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STUDY PROJECT

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UNITED STATES STRATEGIC
MOBILITY IN SUPPORT OF NATO:
DEVELOPMENT OF AIRLIFT AND SEALIFT

BY

MR. ARCH W. SHERO

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In large part, the Western perception that the Warsaw Pact retains a realistic capability to initiate a short-warning attack of NATO has compelled U.S. defense planners to stress the development of airlift at the expense of sealift. An examination of the efficacy of these two basic means of lift clearly shows that sealift is much more cost effective. The small fleet of eight SL-7 transport ships, for instance, could move an entire U.S. mechanized division to Europe in four to six days, while it would take the entire inventory of over 350 C-5 and C-141 aircraft to lift the same division in six days.

A comparison of the readiness levels of NATO and Warsaw Pact ground forces indicates that the Warsaw Pact leaders would prefer to take the time necessary to mobilize and prepare fully their forces before launching an invasion. This process has been estimated to require some 30 days or more to complete. With the longer warning times associated with the Pact's preferred mobilization scenario, the U.S. should begin to expand its sealift capabilities as means of improving force closures to Europe.

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USAWC MILITARY STUDIES PROGRAM PAPER

UNITED STATES STRATEGIC
MOBILITY IN SUPPORT OF NATO:
DEVELOPMENT OF AIRLIFT AND SEALIFT

An Individual Study Project
Intended for Publication

by

Mr. Arch W. Shero

LTC Duane Williams
Project Advisor

U.S. Army War College
Carlisle Barracks, Pennsylvania 17013
27 March 1989

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ABSTRACT

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In large part, the Western perception that the Warsaw Pact retains a realistic capability to initiate a short-warning attack of NATO has compelled U.S. defense planners to stress the development of airlift at the expense of sealift. An examination of the efficacy of these two basic means of lift clearly shows that sealift is much more cost effective. The small fleet of eight SL-7 transport ships, for instance, could move an entire U.S. mechanized division to Europe in four to six days, while it would take the entire inventory of over 350 C-5 and C-141 aircraft to lift the same division in six days.

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INTRODUCTION

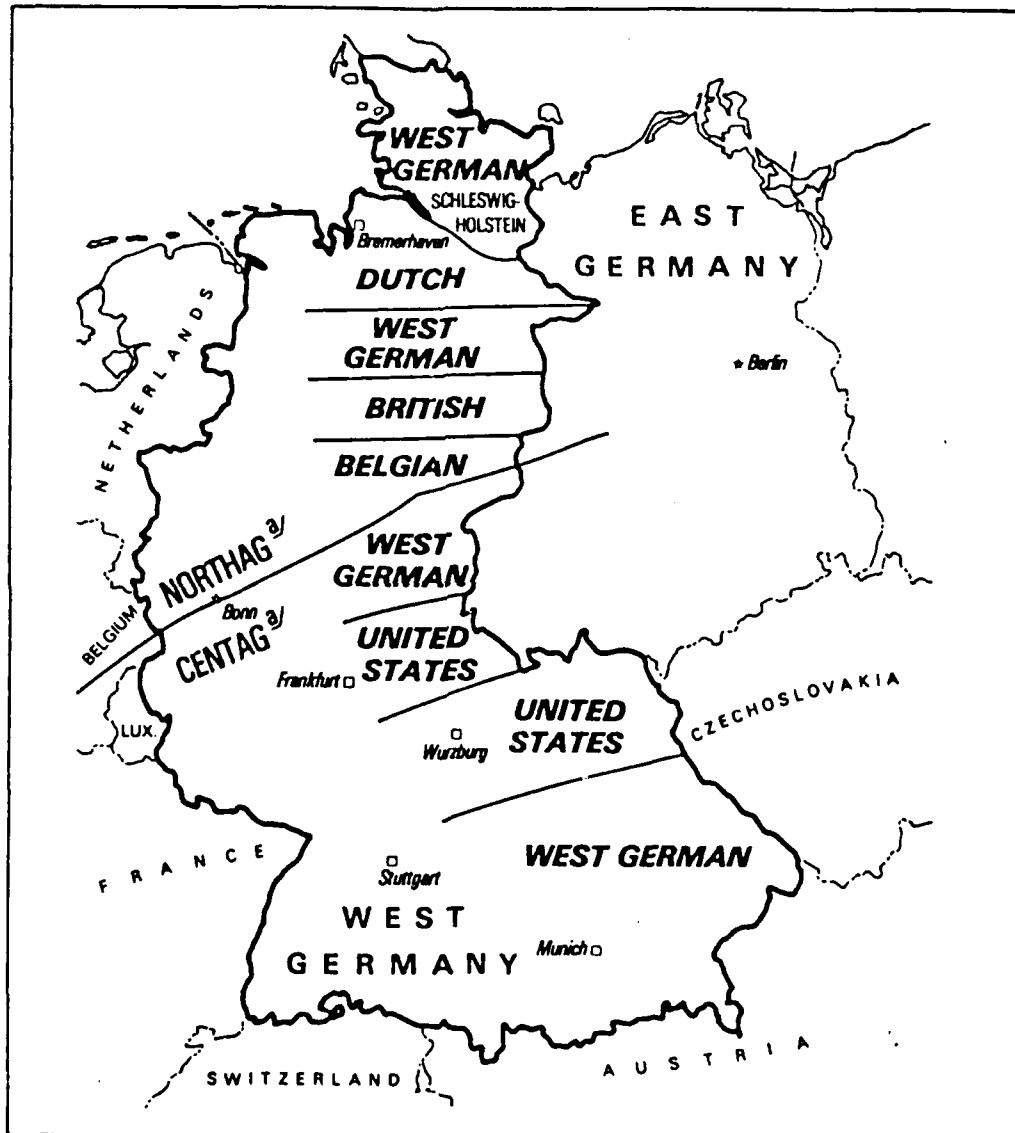
"Get there first with the most men"
(Confederate General Nathan B. Forrest's
formula for winning battles).

