recent development in this area has been deep-ocean mines, possibly for use against US submarines as well as surface ships.

- Rate of development is another factor in submarine warfare. In the final days of World War II the Germans began putting to sea the highspeed, high-endurance Type XXI U-boat.

In retrospect, the Type XXI U-boat--if available in numbers and properly employed--could well have delayed Allied victory in Europe by several months if not years because of its ability to interdict shipping with a very high degree of immunity from Allied anti-submarine forces.

The Soviet Navy's conventional submarines are superior to the Type XXI design, and, of course, the nuclear units have capabilities far beyond the wildest imagination of the U-boat commanders.

Soviet attack submarines, with the sensors and weapons described above, have maximum speeds in excess of 30 knots and essentially unlimited underwater endurance. (There are some 140 nuclear submarines of all types in Soviet service today compared to 106 for the US Navy.)

The Soviet Navy has introduced ten new classes of submarines in the past decade as well as some major variants of those classes. This continued introduction of new designs, coupled with the large numbers produced--currently over ten nuclear submarines per year compared to 2 or 3 for the United States--indicates that a considerable amount of resources are being devoted to submarine warfare.

Assessment

On balance, ASW forces have improved considerably: considerable progress has been made by the US Navy in anti-submarine surveillance, sensors, platforms, and weapons.

Still, I cannot help but feel that the trends with respect to technological developments have favored the submarine. Similarly, the numerical trends also appear to have favored the submarine. For example, Admiral Gorshkov, the Soviet Navy's Commander-in-Chief, has called to our attention the fact that during World War II there were 25 Allied antisubmarine ships and 100 ASW aircraft at sea to counter each U-boat.

Today, the total US force of surface ASW ships and ASW submarines is less than the number of Soviet attack submarines. Similarly, there are less than 800 ASW and patrol aircraft and helicopters in US service, a ratio to Soviet submarines of less than 3:1 compared to the 100:1 ratio of World War II.

I have knowingly deleted potential Allied contributions. I have deleted them for military and political reasons. The size and capabilities today of the British Navy, for example, are far less than they were in World War II on a comparative basis. And, I am simply not certain that our Allies would have the time or, under some circumstances, the will to participate in protection of the SLOCs.

Even if one adds in the limited ASW forces of other NATO navies, their capabilities probably would be offset by a final difference in ASW today compared to World War II. As has recently been revealed, during much of the war the Allied high command was "reading" the German naval codes. Periodically, we knew where the U-boats were and where they were going. The noted German historian and writer Jurgen Rohwer has begun identifying the relationship of code breaking and U-boat kills. Our ability to read German codes was a major factor in our ASW successes. Can we expect a similar advantage against the Soviet submarine force? I do not wish to count on our ability to read Soviet naval codes in a future conflict.

Operating with the submarines in the anti-SLOC role would be Soviet naval and air force aircraft. Again, German, British, and US air forces in World War II demonstrated the effectiveness of land-based aircraft against shipping.

The Soviet Navy flies some 285 missile-armed aircraft in the anti-ship role. These could be supplemented by missile-armed aircraft from the Soviet strategic air arm. A most significant development in this respect is the assignment of about one-half of the controversial, swingwing Backfire jet bombers to Soviet naval aviation.

Intentions

The capabilities must be measured against probable Soviet intentions. We have several sources for these: discussions with Soviet officers, observations of their exercises, the several manuals and texts available in the West, and the extensive writings of the Soviet Navy's leaders.

Admiral Gorshkov has written that after nuclear deterrence the principal mission of the Soviet Navy is to interrupt and destroy Western forces attempting to reinforce Europe.

Gorshkov also notes that a future war with the United States and NATO would be nuclear and global in scale. Nuclear weapons here could mean what the West describes as tactical nuclear weapons without the use of strategic weapons. His use of the term "global" has interesting implications for the Western alliance which tends to concentrate attention on the North Atlantic SLOCs.

Thus, there are strong indications, on the basis of Soviet capabilities, exercises, and statements, that the Soviets can and will try to interdict our North Atlantic SLOCs. Admiral Holloway has described the potential situation in these words:

"In the event of conflict, the US could retain control of the North Atlantic sea lanes to Europe, but would suffer serious losses to both US and allied shipping in the early stages. The Navy's ability to operate in the Eastern Mediterranean would be uncertain at best."

The United States could ill afford to suffer "serious losses" in view of the diminutive size of the US merchant marine and the limited troops and equipment readily available in the United States for movement to Europe, the Middle East, or south Asia.

But let us look at the "best case" for the United States: that all of our ships safely transit the North Atlantic SLOCs during the initial period of 20, 30, or perhaps 50 days. Such a victory at sea for the Allies, especially if the Soviets lost significant naval forces, would create an incentive for Soviet mining of European ports or even overt attack of the ports.

The Soviet minelaying capability, using submarines and aircraft, is considerable. Although US minesweeping is very limited, there are adequate NATO minesweeping resources, but their employment will take time...days and more probably weeks.

Should the ships reach port safely, and remember that because of politics and the sophisticated ports required for unloading intermodal ships, there will be only a few ports available, the Soviets have one final option: the use of conventional or small nuclear weapons against the ports. For example, even a 10-kiloton weapon used against Rotterdam, if properly targeted, could totally immobilize that port with relatively few Dutch civilian casualties.

Remember, if the relatively few ships arriving at European ports could make a difference to the outcome of the battle, the incentive would be very high for the Soviets to employ mines and to attack the ports if our protection of the SLOCs is effective.

Thus, with our current approach to the SLOC question in the NATO environment, I share--and emphasize--Admiral Holloway's pessimism that we would suffer "serious losses" in the early stages. Further, I believe that the period of heavy losses would last perhaps a month or two, far beyond the time in which the land battle in Europe would be decided.

Of course, strategic mobility includes air lift. Here we have the potential problems of weather and politics in the European theater. Also, what of long-range Soviet aircraft being fitted with air-to-air missiles for over-the-Atlantic intercepts, or, the aircraft carriers of the KIEV class being so deployed to permit VTOL fighter aircraft to intercept US cargo aircraft in mid-ocean areas? As US or NATO cargo aircraft or convoys approach certain ports, such as those of Norway, Denmark, or Japan, the ships will additionally be subject to attack by Soviet land-based tactical aircraft.

Beyond NATO

Let me briefly touch on the two types of scenarios outside of the NATO conflict. First, there is the Third World scenario in which a nation with extremely limited military resources undertakes an attack atainst US or other Western shipping resources.

This may be a single missile boat attacking a supertanker, a submarine firing against a merchant ship, or a few aircraft going after a US warship after declaring 200-mile territorial seas. Regardless of the nature of the attack or even non-military interference, and whether against merchant ships or naval units, the United States must demonstrate its ability to enforce freedom of innocent passage. If not, the nation in question and others will be encouraged to take additional actions against us. I feel that this was the validity of President Ford's immediate action in the MAYAGUEZ incident.

In considering this Third World scenario, it is important to remember that many so-called less developed nations possess a limited number of high-performance aircraft and small naval craft armed with guided missiles. Submarines are available to some of these nations.

The tradition of "sending a gunboat" in these instances is no longer valid; rather, the sophisticated weapons readily available to Third World nations--even in limited numbers--means that any efforts against US use of Indian Ocean, South Atlantic, or Pacific SLOCs must be met with high-capability forces.

The situation with respect to major Soviet or Chinese allies is even more critical. Indeed, I believe such threats, perhaps from Libya or North Korea, to be the most probable scenario for interference against SLOCs important to United States interests. These activities may be related to ground actions, as in Korea, or independent, as in the Libyan scenario.

Such nations have large, modern air forces and in some cases significant submarine forces. Although their sustained combat capability may be limited, on a single-strike basis these nations could launch airborne strike which under certain conditions could overwhelm the resources of a carrier task force. Again, the number of modern tactical aircraft available to these nations, plus the presence of missile craft and submarines, tends to "even" the traditional odds. Added to the irresponsibility of some of the governments, the temptation to "pluck an eagle's feather," and the encouragement of the Soviet and perhaps Chinese regimes, SLOC defense takes on a new meaning.

Courses to Steer

The situation is serious. Some of the above situations could occur in scenarios far short of open war between the United States and Soviet Union. Indeed, the Marxist-Leninist philosophy, so often quoted by the Soviet political and military leadership, contends that time is on their side in the struggle against the West. Overt military action will be "pushed" to the extent that it does not result in a direct and potential escalatory confrontation against the United States. However, as the Soviet press has noted, the American people are becoming tired of foreign intervention. The Angolian affair was an indication that indirect military actions by the USSR will be accepted by the United States; the events in Zaire and Ethiopia are the latest instances of Soviet arms and advisors being employed to counter what Moscow calls "Western aggression."

These actions could easily spill over the coast and into the adjacent seas which are increasingly important to the West. Look at the location of Angola and Somalia with respect to the oil shipping routes to Western Europe and the United States.

Looking first at the threat of Soviet submarine and air attack against the North Atlantic SLOCs, it becomes immediately apparent that traditional defensive forces, weapons, and tactics simply are ineffective. The United States no longer has the force levels, nor has it the allies.

Further, with respect to quality of forces, Dr. Malcolm Currie, the recent Director of Defense Research and Engineering, has made the sobering observation that "a simple continuation of present trends could lead to dominance by the Soviet Union in deployed military technology in a decade." Regarding the application of current and near-future military technology, Dr. Currie has expressed still another apprehension.

Again discussing Soviet developments, he noted: "I am less concerned about the appearance of unforeseen new weapons, per se, than with innovative uses of technology based on a superior understanding of technology's utlimate significance to future warfare."