The U.S. maintains large conventional air, ground and naval forces in Europe principally for the defense of NATO. Steps undertaken to improve the strategic mobility of U.S. forces would be expected to have an appreciable impact on the U.S.' and NATO's ability to mount an effective, sustained defense against a large scale Warsaw Pact conventional attack.

NATO forces are organized into national corps, each being responsible for defending a specific portion of the border between West Germany and the German Democratic Republic (see map). Even though the area of concentration for a Warsaw Pact attack could be anywhere along this border, the most favorable geographic conditions lie in the northern part of West Germany. Because the weaker NATO corps generally are deployed in the north, increased attention has been paid to both inter-and intra-theater mobility of U.S. forces.

According to Colonel Michael Morin-currently assigned to the United States Army War College as a faculty member-the

Corps Sectors of Military Responsibility in NATO's Central Region



SOURCE: Adapted from Richard Lawrence and Jeffrey Record, *U.S. Force Structure in NATO* (Washington, D.C.: The Brookings Institution, 1974), p. 31 and also from U.S. Army materials.

^{a/} NORTHAG (Northern Army Group) and CENTAG (Central Army Group) are the two subdivisions of NATO forces in West Germany. The line dividing the two runs from Belgium through West Germany, just south of Bonn, and into East Germany.

realization of "strategic mobility [in support of the inter-theater problem] is a joint readiness effort in the complex task of deploying the Armed Forces." ¹ Thus, just as manning and equipment levels, for example, are vital components of U.S. force readiness in Europe, so too is the capability to move additional forces and logistic stocks to the region to sustain and augment U.S. forces already deployed there in peacetime.

NATO's capability to mobilize, move, and sustain its forces in response to a Warsaw Pact invasion is crucial to NATO's successful conventional defense of Western Europe. The U.S. currently is committed to providing NATO 10 divisions in 10 days as the United States' immediate contribution to this defense. Today, discounting a separate brigade and two armored cavalry regiments, the U.S. maintains four active divisions in the Central Region of Europe. Also, the U.S. keeps enough unit-configured sets of major items of equipment prepositioned in the region to form essentially another three divisions--which basically need only III Corps personnel to become operational. The remaining three divisions that the U.S. has pledged to provide NATO in the first 10 days would have to be transported--including not only the divisions' personnel but also, in large measure, their equipment--from the U.S. to airfields and ports in Western Europe.

Nevertheless, it is generally recognized by defense experts that the U.S. cannot meet its pledge to NATO within the 10 day

period because of the shortfall in U.S. transportation capabilities.² According to Anthony Cordesman, an adjunct professor in the national security studies program at Georgetown University, the U.S. cannot even fulfill its pledge of 10 divisions in 30 days.³ The problem according to Cordesman and other experts is the lack of adequate fast sealift.⁴ Moreover, when we consider that a protracted conventional conflict with the Warsaw Pact would entail the delivery of substantially more than 10 divisions from the U.S. over the course of the war, we can expect the magnitude of the mobility problem to be exponentially greater than this.

Developing the required lift to respond to the U.S. promise to provide NATO 10 divisions in 10 days, as well as to sustain and further augment these forces, would involve the commitment of considerable resources. According to a Congressional Budget Office report, prepared in the late 1970's, the mobility and logistics resources upon which this capacity rests are expensive--amounting to some 35 percent of the U.S. Department of Defense budget request in 1979.⁵

TIMELY STRATEGIC MOBILITY

Integral to U.S. security policy as it relates to NATO is the concept of flexible response--especially its conventional dimension--and the emphasis this seems to place on the capability

of the U.S. to deploy rapidly forces to Europe to thwart an invasion by Warsaw Pact theater forces.⁶ According to Daniel E. Marshall, changes in the assessment of the Warsaw Pact's capabilities and intentions in the 1970s demonstrated the need for "increased mobility requirements".⁷ Marshall went on to argue that "whereas past assumptions regarding Pact capabilities for aggression resulted in a relatively long warning time for the Western Alliance, analyses of Pact military posture in the 1970s tend to indicate otherwise."⁸ Marshall concluded the discussion by postulating that if less warning time is in fact the case, then strategic mobility problems faced by Western transportation planners are greatly compounded.⁹

Armed with these judgments, it appears that U.S. defense planners during the past two decades have stressed increased prepositioning of U.S. forces overseas and the expanded development and procurement of faster heavy-lift aircraft for moving additional U.S. forces into the theater. Indeed, the arguments proffered by Marshall are especially compelling if one accepts the assumption that the Warsaw Pact has a realistic capability to initiate and sustain a strategic conventional campaign against NATO using basically those forces it maintains at a relatively high state of readiness in Central Europe.

It now appears that, according to a top secret briefing, apparently given by the CIA to Bundestag members visiting Washington, the "Soviet ability to launch a surprise

conventional attack on NATO forces poses a much smaller risk than NATO doctrine has preached for 20 years [and that] Soviet conventional forces are deployed for defense, not offense."¹⁰

This point is further supported by a recent special report (prepared for the House of Representatives by the Defense Policy Panel of the Committee on Armed Services) that states the Warsaw Pact forces available to conduct a standing start attack "are not ready for an immediate attack without further preparation."¹¹

It seems that--according to defense experts called to provide testimony to the Defense Policy Panel--the best prepared Soviet motorized rifle and tank divisions, those stationed in Central Europe, have only about 80 percent of their intended wartime manpower assigned to them during peacetime.¹²

Furthermore, as Phillip Karber outlined to the Panel, when one takes into account that some 80 percent of the men assigned to the divisions are conscripts and, of these conscripts, one quarter are basic trainees, the best Soviet divisions "have only about 65 percent trained manpower."¹³ The manning levels in the remainder of the Soviet forces stationed in Central Europe would appear to be even lower than those for the divisions.¹⁴

The Panel's report also points out that Soviet training practices have a deleterious affect on maintaining units at a high state of readiness.¹⁵ First, because the Soviet conscripts receive their basic training in units, "many units are at the most basic level of competence".¹⁶

Secondly, the report notes that problems in the proficiency of Soviet soldiers also arise from inadequate or insufficient training in live firing exercises and combat operations.¹⁷

The peacetime readiness status of Soviet forces, in contrast to the relatively high state of readiness of NATO, would suggest that Soviet defense planners have designed their conventional forces in Central Europe--particularly those in East Germany--for the classic covering force mission of initial defense. This would allow other Soviet forces in the Western USSR time to prepare themselves and move to the battle area.