Thus, the qualitative as well as quantitative trends are making it increasingly difficult for the United States to insure the safe use of the Sea Lines of Communications against hostile action. Of course, our ability to defend the SLOCs will be highly scenario and geographic dependent. For example, I have a high degree of confidence that we could defend the stream of tankers carrying North Slope oil from Alaska to US West Coast ports against virtually any threat. However, what happens if we simultaneously must protect those tankers and have a crisis in the Indian Ocean or North Atlantic? The situation then becomes tenuous.

I will not further belabor the problems of defending our SLOCs. Rather, allow me to put forth a few thoughts with respect to positive actions that we may consider to improve the situation.

Points for Consideration

1. First, the question must be asked, and answered honestly, could the problem of SLOC defense in a NATO war be solved

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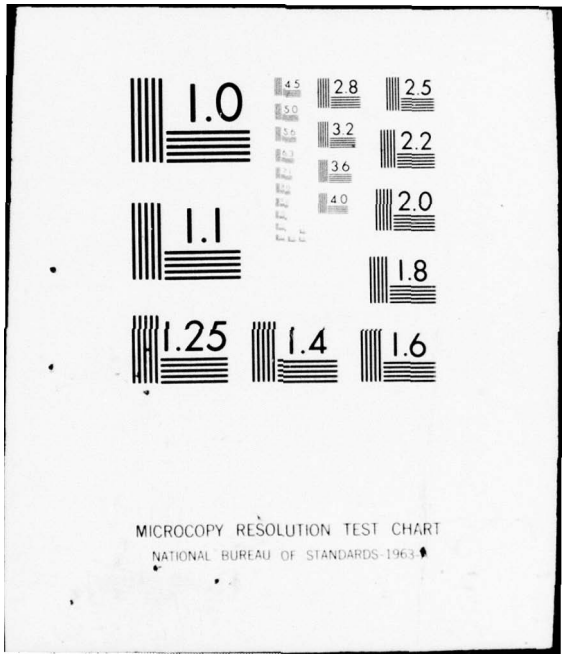
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in time to make a difference during a conflict with the Soviet Union? Too many US defense leaders have answered that "unless we get hot," we will not--in the future--be able to solve the problem. This is not the answer; I do not believe that we can protect the North Atlantic SLOCs at this time, and I do not believe that our current programs are a proper approach to their protection against Soviet threats in the context of a NATO-Soviet war.

This question of "can the problem be solved?" must be asked and honestly answered.

2. Traditionally, we have developed naval forces for combating the Soviet Union and assumed those forces would be capable of handling lower-level, Third World threats. I submit that the forces developed for protecting SLOCs against Soviet mid-ocean threats (principally submarines) may not be effective against some of the more intensive capabilities of Third World nations, especially those which have missile-armed small craft and aircraft. While not being able to undertake sustained combat operations, the single-strike capabilities of several nations is significant.

3. The shortfall in US naval forces will be with us for the foreseeable future. The Navy's goal for several years has been 600 active ships; it is unlikely that we will achieve that number in the next decade; indeed, I do not think we can reach 500 ships. At this time the Navy has about 470 ships. That compares to over 900 in active service immediately before the Vietnam escalation.

Qualitative superiority--if we were assured of even that--could not compensate for this shortfall. Alternatives must be considered. One that appears attractive is the development of containerized weapons and sensors for installation in container ships. This would be an update of the traditional concept of putting a few guns in merchant ships for their own self-defense. Light-weight missile launchers and even ASW weapons appear possible, as well as supporting sensors. At this time the US Navy is developing the ARAPAHO concept of a fully containerized ASW helicopter facility which can support large SH-3 Sea Kings; similarly, the Coast Guard is participating with the Navy in the development of a containerized towed-array sonar. Both of these systems should be able to provide a viable merchant ship defense capability. Other weapons, including point-defense missiles and guns, and sensors must be developed and made available for merchant ship installation.

4. Aircraft were particularly effective in World War II against submarines. While submarine technology and tactics have changed considerably, the immunity of aircraft to submarine defensive systems, the long electronic horizons of aircraft, the range and speed capabilities of aircraft, and other factors tend to make them highly effective SLOC protection platforms. Accordingly, special emphasis should be given to ship-based VSTOL development for the Airborne Early Warning (AEW) and Anti-Submarine (ASW) roles.

5. Independently and collectively the nations of NATO are highly dependent upon the use of the seas for their economic survival. This dependence is increasing; Western merchant ships operate on all of the world's oceans, and they can be threatened almost anywhere. Consideration must be given to expanding the area of NATO exercises south of the Tropic of Cancer. This subject has recently been addressed publicly by Admiral Issac Kidd and by Britain's Admiral Sir John Treacher. At the least, the United States must encourage its NATO allies to increase multi-national exercises beyond traditional NATO waters, and to consider establishment of at least the structure for multi-national intelligence and C^3 staffs in strategic Third World areas. Of course, these exercises and joint staffs would, in turn, encourage further understanding among the NATO and Third World nations involved.

6. The current US Navy policy toward senior officer assignments prohibits realistic long-range planning in this area because of the reassignment of virtually all officers at intervals of about two years. Long-range planning, force building, and systems development simply cannot be undertaken in this manner. During the past 30 years that we have been concerned over protection of our SLOCs we have had 14 Secretaries of Defense, 15 Secretaries of the Navy, and 11 Chiefs of Naval Operations. In many lower-level positions we have had many more incumbents. This is an impossible situation when it requires several years to gain approval for, fund, design, and build a warship. Admiral Holloway is now taking delivery of warships--including destroyers for SLOC protection--proposed by his predecessor's predecessor.

In contrast, the head of the Soviet Navy, Admiral Gorshkov, has held the top Red naval positions for 21 years; several of his key officers have had the same job for 5, 10, and even 15 years.

Defense of the SLOCs must be added to the justifications for a review of Navy officer assignment patterns. (Indeed, those of you in private industry should try to imagine changing the president of your firm every four years and most other top executives every 18 months or two years.)

7. Finally, we must revise our terms of reference. Sea control and SLOC defense as well as other terms are too ambiguous. Do we have sea control if no enemy can sink ships in an area? What if one ship is sunk? Two? Five? Ten? Is a SLOC a lane? A moving point? An area? And, worst of all is the term "Effective US Control Fleet." This is misleading and probably inaccurate.

At worst, these ships are simply not available. At best, their status is questionable. For a start, the Department of Defense, Navy, Military Sealift Command, and American flag shippers must cease to use the term Effective US Control Ships and return to the more accurate and descriptive term "flag of convenience."

The threats to American use of the sea are increasing from the Soviet Union and from the Third World. This situation occurs when the United States is more dependent upon the use of the seas for political, economic, and military reasons than ever before in the nation's 200-year history.

The question of using the oceans and defending the ships and aircraft that use them is vital. And, traditional approaches to solving the problems simply will not work in the future threat environments.

BIOGRAPHICAL SKETCH

NORMAN POLMAR
US EDITOR, JANES/SANTE FE CORP.

Mr. Polmar is an experienced author and program anslyst with a broad background in Soviet and US military technology, inventory, and history.

Mr. Polmar joined the Sante Fe Corporation in October 1975 as Vice President. He has participated in or directed several studies in addition to corporate planning and administrative functions.

From July 1970 to August 1975, Mr. Polmar was an executive with an analytical studies firm engaged primarily in projects related to defense planning, advanced technology, and intelligence analysis. Upon joining the firm Mr. Polmar directed a study team analyzing the Soviet Navy's 1970 multi-ocean OKEAN exercises. Subsequently, he participated in or directed naval-related studies and was a senior participant in PROJECT 2000, a Navy-sponsored analysis to determine Navy research and development efforts required to provide ship-associated technologies required for the year 2000 period.

In 1974-1975 he organized the Navy contribution to a Department of Defense study of the US-USSR strategic arms competition (1945-1972), and personally wrote the supporting studies on US strategic submarine development.

Mr. Polmar also has directed an Army intelligence-related study, as well as study efforts for the Director, Defense Research and Engineering; the Maritime Administration; and the National Oceanic and Atmospheric Administration. From 1972 onward he additionally held the position of Assistant to the President of the firm which numbered up to 185 professional and support personnel.

In addition, from 1966 to 1976 Mr. Polmar was editor of the United States sections of the annual Jane's Fighting Ships, generally referred to as the "bible of the world's navies." Mr. Polmar, the first American to hold an editorship with this London-published book, was responsible for about one-third of the volume.

From January 1967 to July 1970, he was with the Northrop Corporation and was directly involved with the US Navy's deep submergence rescue and search submersibles, advanced diving

systems, and the SEALAB III underwater living program. Mr. Polmar served as both an operations analyst and public relations coordinator for these activities.

Mr. Polmar was a member of the Navy-Northrop Deep Submergence/Ocean Engineering Program Planning Group that reviewed Navy capabilities in this area for the Chief of Naval Operations and developed a plan for DS/OE efforts in the 1970-1980 decade; he was head of the Northrop effort in developing program justification for Navy Program Change Requests in this area and participated in the development of various other requirements documents and reports.

From September 1963 to January 1967, Mr. Polmar was assistant editor of the Naval Institute Proceedings, being responsible for the comment and discussion, professional notes, book reviews, pictorials, and other departments of that magazine.

While with the Proceedings, Mr. Polmar lectured at the Naval Academy on the subject of World War II naval weapons. During this period he also was a consultant and regular contributor to the US Air Force Association's magazines Air Force/Space Digest and Aerospace International, and from 1964 until 1970 wrote a monthly column for the British magazine Navy.