The conduct of offensive operations, however, would involve the Soviets taking the time necessary to accomplish personnel mobilization and refresher training. A realistic estimate of the minimum time required to prepare Soviet combat forces, as well as other Warsaw Pact combat forces, in Central Europe for offensive operations is at least one week.¹⁸ Logistic units would be expected to take even longer to get ready.¹⁹ Yet, this is only part of the story.

An examination of the forces available to both sides, their corresponding readiness and their capability to move forces suggest that, even if the Warsaw Pact took this week or so to prepare its forces in Central Europe, it could not gain a significant advantage in force ratios with NATO, without a delay in NATO mobilization.²⁰ A delay in NATO's decision to mobilize, however, would be extremely costly. According to the findings

portrayed in the Panel's report, a delay of two weeks by NATO would be expected to give the Warsaw Pact a mobilization advantage within the first few days that would not change appreciably for about two weeks.²¹

It must be noted, on the other hand, that the Defense Policy Panel took its testimony on the readiness status of Warsaw Pact forces before Soviet General Secretary Gorbachev and other Warsaw Pact leaders announced their plans to unilaterally cut the size of their conventional forces. According to recent statements made by these leaders, Warsaw Pact conventional ground forces in Central Europe are expected to be some 10 to 15 percent smaller, once the cuts have been made, than those currently garrisoned there.²² These cuts, if they in fact are made, would have an appreciable impact on the ability of the Warsaw Pact to hastily prepare its forces and, thereby, possibly realize a substantial mobilization advantage over NATO. NATO, simply speaking, would find it much easier to keep pace with a buildup of smaller sized Warsaw Pact force in Central Europe--even if NATO leaders delayed their decision to mobilize by as much as two weeks.

It is generally recognized by Western defense experts that the greatest threat to NATO would lie in a Warsaw Pact attack launched with a complete array of fully prepared conventional forces. U.S. defense experts, who testified before the Defense Policy Panel, added that, the prudent character of Soviet leaders--one shaped by being witness on at least two occasions to

the failure of unsupported surprise attacks--has prompted them to "prefer to wait until their forces were fully ready before any attack on NATO."²³ According to the analysis provided in the Panel's report, the Warsaw Pact could be expected to take some 30 days or more to mobilize, train, and prepare partially ready and not ready divisions and supporting logistic units before launching a conventional campaign against NATO.²⁴

The findings of the Defense Policy Panel indicate that the U.S. probably has more time to prepare its conventional forces for a Warsaw Pact invasion than certainly implied in Daniel E. Marshall's study on U.S. strategic mobility. Indeed, the Soviet preferred mobilization course--one that stresses having large fully-prepared ground forces in place before invading NATO--takes the most time to complete. Hence, the Panel's analysis would appear, at a minimum, to raise some questions about the basis for U.S. defense planners emphasizing the development and procurement of heavy-lift aircraft at the expense of sealift.

AIRLIFT CAPABILITIES

The U.S., in order to meet the full range of force projection options envisioned by its national strategy, maintains the "largest most effective military airlift fleet in the world."²⁵ This fleet consists of four primary aircraft capable of inter-and/or intra-theater operations: the C-5 Galaxy, the C-141 Starlifter, the KC-10 Extender, and the C-130 Hercules.²⁶ The

U.S. Air Force also plans to include the C-17, which is scheduled for delivery in the early 1990s.²⁷

The C-17, when delivered to the U.S. Air Force, is supposed to add a new dimension to the transport of military forces. This long-range aircraft--capable of transporting 144 soldiers or almost 85 tons of cargo--will be designed to carry outsized cargo into small airfields with runways only 3,000 feet long and 80 feet wide.²⁸ The long range of the C-17 and the capability to land it on small airfields should permit TRANSCOM to move military cargo directly from the U.S. to forces in need and reduce the need for transshipment forward from large airfields using C-130 Hercules.

The C-17 long-range transporter, however, is not without its critics. Current estimates of the cost of the C-17 program are in the neighborhood of \$35 billion--with each plane's cost running about \$117 million.²⁹ The price tag on the C-17 has prompted some of the plane's critics to question whether the U.S. Air Force would place the plane in "harms way" by delivering military cargo or units to the forward areas.³⁰ Russell Mundy III, a staff aide on the House Armed Services Committee, even went so far as to state that in the current environment of fiscal constraint, the C-17 procurement program is a "candidate for stretchout", which will only serve to make each plane more expensive and, correspondingly, less cost effective.³¹

The U.S. Military Airlift Command can supplement its organic

aircraft with civilian aircraft that participate in the Civil Reserve Air Fleet (CRAF) program. According to the 1963 Memorandum of Understanding worked out by the Secretaries of Defense and Commerce, each civil carrier participating in the CRAF agrees to provide airlift for use by the military under specific conditions.³² The CRAF operates in four modes: long-range international, short-range international, domestic, and Alaskan.³³ The mode most likely to be employed when moving U.S. equipment and materiel to Europe would be long-range international--which is serviced by Boeing 747s and 707s, and McDonald Douglas DC-10s and DC-8s. Today, civil resources committed to CRAF total more than 120 cargo-capable aircraft.

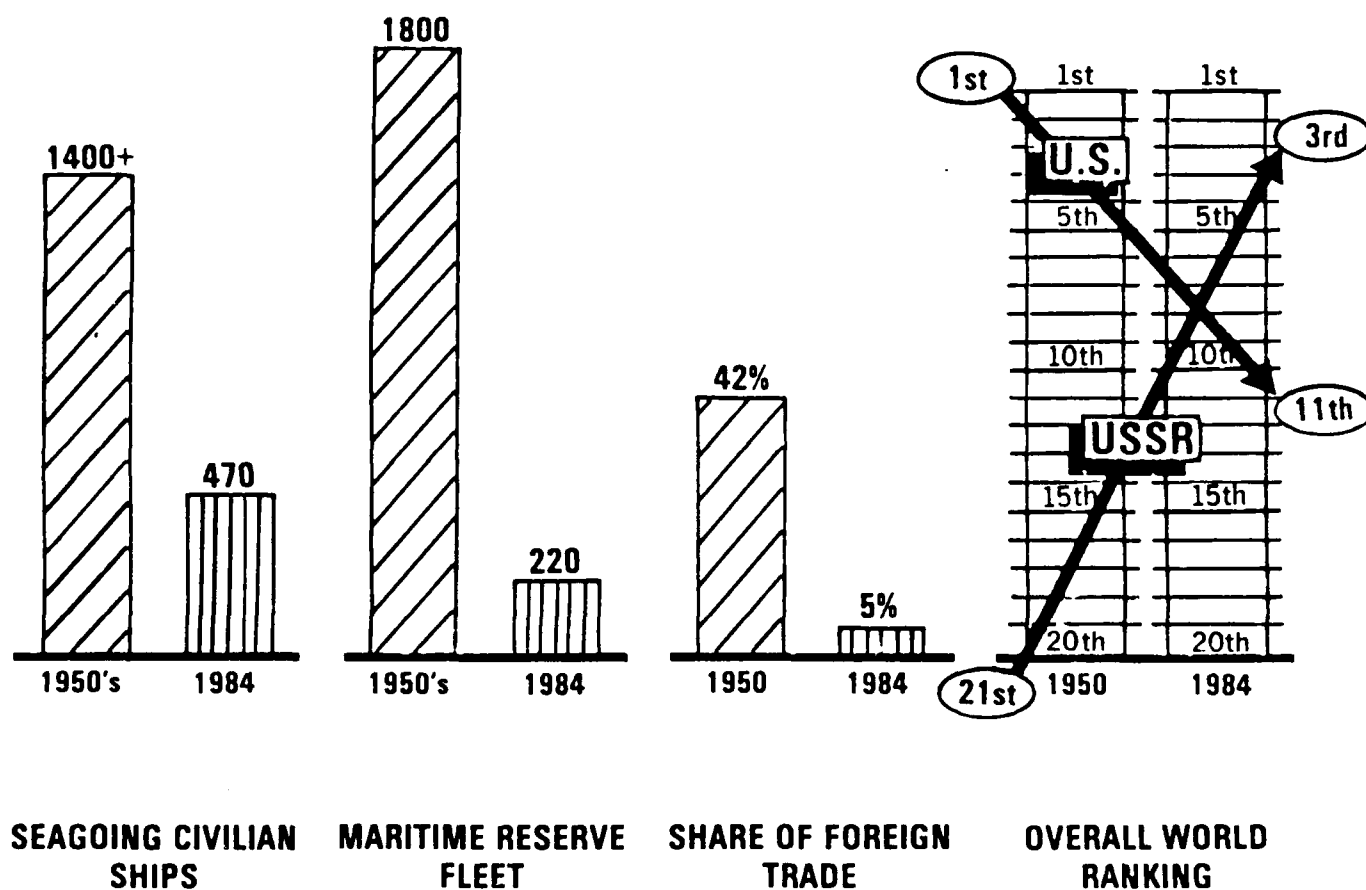
The use of civil aircraft participating in the CRAF program occurs in three stages. The first two stages permit either the commander of MAC or the Secretary of Defense the authority to activate a portion of the CRAF resources without the President or Congress having to declare a national emergency.³⁴ The third stage allows for the full activation of CRAF, however, it can only be initiated by the Secretary of Defense after a state of emergency has been declared.³⁵