Mr. Polmar has travelled throughout Europe, and to North Africa and the Middle East, and in 1973 visited the USSR as a guest of the Institute of US Studies (Soviet Academy of Sciences) and the Soviet Navy.

He is a graduate of The American University with a BA in journalism and history.

Mr. Polmar has authored several books on naval-maritime subjects. In addition, his articles have appeared in The New York Times, Washington Post, Evening Star, and Miami Herald newspapers, the Encyclopaedia Britannica, Air Force magazine, Aerospace International, Flying Review International, Brassey's Annual, Naval Institute Proceedings, Sea Power magazine, Navy magazine (London), and World Book Encyclopedia.

Mr. Polmar's books include:

Automic Submarines (Van Nostrand, 1963); also published in Russian and Japanese language editions

Death of the Thresher (Chilton, 1964)

Aircraft Carriers: A History of Carrier Aviation and Its Influence on World Events (Doubleday, 1969; Macdonald, 1970); this book was named the most notable naval book of 1970 by the Naval Institute

Soviet Naval Power (a monograph published by the National Strategy Information Center, 1972; revised edition by Crane, Russak Co., Inc., 1974, and Macdonald-Jane's, 1974)

Anchors and Atoms, with Ken W. Sayers (a young adult book; David McKay, 1974)

Strategic Weapons: An Introduction (a monograph published by National Strategy Information Center 1976; Crane, Russak Co., Inc., 1976; Macdonald-Jane's, 1976)

World Combat Aircraft Directory (Macdonald-Jane's, 1975; Doubleday, 1976)

Awards

Sigma Delta Chi (international journalism fraternity) Outstanding Graduate Award for year 1965.

Navy League Alfred Thayer Mahan Award for literary achievement for year 1976.

AIRLIFT SEMINAR REPORT

DELIVERED BY

MR. HOWARD K. HOWARD

EXECUTIVE VICE PRESIDENT

TRANS INTERNATIONAL AIRLINES

SEMINAR CHAIRMAN

CO-CHAIRMAN:

BGEN CHARLES B. KNUDSON, USAF, HQ MAC

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COL LEWIS M. ISRAELITT, USAF, OJCS/J-4

LTC ALAN M. WEISBERGER, USAF, OJCS/J-4

4 MAY 1977

AIRLIFT SEMINAR REPORT

1. THESE ARE THE PROBLEMS

a. Fundamental to existing national policy is the requirement for MAC to conduct the essential training in peacetime that will insure capability to execute its wartime mission. From the longhaul portion of that flying is an economic byproduct which has been utilized to provide support to DOD forces worldwide. Civil carriers have expressed a desire for a share of this DOD traffic.

b. Currently, the level of DOD cargo moving through the military airlift system is at a significantly low level. If left to follow its own course, indications suggest that even further reductions of these requirements are possible. MAC has contended this reduction of DOD air cargo has also affected the ability of DOD to make cargo available to civil air carriers.

c. Current and future energy limitations can be expected to require more prudent use of available product.

d. The lack of sufficient civil-military airlift planning is apparent; one contributing factor is incompatibilities at present of the respective civil and military airlift systems.

2. THIS IS WHAT WE LOOKED AT IN THE LIMITED TIME

a. The use of military airlift in peacetime must be guided by national policy which has been established and reaffirmed on various occasions within the past 25 years. The rate at which the airlift system is exercised must be consistent with insuring aircrew proficiency, airland/airdrop, aerial refueling techniques, vital maintenance, logistic, aerial port personnel proficiency and their facilities exercised both in CONUS and offshore. In its role as a peacetime partner, civil air carriers provide airlift for the vast majority of DOD passenger traffic primarily through the MAC system. Additionally, they move significant quantities of cargo through the LOGAIR/QUICKTRANS systems and are called upon to perform missions requiring the unique application of civil airlift. In addition to exercising the transportation system itself, additional emphasis must be placed on funding for MAC weapons system spares to support programmed wartime surge rates. The declining peacetime use rates has widened the gap between current spares usage and wartime spares requirements.

b. The downward trend of DOD peacetime airlift traffic is a direct reflection of the termination of hostilities in Southeast Asia and a reduced US presence in other overseas areas. Additionally, escalated fuel costs and certain budgetary constraints have forced the Shipper Services to more closely evaluate their peacetime logistic support requirements. This has had a positive effect for airlift, in that some additional cargoes are being made available through such initiatives as the Army's Air Line of Communication (ALOC) concept. This specific operation promises, in the interest of wartime efficiency and peacetime economy, to merit consideration for expansion.

c. In regard to the energy constraints it is suggested that there may be limits on the availability of fuel supplies for crisis/wartime situations. The military is the primary user of JP4 and relies on certain stocks being imported. In this connection, uninterrupted deliveries during crisis/wartime situations could be affected. Although domestic production facilities could possibly be redirected to the production of JP4, it is estimated that several weeks may be required for the conversion.

d. The final area of consideration concerns the civil-military partnership. The basis of this partnership stems from the fact that it has been determined impractical to maintain a level of military capability in peacetime sufficient to satisfy the wartime job. To date, the development of military and commercial airlift resources has been in independent directions. This has resulted in numerous incompatibilities which, in turn, have increased the difficulty of mutual support.

3. COURSES OF ACTION. Relative to the above stated problems, the following represents the committee's combined suggested course of action:

a. Short term:

(1) Continued support of the ALOC by DOD.

(2) Support by the civil airlift sector for continued baseline funding of military airlift flight training in peacetime.

(3) Inclusion of DOT in attempts to stimulate the volume of air cargo in the civil and military system.

(4) Increased exercising of mobility plans, where feasible, to include greater usage of civil assets.

b. Long term:

(1) Tripartite development and funding of a new-generation cargo aircraft by civil air carriers, aircraft manufacturers, DOT and DOD.

(2) Development of complementary transportation systems at either end of the ALOC.

4. TECHNOLOGY. Needs a push:

a. Design of a cargo aircraft that is compatible with civilian needs but will also meet unique military needs, i.e., outsize and oversize cargo capable.

b. Design of compatible aircraft subsystems within existing state of the art that afford maximum efficiency, economy and interchangeability betweem military and civilian aircraft, i.e., engines, avionics, aerodynamic techniques, etc.

5. FINANCIAL IMPLICATIONS. There is a need for continuation and expansion of financial incentives. Incentive programs must not only be continued but broadened in order to further encourage the CRAF air carriers' investment in aircraft compatible with DOD requirements.

6. OTHER. Time has precluded a thorough examination of the US petroleum industry's ability to produce adequate levels of JP4 aviation fuel following initial depletion of wartime reserve stocks. A thorough examination of this potential problem should be undertaken and appropriate courses of action(s) decided upon.

SEALIFT SEMINAR REPORT

DELIVERED BY

MR. ROBERT U. FOSTER

VICE PRESIDENT

PRUDENTIAL LINES

SEMINAR CHAIRMAN

CO-CHAIRMAN:

RADM JOHN D. JOHNSON, USN, OJCS/J-4

RECORDERS:

CAPT JOHN M. DADDONA. USN, OJCS/J-4

CDR BENNIE W. COOK, USN, OJCS/J-4

LCDR RICHARD C. TREANOR, USN, OJCS/J-4

LCDR BILLY W. SURLES, USN, OJCS/J-4

4 MAY 1977

SEALIFT SEMINAR REPORT

1. THESE ARE THE PROBLEMS

There is a critical need for increased responsiveness of sealift across the full spectrum of contingencies. Within the context of this program the following problems were addressed by our speakers and during the workshops. These will be discussed within several broad categories along with such courses of action as were identified within the short time frame available.

2. THIS IS WHAT WE LOOKED AT IN THE LIMITED TIME

a. Planning

(1) Overall Planning Coordination

(a) Problem. There is a well-defined need for improved integrated planning involving all sealift players. Communications in this area between industry and DOD are less than wholly satisfactory to the detriment of sealift responsiveness.

(b) Course of Action

1. Short Term: An urgent need exists for a top management level meeting between industry and DOD to discuss and establish mutually beneficial goals for improved sealift readiness through a better understanding of industry and defense needs and problems. High on the agenda for such a meeting should be the strengthening of the industry-DOD dialogue through continuing interface. Problems of SRP responsiveness should also receive priority attention at this meeting.

2. Long Term: Insure the existence of a mechanism which will permit continuing and more effective industry-DOD dialogue and community resolution of sealift problems.

(2) DOD Planning

(a) Problem. There is a need for increased specificity concerning sealift requirements in DOD planning. This includes both the timing of requirements for sealift and the ship mix.

(b) Course of Action. Actions within DOD and MARAD are underway to this end, and will result in a clearer view of requirements.

b. Control of Merchant Shipping

(1) Location of Assets

(a) Problem. There is a recognized need for more timely location of merchant shipping during a crisis. This is increasingly vital in view of the decreased warning times and wide scope of possible contingencies.

(b) Course of Action. Implementation and continued review of the US Merchant Ship Locator Filing System (USMER) should go a long ways towards the correction of this problem.

(2) Communications

(a) Problem. Communications with merchant ships are not responsive to tight time constraints or to security of operations. This is a critical deficiency for all types of contingencies, especially those involving nonmobilization scenarios. such as the 1973 MidEast War, evacuation of Vietnam, etc.