SEALIFT: AN AREA OF NEGLECT

Perhaps the single greatest change in the mobility of U.S. forces since World War II has been the decline in U.S. sealift capabilities. According to a study prepared by the Association

Figure 1

THE DECLINE OF THE U.S. MERCHANT MARINE



This chart was taken from the AUSA publication Strategic Mobility: Can We Get There From Here--In Time?

of the United States Army (AUSA), "today America is no longer the preeminent maritime power."³⁶ Whereas, the U.S. had a civilian seagoing merchant fleet of some 1,400 ships in the mid-1950s, today that fleet numbers only about 470 vessels (see figure 1).³⁷ Similar declines also have been experienced in the U.S. maritime Reserve Fleet during this timeframe.

Recently, due to renewed interest within the U.S. Joint Chiefs of Staff, some small steps have been taken to slow the rate of deterioration in U.S. sealift capabilities. Because the Joint Chiefs of Staff recognized that "sealift will bear the brunt of the workload in deployment, reinforcement, and supply efforts," they endorsed in the 1980s the expansion of the U.S. Military Sealift Command's fleet from 130 to nearly 180 ships.³⁸ Also, the U.S. Navy has moved to build or convert 13 ships as part of the Maritime Prepositioning Force, which when completed should meet the full requirements for cargo to support three Marine amphibious brigades.³⁹ Finally, the U.S. Navy has completed a Fast Sealift program, whereby eight high speed ships (SL-7s) were procured and converted to roll on/roll off as part of its effort to maintain a ready reserve fleet.⁴⁰ These eight ships alone can move either a U.S. armor or a mechanized division (with all of its support units and supplies need initially to sustain it) in a single lift.⁴¹

Despite these remedial efforts, according to the AUSA report, the Department of Defense acknowledges that a significant

shortfall remains in U.S. sealift capability (see figure 2).⁴²

For example, the number of ships reported in the Controlled Fleet has been inflated by the inclusion of tugs, barges, and other shallow draft vessels that would not be expected to participate in moving military equipment and materiel across the Atlantic to Europe.⁴³ There is also a problem with the advanced age of many of the merchant ships held in the National Defense Reserve Fleet. It seems that in 1984 over 170 of these ships approached an average age of 40 years and typically required 60 days to be removed from mothballs.⁴⁴

Military experts seem to agree that decades of neglect and deterioration of the U.S. Merchant Marine will not be reversed by programs currently underway.⁴⁵ According to some of the Navy's critics, the Navy's leadership wants first to build carriers, cruisers, submarines, etc. before it pays for the construction of transport ships.⁴⁶ One of Senator Kennedy's aides suggested this prioritization scheme is the product of the Navy not really viewing itself "as a taxi service."⁴⁷ The number of U.S. flag ships continues to shrink and the new ships under construction generally are not self-sustaining--requiring port facilities with cranes for lifting containers in order to offload. The long term remedy would appear to lie in revitalizing the shipbuilding industry, which at a minimum would support the expansion of the U.S. Navy's MSC controlled and the U.S. flag merchant marine fleets.