(b) Course of Action. The current Navy-MARAD joint committee on merchant marine communications is making progress in this area and should continue its deliberations.

c. Readiness of Sealift

(1) Timeliness of Availability

(a) Problem. Timeliness of shipping availability is less than required across the board. The SRP provides limited assets prior to mobilization and its immediate availability is not guaranteed. MSC controlled shipping has some surge capability but this is still limited. NATO shipping is currently not available prior to D-day.

(b) Course of Action. There is an ongoing initiative to improve time response through the Ready Reserve Force, but additional improvements are needed. Through PBOS and other NATO channels,

the earlier availability of NATO shipping (i.e., M-day or time of tension) is being pursued, but this goal will not be achieved quickly. The earlier avialability of US flag shipping in a nonmobilization scenario is constantly faced with the dichotomy between defense needs and the very real fiscal needs of the shippers who can ill afford unscheduled removal of ships from their trade routes. This last subject must be reviewed with industry on a priority basis.

(2) Availability of Optimum Ship Mix

(a) Problem. The MSC fleet is relatively small and does not provide the type of flexible, modern ships needed for today's sealift. Industry must build for trade and has limited capability to meet those defense needs/characteristics which are not compatible with economic reality. DOD ship mix requirements need to be carefully reviewed given the rapidly changing threat, warning times and strategies. NATO allies do not have as clear a picture as required of NATO reinforcement sealift needs.

(b) Course of Action. This is an extremely difficult problem to resolve and requires continued DOD/industry attention. Establishment of the RRF is a major step forward. The DOD has made significant progress in defining lift needs more accurately and must continue to refine these requirements both to NATO and within the DOD itself.

(3) Materiel Readiness

(a) Problem. The NDRF is in a generally marginal state of readiness. Ships are old and it would take major time and money investments to remedy this significant deficiency.

(b) Course of Action. Progress in this area is severely hampered by availability of suitable replacement shipping and by funding constraints. No viable solution in sight.

(4) Training Readiness

(a) Problem. Exercises with industry during which merchant ships (excluding certain MSC shipping) are integrated with fleet operations are almost nonexistent. As a result, training readiness

to meet Navy requirements is well below what it should be. Specific training requirements for merchant shipping are inadequately defined and require additional DOD attention.

(b) Course of Action. There has been some progress in generating increased MSC participation in exercises and more is planned in the near future. However, funding constraints and industry economics severely limit expanding the scope of participation to include industry shipping. Future industry/DOD dialogues should seek avenues that would be mutually beneficial in gaining greater industry participation in military exercises.

(5) Equipment Readiness. Defined as the readiness of sealift assets to provide those unique or special services required by DOD such as refueling at sea, outsize lift, etc.

(a) Problem. Given the limited Navy controlled tanker assets, the greatly increased threat to this vital group of ships, there is an urgent need to develop an underway refueling capability for industry product tankers.

(b) Course of Action. Some astern fueling rigs for US merchant tankers are available and can provide a significant capability. In the NATO area, the requirement for astern refueling rights for merchant tanker use has been identified and action is currently underway to obtain an increased capability. Much more should be done.

d. Cargo Handling

(1) LOTS Capability

(a) Problem. Given the growing threat, there is a need for a more viable over-the-shore onload, offload capability. Work has been proceeding for years in this area but capability is still limited.

(b) Course of Action. Ongoing efforts in providing this capability should continue to address and test methods usable in both European and Pacific scenarios.

(2) Ammunition Outloading

(a) Problem. There is a severe bottleneck in ammunition outloading from CONUS due to the limited number of DOD ammunition ports and their constrained capacity.

(b) Course of Action. This problem is being continually reviewed by MTMC, and funding of capabilities required to meet East Coast (NATO) shortfalls has been requested. West Coast capabilities are currently under study by MTMC in coordination with the Navy.

3. COURSES OF ACTION. Included above.

4. TECHNOLOGY. Technology is not an issue in any of the above problem areas. The technology to effect all of the recommended courses of action is available.

5. FINANCIAL IMPLICATIONS. Included above.

SURFACE SEMINAR REPORT

DELIVERED BY

MR. ROBERT S. HAMILTON

EXECUTIVE VICE PRESIDENT

SOUTHERN RAILWAY SYSTEM

SEMINAR CHAIRMAN

RECORDERS:

COL ROBERT E. McCLEAVE, USA OJCS/J-4

LTC RICHARD W. BERGSON, USA OJCS/J-4

MR. ROBERT H. MOORE, MTMC-PLM

4 MAY 1977

SURFACE SEMINAR REPORT

1. THESE ARE THE PROBLEMS

Admiral I.C. Kidd twice referred in his remarks to the time it takes to move equipment from origin to a seaport of embarkation (SPOE) and from a seaport of debarkation (SPOD) to the forward edge of the battle area. His point was that the equipment is afloat aboard ship only about one third of the total deployment time. The time to port and the time from port must receive intensive consideration. General Del Mar, Cdr MTMC, emphasized that the job to be accomplished is the timely deployment of our forces from origin in CONUS to final destination in the theater. We must look at the mobility problem from this total systems perspective. Using these points as a springboard, our seminar sought to identify potential surface mobility problems in the CONUS and the theater.

2. THIS IS WHAT WE LOOKED AT IN THE LIMITED TIME

a. Insufficient installation outloading capability.

(1) Installation rail and truck receiving and outloading facilities must be adequate to receive and outload on a timely basis, units and supplies moving in support of emergency or contingency operations.

(2) Rapid deployment of combat units in support of a contingency, requires that CONUS installations be capable of outloading assigned units at a rate which as nearly as possible matches strategic air and sealift capabilities and availability. Recent experience indicates that rail outloading capabilities at some Army installations are inadequate.

(3) Concern was expressed by the seminar participants that the installations will not be able to loadout rail equipment as rapidly as it is provided. Further, safe and efficient loading and transit requires compliance with railroad loading and tie down procedures and standards.

b. Maintenance of branch rail lines. During the course of our discussions, considerable time was spent on railroad capabilities to respond to contingency requirements. Concern was expressed that many DOD cargo origins are not on main rail lines and servicing branch lines are the least maintained. This is a situation that the DOD will

have to resolve in coordination with industry. Many branch lines which serve military facilities simply do not generate enough revenue to warrant the railroads bringing them up to standard. DOD may have to fund these repairs in partnership with other shippers.

c. Movement of main battle tanks in CONUS. It was asserted that there are not enough heavy duty flat cars in the inventory of the nation's railroads to meet the DOD time-phased main battle tank movement requirements. Railroad representatives in the seminar indicated that most of the flat cars in commercial service cannot handle the tank. Total weight is not the constraint. The cars are simply not constructed to take the tank's concentrated load bearing pressure.

d. Training of Active and Reserve Units for rail movements. The rapid movement of units by rail to ports of embarkation will require that unit personnel be well acquainted with the procedures for loading and tie down of equipment on rail cars. This has been a problem in the past at some of our active installations; it could be a major problem at currently inactive installations which would be supporting the mobilization of high priority reserve units.

e. Industry/Military planning coordination

(1) Several of our conference speakers have referred directly to the importance of a military-industry partnership in planning for contingency operations. The carrier industry simply does not have a handle on defense movement requirements.

(2) The DOD must bring industry representation into the planning process at the earliest possible time if emergency deployments are to be met on a timely basis.

3. COURSES OF ACTION. Relative to the above stated problems, the following represents Surface Seminar's recommended courses of action:

a. Aggressive action is required to insure that rail and truck facilities at both active and inactive installations supporting wartime movement are maintained at an acceptable level of capability and repair.

b. MTMC has taken action through the Railroads for National Defense Program to identify those branch rail lines required to meet military movement requirements. This program, of which the branch line issue is just one aspect, is being carried out in coordination with the Military Services and the Federal Railway Administration.

c. It was suggested that the DOD carefully review, in coordination with the railroads, the requirements for moving main battle tanks under mobilization or other contingency conditions. This is to determine the adequacy of the number of heavy duty-tank capable-flat cars in the DOD and commercial inventories.

d. Training in rail car loading and tie down procedures should be provided on a regular basis to both active duty and reserve personnel. The time saved in an emergency could make a real difference in the success of a military operation.

e. Consideration should be given to the establishment of a military/industry planning committee to insure that the carriers are better prepared to respond to short warning situations.

4. TECHNOLOGY. Technology is not an issue in any of the above problem areas. The technology to effect all of the recommended courses of action is available.

5. FINANCIAL IMPLICATIONS

a. Installation outloading improvements. Costs to the DOD are minimal.

b. Branch line maintenance. DOD funding requirements may very well be significant.

c. Movement of tanks. If a shortage of tank capable flat cars is determined, one possible solution would be for DOD to fund the incorporation of Defense features into commercial rail car building programs.

d. Training for rail movement. Costs to the DOD are minimal.

e. Industry/military planning coordination. Costs to the DOD would be minimal.

6. OTHER. Movement of cargo within the theater of operations was also discussed. Time precluded a thorough examination of the problem. The consensus of opinion within the seminar was that the capacity of the European ports and inland surface transport network was sufficient. However, concern was expressed over the ability to manage the cargo movements within the theater and suggested detailed coordination/ planning between theater US movements control personnel and their allied counterparts.

7. ADMINISTRATION. The verbal report actually delivered by the Seminar Chairman is at Enclosure 1. Further details of issues discussed during the seminar sessions of 2 and 3 May 1977 are at Enclosures 2 through 6.

ENCLOSURE 1

SURFACE SEMINAR

REPORT TO THE

WORLDWIDE STRATEGIC MOBILITY CONFERENCE - 1977

MR. ROBERT S. HAMILTON, EXECUTIVE VICE PRESIDENT,
SOUTHERN RAILWAY SYSTEM, CHAIRMAN

Admiral I.C. Kidd, twice referred in his remarks to the time it takes to move equipment from origin to a seaport of embarkation (SPOE) and from a seaport of debarkation (SPOD) to its destination. His point was that the equipment is afloat only about one third of the total deployment time. The time to port and the time from port must, therefore, receive intensive consideration. General Del Mar, CDR, MTMC, emphasized that the job to be accomplished is the timely deployment of our forces from origin in CONUS to final destination in the theater; that we must look at the mobility problem from this total systems perspective. Using this point is a springboard, our seminar sought to identify potential problems in the CONUS and the theater.

SLIDE ON

The problems listed on this chart are five of those identified in the course of our seminar discussions.

1. <u>INSTALLATION OUTLOADING</u>

*Installation rail and truck receiving and outloading facilities must be adequate to receive and outload, on a timely basis, units and supplies moving in support of emergency or contingency operations.

*Rapid deployment of combat units in support of a contingency, requires that CONUS installations be capable of outloading assigned units at a rate which as nearly as possible matches strategic air and sealift capabilities and availability. Recent experience indicates that rail outloading capabilities at some Army installations are inadequate.

*Concern was expressed by the seminar participants that the installations will not be able to loadout rail equipment as rapidly as it is provided. Further, safe and efficient loading and transit requires compliance with railroad loading and tie down procedures and standards.

*Aggressive action is required to insure that rail and truck facilities at both active and inactive installations supporting wartime movement are maintained at an acceptable level of capability and repair. We have the technology to effect the necessary improvements and the financial impact of these improvements is minimal.

2. MAINTENANCE OF BRANCH RAIL LINES

*During the course of our discussions, considerable time was spent on railroad capabilities to respond to contingency requirements. Three pertinent problems were identified. These were the maintenance of branch rail lines, the movement of main battle tanks in the CONUS, and training.

*With regard to branch rail lines, concern was expressed that many DOD cargo origins are not on main rail lines and servicing branch lines are the least maintained. This is a situation that the DOD will have to resolve in coordination with industry. Many branch lines which serve military facilities simply do not generate enough revenue to warrant the railroads bringing them up to standard. DOD may have to fund these repairs in partnership with other shippers.

*MTMC has taken action through the Railroads for National Defense Program to identify those rail lines required to meet military movement requirements.

*Technology is not a problem in this area. However, funding requirements may very well be significant.

3. MOVEMENT OF TANKS

*It was asserted that there are not enough heavy duty flat cars in the inventory of the nation's railroads to meet the DOD time-phased main battle tank movement requirements. Railroad representatives in the seminar (and I am one of them) indicated that most of the flat cars in commercial service cannot handle the tank. Total weight is not the constraint. The cars are simply not constructed to take the tank's concentrated load bearing pressure.

*It was suggested that the DOD carefully review, in coordination with the railroads, the requirements for moving tanks under mobilization or other contingency conditions. This is to determine the adequacy of the number of heavy duty, tank capable, flat cars in the DOD and commercial inventories. I note that MGen Del Mar of MTMC has a study underway in this area.

*If there is a real shortage, one possible solution would be for DOD to fund the incorporation of Defense features into commercial rail car building programs.

4. TRAINING FOR RAIL MOVEMENT

*The rapid movement of units by rail to ports of embarkation will require that unit personnel be well acquainted with the procedures for loading and tie down of equipment on rail cars. This has been a problem in the past at some of our active installations; it could be a major problem at currently inactive installations which would be supporting the mobilization of high priority reserve units.

*Training should be provided on a regular basis to both active duty and reserve personnel. Costs would be minimal. The time saved in an emergency could make a real difference in the success of a military operation.

5. INDUSTRY/MILITARY PLANNING COORDINATION

*Several of our conference speakers have referred directly to the importance of a military-industry partnership in planning for contingency operations. The carrier industry simply does not have a handle on Defense movement requirements.

*The DOD must bring industry representation into the planning process at the earliest possible time if emergency deployments are to be met on a timely basis.

*Consideration should be given to the establishment of a military/industry planning committee to insure that the carriers are better prepared to respond to short warning situations.

SURFACE SEMINAR

PROBLEMS IDENTIFIED

*INSUFFICIENT INSTALLATION OUTLOADING CAPABILITY

*MAINTENANCE OF BRANCH RAIL LINES

*MOVEMENT OF MAIN BATTLE TANKS IN CONUS

*TRAINING OF ACTIVE AND RESERVE UNITS FOR RAIL MOVEMENTS

*INDUSTRY/MILITARY PLANNING COORDINATION

ENCLOSURE 2

1. SUBJECT: CONUS Installation/Facility Outloading Constraints

2. SCOPE: Installation rail and truck receiving and outloading facilities consist of the on-post and nearby off-post road and rail networks, loading docks and ramps, and materiel handling equipment. These facilities must be adequate to receive and outload on a timely basis, units and supplies moving in support of emergency/contingency operations.

3. DISCUSSION:

a. Rapid deployment of combat units in support of a NATO contingency, requires that CONUS installations be capable of outloading assigned units at a rate which as nearly as possible matches strategic air and sealift capabilities. Recent experience in planning for REFORGER 76 and in mobility studies have indicated that rail outloading capabilities at some Army installations were inadequate. Repairs to the rail system at Fort Campbell were required and completed in the summer of 1976 prior to the deployment of the 101st Airborne Division during REFORGER.

b. Concern was expressed by the seminar participants that the installations will not be able to loadout rail equipment as rapidly as it is provided. There was evidence to indicate that facilities at some installations were inadequate and/or in disrepair and that personnel trained in rail car loading procedures were not available in sufficient numbers. This is especially important for those Reserve units, required early, that must mobilize at currently inactive installations. Safe and efficient loading and transit requires compliance with railroad loading and tie down procedures and standards.

c. The MTMC Transportation Engineering Agency conducts, at the request of the Services, traffic engineering surveys of Defense installations to validate capabilities. Surveys have been completed at Fort Hood, Fort Ord and are underway at Fort Polk and other Defense activities. Installation outloading shortfalls identified by MTMC in the OJCS Strategic Mobility Requirements and Program Study are being validated in coordination with the Army and the OJCS. A comprehensive analysis of installation capabilities will be completed by MTMC in Part II of the Joint Strategic Capabilities Plan (JSCP) FY 76 Strategic Movement Analysis. Validated shortfalls will be identified to the Service for corrective action and funding of required improvements.

4. OBSERVATIONS:

a. Aggressive action is required to insure that rail and truck facilities at both active and inactive installations supporting wartime movement are maintained at an acceptable level of capability and repair.

b. Programs must be made for the training of both Active and Reserve units in rail outloading of unit equipment.

ENCLOSURE 3

1. SUBJECT: Highway Transportation in Strategic Mobility

2. SCOPE: The nation's highway transportation system consists of national network of highways and numerous private and common-carrier truck operators. This capability represents a vital asset in the strategic mobility equation.

3. DISCUSSION:

a. It was asserted that the American Trucking Association (ATA) has a reasonably good grasp of the highway transportation assets needed to support mobilization or contingency requirements. This should be considered no mean task since the ATA is dealing with some 16,000 for hire carriers.

b. Heavy hauler type equipment is especially key to Defense needs. In this regard, the ATA indicated that there is some difficulty in locating specialized equipment. The problem centers on the fact that the large majority of the equipment is not carrier owned but rather is contractor owned. Further, the trailer itself is shuttled or transferred from one trucker to another during the actual movement.

c. Discussion followed on the requirement for and speed in which permits can be obtained for oversize/overweight shipments. This is especially key since all tanks, for example, are oversized (12+ feet wide). It was recognized that the permits can be obtained but the speed in which they can be obtained is a function of the specific state(s) involved.

d. Due to a possible shortage of heavy duty flat cars, the seminar felt that the heavy hauler could be an important capability under mobilization conditions.

4. OBSERVATION: The Department of Defense with the Military Traffic Management Command (MTMC) taking the lead, should evaluate the capability of the heavy hauler industry and investigate the feasibility of placing greater reliance on their assets as a compliment to the railroads for unit equipment type movements.

ENCLOSURE 4

1. SUBJECT: Rail Transportation in Strategic Mobility

2. SCOPE: Rail capability consists essentially of the privately owned national rail network and associated rolling stock. The DOD owns and operates a limited number of cars to meet specialized movement requirements. In a contingency, primary reliance will be placed on the commercial rail system. The emphasis in the discussions was to pinpoint problems in moving cargo from origin to the CONUS seaports and from overseas ports to the battle area.

3. DISCUSSION:

a. Admiral I.C. Kidd, Supreme Allied Commander, Atlantic referred twice in his question to General W.G. Moore (CINCMAC) and during his own prepared remarks to the time it takes to move equipment from origin to a seaport of embarkation (SPOE) and from a seaport of debarkation (SPOD) to the forward edge of the battle area. His point was that the equipment is afloat aboard ship only about one third of the total deployment time. The time to port and the time from port must receive equal consideration with the transoceanic transit. Using this point as a springboard, the participants sought to identify the problems which bring about this situation.

b. It was alleged that it takes 20 days to move a tank from the plant in Michigan to the Port of New York. Discussion followed to the effect that the tank is an oversized piece of equipment and must have special routings. In peacetime, these shipments are irregular and the proper heavy duty flat cars are not always readily available. The physical condition of the rails and roadbeds in that section of the country further aggrevate the situation.

c. A participant was concerned that there are two Armored Divisions located at Fort Hood, Texas which would have to move to an SPOE in rapid fashion. Is it possible to obtain the necessary heavy duty flat cars to support these movements? The ensuing discussion indicated that:

(1) The Army's Defense Freight Rail Interchange Fleet (DFRIF) contains some 900 flat cars, many of which are strategically located around the country to support contingency developments. These car pools are immediately available for loading to take up the initial slack until commercial equipment can be brought to the loading sites.