Figure 2

SHORTFALLS... STRATEGIC AIRLIFT & SEALIFT

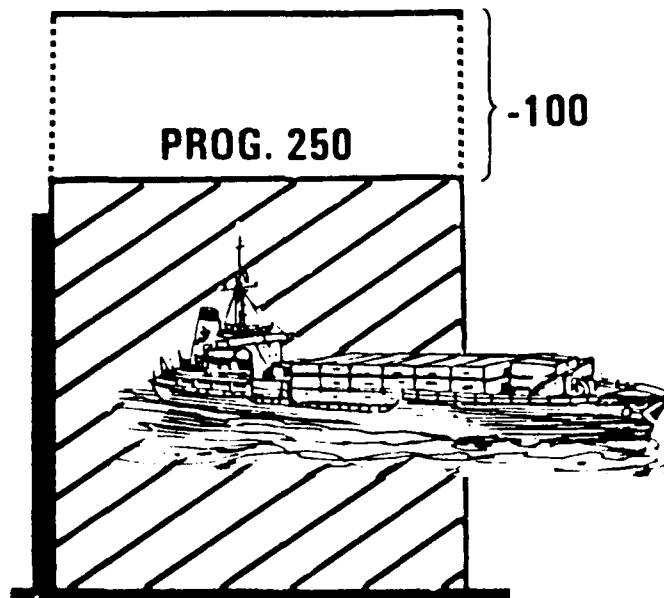
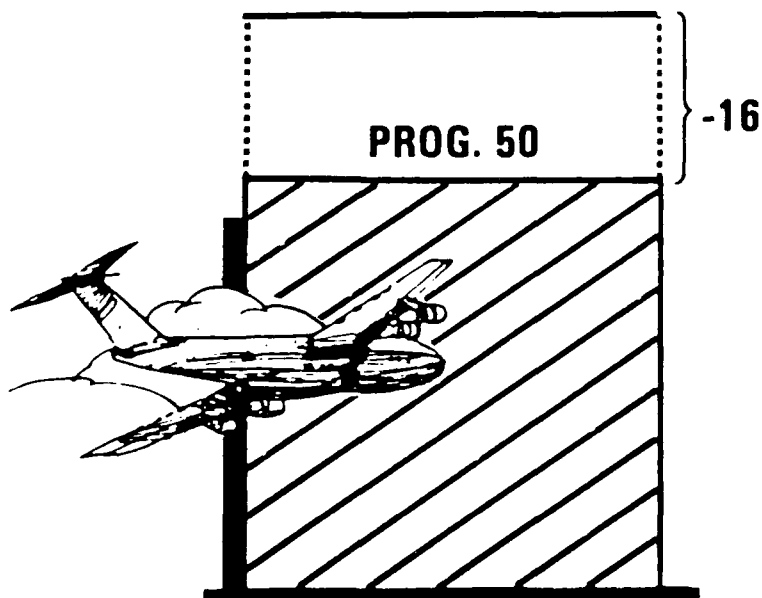
(THRU FY89 PROGRAM)

(USAF APPN)

66

(USN APPN)

350



AIRLIFT
(MILLION TON MILES/DAY)

SEALIFT
(000 SHORT TONS)

This chart was taken from the AUSA publication Strategic Mobility: Can We Get There From Here--In Time?

The Senate Armed Services Committee, looking to the future of U.S. sealift, directed the U.S. Navy to develop a fast sealift program as part of its 1990 budget.⁴⁸ According to the conference report that called for this new Navy program:

"The ship should embody hull and machinery technology enabling speeds at least in the range of 40 to 50 knots. [Also,] To the greatest degree possible, the hull and machinery technology should be common with that envisioned for the battle force capable surface combatant of the next century."⁴⁹

Although the Navy was instructed to submit a report no later than 1 January 1989--detailing best estimates for the size fleet necessary for sealift and amphibious tasks and future ship design characteristics, with associated program costs--the Navy apparently has yet to deliver the document.⁵⁰

The Navy has made some (albeit limited) headway toward investigating modern concepts of design for its transport ships. In 1987 three U.S. firms embarked on design studies of a surface-effects-ship (SES) fast sealift program for the Navy.⁵¹

According to an article by Larry Grossman, a Navy representative claimed that at least 21 and possibly as many as 63 of these ships were needed.⁵² The development of a full-scale prototype of the ship, however, is expected to cost approximately \$500 million.⁵³

To date, other than a scaled-down version of a Textron

designed SES--capable of lifting only 205 tons--there are no SES fast sealift ships in the Navy's inventory. Furthermore, none are envisioned for the immediate future. These facts, coupled with Congress' failure to specify the type of transport ship the Navy should build for the future, have encouraged some defense experts to argue for the construction of more SL-7s.⁵⁴ With nearly five times the lift capability of the 5,000 tons specified by the Navy for the future SES design and almost half the cost of the SES prototype, the SL-7 would appear to be the only realistic, short-term choice that is consonant with the availability of national resources.⁵⁵

OBSERVATIONS AND IMPLICATIONS

U.S. defense planning must continue to be sensitive to the resource constrained environment in which we all operate. There have been some indications that the Bush administration may further reduce the level of defense spending from that enjoyed during the Regan administration's tenure. Thus, relative to strategic mobility, U.S. defense planners probably will be occupied in the immediate future with determining the size of the different airlift fleet or mixes of airlift, sealift and prepositioning of forces at the anticipated budget levels that will satisfy the U.S. national strategy as it pertains to NATO.

For example, a plan that emphasizes sealift would show a much higher delivery capability than an equal cost plan that

stressed airlift. The some \$35 billion budgeted for the procurement of slightly more than 200 C-17 aircraft (which combined would need almost two weeks to move a heavy division from the U.S. to Europe) would be enough to procure about 130 SL-7 high speed cargo ships. These 130 ships, in contrast to the C-17s, could lift some 16 armored or mechanized divisions to Europe in about four to six days, when sailing from the east coast of the United States.

The Warsaw Pact short-warning attack scenario seems to be central to the requirement for urgent deployment of forces from the U.S. to Europe as part of the U.S. reinforcement effort. Consequently, the direction taken by defense planners has had a tendency to stress the expansion of U.S. military airlift capabilities first. Yet, as shown above, there may be valid reasons to believe that the short-warning attack scenario may no longer be credible. Moreover, when we consider that the Soviets have announced their intent to take substantial unilateral reductions in their theater forces in the western USSR and on Eastern Europe over the next two years, a Warsaw Pact short-warning attack scenario could become inconceivable even on a limited basis in the near term.

If this is the case, it would appear that the U.S. defense community may be able to benefit from the substantially longer warning times and redirect a portion of the dollars away from airlift to redress sealift problems. By curtailing the U.S. Air

Force C-17 program, for instance, monies could be made available to either directly procure more high speed ships like the SL-7 and/or increase subsidy payments to the Merchant Marine to help offset the lack of competitiveness in the fleet's operations and spur the eventual expansion of this fleet. Either measure in the final analysis, would go a long way to substantially improving U.S. force readiness.

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43. AUSA, Strategic Mobility..., p. 21.
44. AUSA, Strategic Mobility..., p. 22.
45. AUSA, Strategic Mobility..., p. 23.
46. Larry Grossman, "Slow Going..." p. 54.
47. Larry Grossman, "Slow Going..." p. 54.
48. Larry Grossman, "Slow Going..." p. 50.
49. Larry Grossman, "Slow Going..." p. 50.
50. Larry Grossman, "Slow Going..." p. 50.
51. Larry Grossman, "Slow Going...", p. 50.
52. Larry Grossman, "Slow Going..." p. 51.
53. Larry Grossman, "Slow Going...", p. 51.
54. Larry Grossman, "Slow Going...", p. 51.
55. According to TRANSCOM representatives, the cost of building an SL-7, today, to U.S. Navy military transportation specifications would be approximately \$266 million. Discussions with LTC Robert Miles, U.S. TRANSCOM, TCJ3/4-LP, Scott AFB, 7 March 1989.