(2) It is the Army's intention that when an installation is within 300 road miles of the SPOE, roadable (wheeled) vehicles will be convoyed to the SPOE. The effect of this is two-fold:

(a) The number of flat cars required is dramatically reduced (from some 2,000 for each division to approximately 600) since generally only non-roadable tracked vehicles will be loaded on rail cars.

(b) The time required to load out the division is reduced from approximately 10 days to approximately 3 days.

(3) Individual railroads can locate all their flat cars within about an hour. The Association of American Railroads (AAR) can accomplish the same task for the industry as a whole in just a little longer time.

(4) However, it was brought out that flat cars are not an increasing asset. One specific railroad company has bought just 100 standard flat cars in the last 15 years whereas it has retired several hundred. Concern was expressed that there are not enough heavy duty flat cars in the inventory of the nation's railroads to meet the DOD time-phased main battle tank (M-60 series) movement requirements. Railroad representatives indicated that most of the flat cars in commercial service cannot handle the main battle tank. Total weight is not the constraint. The cars are not constructed to take the concentrated load bearing pressure of the tank. It was suggested that the DOD carefully review, in coordination with the railroads, the requirements for moving tanks under mobilization conditions to determine the adequacy of the number of heavy duty flat cars in the DFRIF and commercial inventories. If there is a real shortage, one possible solution would be for DOD to fund the incorporation of Defense features into commercial rail car building programs. This would generate a small one-time subsidy requirement.

d. Concern was expressed over the fact that many cargo equipment origins are on branch rather than main rail lines. These branch lines receive little more than minimal maintenance and could not accommodate a surge of heavy traffic. This is a situation that the DOD will have to face. Many branch lines which serve

military facilities simply do not generate enough revenue to warrant the railroads bringing them up to standard. DOD may have to fund these repairs. In response, the committee was apprised of the new Railroads for National Defense Program. This program, initiated by the DOD, identifies those rail corridors essential to national defense. Further, there are provisions for the funding of branch line maintenance when required primarily to satisfy Defense needs.

e. A question was raised as to whether there was a system to call on rail or highway assets similiar to the Civil Reserve Air Fleet (CRAF). The response was negative. AAR and ATA representatives are co-located with the MTMC, keeping track of their CONUS assets and providing this information to MTMC as required.

f. It was alleged that all simulations in the last 10 years found ships in port waiting cargo. The ports in CONUS are not a constraint. DOD requirements represent only a small fraction of the total outloading capability. The problem then becomes one of managing the movement of cargo from CONUS origins to the designated SPOE. MTMC, the traffic manager and the Military Sealift Command (MSC), the ocean shipping manager interface is essential.

g. The seminar Chairman summed up this general discussion by stating that the quickness of response of the carrier industry will depend upon the urgency the DOD places on its requests. Tell the industry what the requirement is and the urgency of the requirement and the industry will respond to that request. The carrier industry responded in the Cuban Crisis before anyone (the general public) knew there was a problem.

4. OBSERVATIONS:

a. It is essential to know where rail and highway assets are located at any given point in time.

b. The Army's DFRIF fills a vital gap in flat car availability during the early stages of a contingency/ mobilization.

c. The Army's plan to route units via organic move to SPOE's when their origin is within 300 miles of the SPOE, speeds the deployment process and lessens the requirement for rail/highway carrier assets.

d. Numerous rail branch lines are not being maintained to standard since traffic does not warrant railroad funding of needed repairs. DOD's Railroads for National Defense Program recognizes this fact and contains provisions for DOD funding in certain circumstances.

e. The DOD with the MTMC taking the lead, should determine the requirements for heavy duty flat cars, and in coordination with the railroads, determine whether military and commercial inventories are adequate.

f. The DOD must bring industry representation into the planning process at the earliest possible time if emergency deployments are to be met on a timely basis. Action has been taken through NDTA channels to provide requirements data and coordinate planned movements.

g. Consideration should be given to the establishment of a military/industry planning committee to insure that the carrier industry is better prepared to respond to short warning contingencies. In this regard, there needs to be an effort made to interface the information data system of the DOD and industry in the transportation area.

ENCLOSURE 5

1. SUBJECT: Ports in Strategic Mobility

2. SCOPE: Ocean terminals in CONUS and the overseas theater are required to support the movement of units and supplies in wartime. Commercial terminals, supplemented by the Military Ocean Terminals, are used to move units and general supplies. Due to its hazardous nature ammunition must move through military controlled terminals.

3. DISCUSSION:

a. The Conference speakers have emphasized that 95 percent of wartime requirements must move by sealift. Seminar participants questioned the capability of the ports to support the volume of movements that would occur under mobilization conditions.

b. Recent studies conducted by OJCS, MTMC and the CINCs, indicate that commercial and military port capabilities in CONUS and the theater far exceed demands on the system for the throughput of unit equipment and general supplies. There is a shortfall in the CONUS military port capability required to support wartime ammunition movements. MTMC has developed a program for correcting this deficiency and has requested funding through Army channels.

c. In the future it is expected that commercial ports will continue to provide adequate capabilities to support wartime movements. Ammunition port capabilities, however, must be improved through immediate funding action. Seminar participants generally agreed that the major problem in the ports would be management of cargo throughput and coordination by ship arrivals with cargo availabilities.

4. OBSERVATIONS: Specific attention should be directed at insuring that both military and commercial management systems can match the throughput demands of a major contingency both in CONUS and the theater.

ENCLOSURF 6

1. SUBJECT: Theater Transportation/Host Nation Support

2. SCOPE: Theater transportation support requirements include responsive seaport and airport discharge and clearance capabilities, and inland truck and rail linehaul capability to the Corps area. These tasks must be accomplished for the most part through the use of host country commercial capabilities.

3. DISCUSSION:

a. The point was made that strategic deployment planning should be "backward planning." Can we move the tonnages required from the seaports of debarkation to the front lines? Can we receive the tonnage into the European ports?

b. Further discussion centered on the following points:

(1) The current US policy is to rely on host nations, i.e., the United Kingdom, Belgium, the Netherlands, Luxembourg and the Federal Republic of Germany (FRG) for LOC support.

(2) US unit support along the UK-BENELUX-FRG LOC will be minimal. This is due to recognition that Western Europe has one of the most sophisticated transportation networks in the world and the US Congress' refusal to fund for costly US military duplication of readily available host nation support.

(3) UK and BENELUX seaport reception capability far exceeds planned theater time-phased movement requirements. Further, REFORGER 76 demonstrated the speed in which ships can be received on berth, high density loads discharged, and ports cleared of the cargo.

(4) Planning efforts of NATO's Planning Board for European Inland Surface Transport (PBEIST) have revealed that the inland transportation network (highway, rail and inland waterway) far exceeds movement requirements.

c. Concern was raised over the European rail net to support the movement of tanks. It was pointed out that tanks are moved via rail within the FRG on a routine basis to training centers. Further, in REFORGER 77, two tank battalions will be moved over the rails from BENELUX ports to assembly areas in the FRG.

d. Concern was also expressed over the US/Host nation capability to manage the movement of cargo over this vast transportation network. The issue was not pursued due to a lack of time.

4. OBSERVATIONS: Reliance on host nation support requires movements control planning between appropriate host nation and US officials.

INTERMODAL SEMINAR REPORT

DELIVERED BY

MR. CHARLES H. BELL

SENIOR VICE PRESIDENT FOR OPERATIONS

SEABOARD WORLD AIRLINES

SEMINAR CHAIRMAN

CO-CHAIRMAN:

BGEN SAMUEL G. COCKERHAM, USA, OJCS/J-4

RECORDERS:

COL WILLIAM H. DANZEISEN, USA, HQ DARCOM

CDR BERNARD D. DUNN, USN, CSS/CG, OASD (MRA&L)

MAJ TERRY E. HARRIS, USMC, CSS/CG, OASD (MRA&L)

MAJ TERRY W. SNYDER, OJCS/J-4

4 MAY 1977

INTERMODAL SEMINAR REPORT

1. THESE ARE THE PROBLEMS

Intermodal Operations - In particular, the air mode needs to be further developed to support strategic mobility requirements. The effective integration of military and commercial resources must be demonstrated.

SLIDE 1

2. THIS IS WHAT WE LOOKED AT IN THE LIMITED TIME

The following problems were discussed concerning the movement of containers between the surface and air modes:

a. Handling of containers at mode interchange points: It was found that handling techniques and equipment are in existence and in use today by commercial airlines currently flying 747F equipment at airports such as New York, Chicago, Boston, Dallas, Los Angeles, London, Frankfurt, Paris, Amsterdam, Brussels, and points in the Middle East and Africa.

b. Choice of Containers: The 8'x8'x20'container is the selected unit size. It was found that commercial airlines operating 747F aircraft have successfully handled all types of 20 foot containers; i.e., ISO Maritime Standard, S.A.E. and IATA Standard. Over 600 maritime containers of all types were transported by Seaboard World Airlines during a 60-day period as part of a US Postal Service/Department of Army mail program (Christmas 76).

c. Rates: For budget planning purposes, rates currently exist for the movement of containers in the air and surface modes, however, there is a need to develop a simplified rate structure for intermodal and multi-mode movements.

d. Intransit Visibility: In order to make the most advantageous use of intermodal movement of supplies and material, an intransit visibility capability linking the civil and military audit trail systems is necessary. This system should go beyond the visibility of the container and identify the individual shipments within each container. Such a system will allow containers of specifically required material to be rerouted to the consignee via faster modes than original booking. It will also allow material to be diverted en route to other consignees with more urgent requirements for the specific material involved.

e. Packaging Limitations:

(1) Dangerous Commodities - With various regulatory agencies involved in the movement of materiel, the packaging requirement for dangerous and explosive cargo differs. Involved among others are the ICC, CAB, FMC, Coast Guard, AAR and Explosive Safety Board. To move dangerous cargoes through a truly intermodal system, it is necessary that the packaging standards and requirements be restructured to meet safety requirements of all modes.

(2) Maximum use of cube and weight - Packaging for all cargo must be reviewed and standards revised so that the cargo receives adequate protection while moving in all modes but at the same time provides the shipper with minimum weight and cube in order to take maximum advantage of transportation assets.

(3) Choice of commodity by density and value - Shippers will have to make a conscious effort to review commodities being shipped to insure that the best mode is selected based on density and value to meet requirements.

SLIDE 2

3. COURSES OF ACTION

a. Short Term:

(1) Employ the concept of intermodality during the next REFORGER exercise by identifying a specific number of sea containers to be diverted to military and commercial aircraft.

(2) Begin to sustain a steady flow by air of a limited number of containers to provide a data and experience base from which an extrapolation can be made to determine requirements for larger and/or surge volumes. Perhaps a number of selected containers moving under the Air LOC could be cycled on commercial airlines.

(3) Demonstrate the potential of bypassing port congestion by employing intermodal air transportation to inland points.

b. Long Term: The use and exercise of intermodality should be accomplished in all major military exercises in which forces are deployed by using the resources of civilian, US and allied transportation organizations, truck, rail, sea, air, and the military Transportation Operating Agencies to insure the existence and availability of an operable, efficient system when needed under emergency conditions.

4. TECHNOLOGY. The technology and equipment to have a truly effective intermodal system of container transportation exists. The so-called "Container Revolution" of the 1960s and early 1970s introduced the container as a viable and cost effective alternative to past systems. The development during that period of aircraft, as well as specialized ships for the transportation of containers opened the door to intermodalism. The evolution of procedures now is required to effect the transition of containers between modes - not just land-sea or land-air, but true intermodalism between land-sea and air both commercial and military. As far as commercial truck-air is concerned, all the system components are in existence and in use today, the 747F aircraft, the containers, and the support ground handling equipment. What is missing, is the use of the system by the military/commercial partners. What is needed is the policy and direction for the defense/industry team to exercise the system that is available.

5. FINANCIAL IMPLICATIONS. Exercise funds should be apportioned to provide for adequate employment of intermodal movement.

6. OTHER. Develop necessary planning factors and identification of any equipment or procedural shortfalls.

INTERMODAL SEMINAR REPORT

PROBLEM STATEMENT:

INTERMODALITY NEEDS TO BE FURTHER DEVELOPED AND UTILIZED TO SUPPORT THE NEEDS OF STRATEGIC MOBILITY. EFFECTIVE INTEGRATION OF CIVIL AND MILITARY RESOURCES MUST BE DEMONSTRATED.

AREAS DISCUSSED:

HANDLING OF CONTAINERS AT MODE INTERCHANGE POINTS
CHOICE OF CONTAINER
RATE STRUCTURE
INTRANSIT VISIBILITY
LEVELS OF PACKAGING

INTERMODAL SEMINAR REPORT

COURSE OF ACTION:

SHORT TERM:

UTILIZE INTERMODALISM IN "REFORGER 77"

BEGIN AND SUSTAIN A STEADY FLOW BY COMMERCIAL AND MILITARY AIR

LONG RANGE:

IN ALL FUTURE DEPLOYMENT EXERCISES UTILIZE US AND ALLIED INTERMODAL RESOURCES

TECHNOLOGY:

CAPABILITY EXISTS

PROCEDURES MUST BE DEVELOPED AND REFINED

BUDGET:

APPORTION EXERCISE FUNDS TO INSURE EMPLOYMENT OF INTERMODAL MOVEMENT OF SUPPLIES

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BAUER, Ted, Mr.	ICAF
BENNET, W. G., Maj	HQ MAC
BRADBURN, W. J., Maj	HQ USAF/XO
BRIGGS, Dick, LTC	ICAF
BRIGGS, Harold L., LTC	SHAPE Belgium
CAPPS, Julian M., LTC	NORAD/ADCOM HQ
CORNISH, Joe J., Mr.	Lockheed-Georgia Company
CROCKETT, Dave T., Mr.	Lockheed-Georgia Company
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REITER, Jack, Mr.	Vice President, World Airways
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STARR, Benjamin F., MGen	HQ USAF/LGT
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STOCKDALE, J. B., RAdm	CNO (OP-06) Plans, Policy & Opns
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CLAPP, Dudley J., Mr.	Military Sealift Command
COFFEY, William J., Mr.	American Institute of Merchant Shipping
COOKE, E. W., VAdm	DCNO, Logistics
DAHL, Donald, Mr.	Military Sealift Command
DEITRICH, Bill, Cdr	NAVOP 96 Logistics Br CNO/Support Forces & Log Br
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ENGLISH, Joseph A., Mr.	Military Sealift Command
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FERRIS, Edward G., Capt	HQ, US European Command
FRIES, Paul A., Mr.	Information Spectrum, Inc.

GRAHAM, Donald N., Mr.	Gen Mgr, Texaco Inc.
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HARRIS, Thomas N., Mr.	Federal Maritime Commission
HELMS, Raymond E., Jr., Capt	Ofc of Chief of Naval Opns
JOHNSON, George M., Capt	USA War College
KROCHALIS, Edward J., Mr.	Military Sealift Command
MACGARRIGLE, Pat, Ms	ICAF
MENTON, O. R., Mr.	General Manager, Marine Dept (Exxon Company, USA)
MILLER, John H., MG	DCOS OPS & Training
MONTGOMERY, Richard D., Col	SHAPE Belgium
MUNCY, William E., Capt	Military Sealift Command
NORRIS, Charlie, Col	ICAF
O'BRIEN, Paul J., Mr.	GAO
PELSMAEKERS, Albert P., MG	SHAPE Belgium
PETTY, John D., Mr.	United States Steel Corp
PRINCE, Ted, LTC	CINCLANT, J-4
RANDALL, Larry, Col	ICAF
RHODE, Alfred S., Mr.	Information Spectrum Inc.
SCHOTT, Joe, LTC	ICAF
SIMS, James M., Maj	US Marine Corps Command & Staff College
SMITH, J. Daniel, Mr.	United States Lines, Inc.
WALSH, Joseph P., Mr.	GAO
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CROMARTIE, Martin, Mr.	American Trucking Assn., Inc.
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HINCHCLIFF, Richard, Mr.	American Trucking Assn., Inc
KAPPEL, Martha M., Ms.	Shipper Relations, Car Service Division, AAR

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KINNAIRD, John, Mr.	American Trucking Assn., Inc.
KULLA, Abraham L., Col	510th Army Field Depot, USAR
KULLA, Bryna J., Mrs.	
LANDIS, George A., Maj	National Railroad Passenger
LANGSTON, Alex T., Jr., Col (Ret)	National Railroad Passenger
LANHAM, Mike, LTC	ICAF
MANNARY, A. V., Mr.	Association of American Railroads
MARTIN, James E., Mr.	Association of American Railroads
MCGILL, Jack, Mr.	American Trucking Assn., Inc.
MEIER, Ernest U., Mr.	Ford, Bacon & Davis
MOORE, Gordon E., Col	US Army Transportation School
MUMMA, Morton C., Col	US Army War College
RANDALL, Gordon H., Mr.	Association of American Railroads
RHODE, Alfred S., Mr.	Information Spectrum Inc.
SAYLOR, Walter, Mr.	American Trucking Assn., Inc.
SMITH, Frank A., Mr.	American Trucking Assn., Inc.
SUMMERS, H. D., Mr.	Association of American Railroads
TENDER, Don, Mr.	American Trucking Assn., Inc.
WALSH, Joseph P., Mr.	US GAO Log & Commo Div.
YOUNG, Jim, Dr.	ICAF

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Recorder - Maj T. E. HARRIS	JCSG
Recorder - Maj T. SNYDER	OJCS/J-4
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BOWSE, J. R., Maj	HQ MAC
BREINING, C. R., Mr.	Dir Gov't Rel. Sea-Land
BURKHALTER, James E., Col	HQ USEUCOM (ECJ4/7)
BUSHMAN, Robert C., Mr.	Seaboard World Airlines
CHADEAYNE, Robert F., Col	DCS/Logistics Operations
COVILLE, David W., LTC	HQ AFLC (USAF)
CURRAN, Frank E., Mr.	Trans International Airlines
DALY, Russell, Mr.	Seaboard World Airlines
DEAN, Jerry, Mr.	Mobility Equipment Research and Development Command
FORESTER, Arthur K., Mr.	General Traffic Manager - Moore-McCormack Lines, Inc
GRIMES, K. R., Col	HQ MAC
GRINSTEAD, E. A., Jr., RAdm	Cdr, Naval Supply Systems Command
HARRELSON, Thomas W., Mr.	VP, Delta Steamship Lines, Inc.
HART, George L., Capt	Military Seaflit Command

HINOJOSA, Ernest A., Jr., Col	CINCPAC HQ
JACKSON, Jim, Col	ICAF
LEDFORD, Frank, Col	ICAF
LINDSAY, W. E., Capt, SC	Naval Supply Systems Command
MCKNIGHT, Phil, Cdr	ICAF
MIDDLETON, Harry F., Col	USA Command & General Staff College
NEVEL, Robert O., Mr.	Military Sealift Command
O'BRIEN, Paul J., Mr.	US GAO Log & Comm Div
O'LAUGHLIN, Burton D., Mr.	Lockheed-California Co.
PARRIS, Arthur, Mr.	Seatrain Lines, Inc.
POWER, William J., Mr.	Lockheed Aircraft Corp Wash, D.C.
RIXEY, Charles W., RAdm	CINCLANT J-4
SCHAMENS, K. W., LTC	HQ MAC
SMITH, Joseph E., Mr.	Trailer Train Co.
STAUNTON, V. P., Mr.	VP Sea-Land Services
STERLING, E. G., MGen	Defense Logistics Agency
WALLS, Vincent J., Mr.	HQ US Marine Corps (I&L Dept)
WERNER, Donald R., Col	US Army Logistics Center
WESCHLER, T. R., VAdm (Ret)	Naval War College
WHITENER, Carr C., Mr.	Information Spectrum, Inc
ZARRAS, John, Mr.	Seaboard World Airlines

ROSTER OF CONFERENCE PARTICIPANTS

A

ADAMSON, Stuart S., Mr.	Shipbuilders Council of America
ALBERTSON, Bob, LTC	ICAF
ANDREAN, Charles M., Maj	USA Concepts Analysis Agency
ARCHER, Phillip R., Mr.	Air Transport Association

B

BAUER, Ted, Mr.	ICAF
BEAR, Ben H., LTC	OJCS/J-4
BELL, Charles H., Mr.	Seaboard World Airlines
BELLING, Patricia J., LT	CCTC
BENNET, W. G., Maj	HQ MAC
BENTON, Hugh A., RAdm	HQ CINCPAC (J-4)
BERGSON, Richard W., LTC	OJCS/J-4
BERGHOLZ, Richard J., LTC	OJCS/J-4
BISHOP, John F., Mr.	Association of American Railroads
BLACKBURN, Douglas B., Mr.	Ford, Bacon & Davis
BLICKSTEIN, Irving N., Mr.	Office of Chief of Naval Operations
BONHAM, Vaughn, Mr.	American Trucking Association
BOTTS, Ronald H., Capt	OJCS/J-4
BOWSE, J. R., Maj	HQ MAC
BRADBURN, William J., Maj	HQ USAF/XO, The Pentagon
BREINING, Carl R., Jr., Mr.	Sea-Land Service (Gov't Relations)

BRIGGS, Dick, LTC	ICAF
BRIGGS, Harold L., LTC	SHAPE Belgium
BROGAN, Joseph A., Mr.	Military Sealift Command
BUBENHOFER, Fred, Maj	HQ USMC
BULL, Norman S., Capt	OPNAV
BURKHALTER, James E., Col	HQ USEUCOM (ECJ4/7)
BUSHMAN, Robert C., Mr.	Seaboard World Airlines

C

CALHOUN, Cecil O., Col	MAC Liaison Officer
CAPPS, Julian M., LTC	HQ NORAD/ADCOM
CASEY, Howard F., Mr.	Deputy Assistant Secretary Maritime Administration
CATTON, Jack J., Gen (Ret)	Vice President Lockheed Aircraft Corp.
CHADEAYNE, Robert F., Col	DCS/Logistics Operations
CHAGNON, Paul, Mr.	Dep Dir Inland Traffic, MTMC
CLAPP, Dudley J., Mr.	Military Sealift Command
COFFEY, William J., Mr.	American Institute of Merchant Shipping
COCKERHAM, Samuel G., BGen	Deputy Director for Logistics (Strategic Mobility)
COLLINS, Gerry, Mr.	Executive Vice President National Defense Transportation Association
COOK, Ben W., Cdr	OJCS/J-4
COOKE, Edward W., VAdm	Dep Chief of Naval Operations (Logistics)

COONEY, Nelson, Mr.	American Trucking Association
CORNISH, Joe J., III, Mr.	Lockheed-Georgia Company
COVILLE, David W., LTC	HQ AFLC (USAF)
CROCKETT, Dave T., Jr., Mr.	Lockheed-Georgia Company
CROMARTIE, Martin, Mr.	American Trucking Association
CROSS, Richard, LTC	HQ AFLC (USAF)
CRUICKSHANK, John P., LTC	Aide-de-Camp to CINCMAC
CUNNINGHAM, Arnett J., Mr.	Naval Supply Systems Command

D

DADDONA, John, Capt	OJCS/J-4
DAHL, Donald, Mr.	Military Sealift Command
DALY, Russell, Mr.	Seaboard World Airlines
DANZEISEN, William H., Col	US Army Material Development and Readiness Command
DAVIA, Albert J., LTC	MTMC Plans and Operations Directorate
DAVISON, Gordon N., Mr.	Boeing Aerospace Company
DEAN, Jerry, Mr.	Mobility Equipment Research and Development Command
DEHAVEN, Oren, MGen	Director of Transportation, Energy, and Troop Support (DA DCSLOG)
DEITRICH, Bill, Cdr	Department of the Navy
DELAR, Robert J., LTC	HQ NORAD/ADCOM
DEL MAR, H. R., MGen	Cdr Military Transportation Management Command
DENTINGER, Carlton P., Mr.	US GAO Logistics & Communications

DIFIORE, Matthew F., Maj	US Army Concepts Agency
DONOHUE, Mary H., Ms.	MTMC Plans and Operations Directorate
DONOVAN, Pat, LTC	ICAF
DOSEK, Edwin F., BGen	Deputy Commander 97th ARCOM
DRAGOJEVICH, Peter M., Maj	MTMC

E

EDSALL, Hanford M., Mr.	Defense Civil Preparedness Agency
EINSELN, Al, LTC	ICAF
ENGLISH, Joseph A., Mr.	Military Sealift Command

F

FARRELL, Joseph M., Mr.	Senior Vice President Waterman Steamship Corp.
FELMLEY, Jerry, Col	ICAF
FENELLO, Michael J., Mr.	Vice President Eastern Airlines
FENERTY, Vincent, Mr.	Defense Communications Agency
FERRIS, Edward G., Capt	HQ US Southern Command
FITZWILSON, Robert E., Mr.	Lockheed-Georgia Company
FORESTER, Arthur K., Mr.	General Traffic Manager Moore-McCormack Lines, Inc.
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G

GARRETT, Robert G., Capt	HQ USAF/XO, The Pentagon
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GAYA, Rita, Ms.	OJCS/J-4
GAYLOR, Raymond, Col	Andrews Air Force Base
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GRIFFITH, John E., Col	Strategic Air Command
GRIMES, K. R., Col	HQ MAC
GRINSTEAD, E. A., Jr., RAdm	Cdr, Naval Supply Systems Command

H

HALSEY, M., Cdr	USNR
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HARP, J. J., Col	HQ USMC
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HOWELL, Clarence S., Jr., Mr.	Manager - Boeing Military Airplane Development

I

ISRAELITT, Lewis M., Col	OJCS/J-4

J

JACKSON, Jim, Col	ICAF
JOHNSON, George M., Capt	US Army War College Carlisle Barracks
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K

KAPPEL, Martha M., Ms.	Association of American Railroads

KERN, John S., RAdm	Dir, Logistic Plans Division
KILEY, Edward, Mr.	American Trucking Association
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KULLA, Abraham L., Col	510th Army Field Depot, USAR
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L

LANDIS, George A., Maj	National Railroad Passenger
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LEBLANC, L. J., BGen	Assistant Deputy Chief of Staff Aviation HQ USMC
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MONTGOMERY, Richard D., Col	SHAPE Belgium

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MOORE, Robert H., Mr.	MTMC, Directorate of Plans and Operations
MOORE, Sam H., RAdm	Military Sealift Command
MOREAU, Arthur S., RAdm	HQ CINCPAC
MORTHLAND, Sam, LTC	USAF Inspection & Safety Center
MOZEL, Jerry, Mr.	ICAF
MUMMA, Morton C., III, Col	US Army War College/Carlisle Barracks
MUNCY, William E., Capt	Military Sealift Command
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N

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NORRIS, Charlie, Col	ICAF

O

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Q

QUINN, James E., Cdr	Military Sealift Command

R

RANDALL, Gordon H., Mr.	Association of American Railroads
RANDALL, Larry, Col	ICAF
REINKE, James E., Mr.	Vice President Eastern Airlines
REITER, Jack, Mr.	Vice President World Airways, Inc.
REYNOLDS, Thomas, Capt	USAF Inspection & Safety Center
RHODE, Alfred S., Mr.	Information Spectrum, Inc.
RICE, James J., Mr.	Pan American World Airways
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S

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SCHOTT, Joe, LTC	ICAF
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SHINN, Darrel D., Maj	ICAF
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TENDER, Don, Mr.	American Trucking Association
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TUCK, Paul D.	HQ USAF
TUMAN, James F., Mr.	MTMC, Directorate of Plans and Operations

V

VOGEL, Frank, Mr.	Defense Civil Preparedness Agency

W

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WARNER, Roy C., Mr.	MTMC
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WERNER, Donald R., Col	US Army Logistics Center
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WOERLEIN, Thomas J., Mr.	MTMC, Office of Safety and Security

Y

YOUNG, Jim, Dr.	ICAF
YOUREE, Charles D., BGen	HQ MAC

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