STUDY PROJECT

STRATEGIC AIRLIFT REQUIREMENTS AFTER CONVENTIONAL ARMED FORCES IN EUROPE (CFE) REDUCTIONS

BY

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The ability of the United States to deter aggression, limit conflict, or to wage war demands a capability to mobilize, deploy, and sustain military fighting forces on a worldwide basis. Inherent in that capability is the need for a strong strategic airlift force. With the dramatic events in 1989 -- the breaching of the Berlin Wall, the fall of communist governments in Eastern Europe, and the prospect of German Reunification -- the focus of our national military strategy has changed. For the past 40 years that focus has →

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been almost exclusively the Soviet Union and a NATO-Warsaw Pact war in Europe. The proposed CFE limits will further change that focus by redefining the East-West balance in Europe at much lower, but equal, levels of personnel and materiel. Since our strategy must change, it follows that our strategic airlift requirements should change. This study examines those changes by comparing the requirements after CFE with the historic minimum airlift goal of 66 million ton-miles per day that came out of the Congressionally Mandated Mobility Study in 1981. To do that the study looks at airlift history, capability and resources, requirements, and future capability like the C-17. Then our airlift system of the 1990s is compared to the requirements after CFE by discussing needs in Europe, in the Third World, and with respect to our alliances with other nations. Finally the study looks at the airlift demands of JUST CAUSE to arrive at a conclusion of what kind of capabilities our strategic airlift force needs in the future.

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AN INDIVIDUAL STUDY PROJECT

by

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ABSTRACT

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CHAPTER I

INTRODUCTION

"The ability of the United States to deter aggression, limit conflict or wage war successfully depends on our country's ability to rapidly deploy and sustain fighting units."[1] This statement from the 1983 United States Air Force (USAF) Master Airlift Plan is the cornerstone of our national security strategy. To achieve the goals of that strategy, the U.S. has long relied on a mixture of CONUS-based and forward deployed forces. Inherent in this strategy is a force-projection requirement which demands the capability to mobilize, deploy, and sustain a military fighting force on a worldwide basis.[2]

The requirement to deploy forces, coupled with the uncertainty of a time-frame and a location of a military conflict, has made it axiomatic that U.S. strategic lift forces have worldwide capability. Experiences such as Vietnam and Grenada have forcefully demonstrated that need.[3] However, since the end of World War II and the beginning of the Cold War, the bulk of our global strategies have revolved around the Soviet Union. The Truman Doctrine, the Marshall Plan, the North Atlantic Treaty Organization (NATO),

containment, the Carter Doctrine, and the Reagan Doctrine were all formulated in response to U.S. perceptions of the capabilities and intentions of the Soviet Union.[4] And it follows that U.S. strategic airlift requirements have likewise been driven by scenarios involving conflict with the Soviets. A more detailed discussion will follow in Chapter 2, but for now it is sufficient to state that the most demanding of those scenarios involved a response to a Soviet-Warsaw Pact threat. That scenario, one of four postulated in the 1981 Congressionally Mandated Mobility Study, has been the driving force behind the improvements we've made and plan to make to our airlift forces.[5] In other words, without the specter Soviet-Warsaw Pact threat, one could postulate that our current and future airlift forces would differ quite significantly from those we have and those we plan for the future.

Now, however, as former UN ambassador Jeane Kirkpatrick states, "The Cold War is over -- nearly. The postwar era is finished -- absolutely."[6] The historic events of 1989 -- the breaching of the Berlin Wall, the collapse of communist regimes in eastern Europe, and talk of German reunification -- have lead the Bush administration to conclude that the Soviet military threat is drastically reduced and that warning of a Soviet attack in Europe, long assumed to be 14 days, would more likely be a month or more today.[7] In addition, Director of Central Intelligence William Webster has told

Congress that the Soviet Threat in Europe and around the globe has and will continue to decrease.[8] To those ends, President Bush, in his 1990 State of the Union address, committed the U.S. to reduce its central European troop strength from 325,000 to 195,000.[9] That troop strength and the resultant reductions in equipment is a key factor in any strategic airlift equation.

A significant issue in the global diminution of the Soviet threat is the mandate for conventional arms control talks and the formal negotiations on Conventional Armed Forces in Europe (CFE) sessions. The general goals of CFE are greater stability, a reduced potential for surprise attack, and a redefined East-West balance at lower but equal levels of equipment and capability.[10]

It's obvious that any CFE reductions will impact military structure and basing and therefore strategic airlift requirements. The question of what that impact will be is the thrust of this paper.

BACKGROUND

Twice before in this century, the U.S. has emerged from a great war and rushed to demobilize its forces. In a sense, we are once again entering a post-war era and just like the two previous wars, we won.[11] Once again there appears to be that urge to demobilize. After all, we've not had a serious confrontation with the Soviets since the 1973 Arab-Israeli War

which, in terms of probably of conflict, was much less serious than the 1962 Cuban Missile Crisis.[12]

Thus we're at the point of having to construct a new post-Cold War strategy. That takes vision, which in turn requires some idea of what the new world will look like. Based on the events of 1989, that is a near impossibility. But there are certain "knowns." Deterring nuclear attacks and defending the U.S. homeland will still be paramount. We also still have a clear commitment to the security of Europe, the Arabian Peninsula, and the Pacific Rim.[13] We also know that our economic, political, military, and ideological interests are worldwide, and if they are to be protected, we will have to do so militarily. We must also realize that we never have and never will want for enemies. Finally, because we are an "island" nation, isolated by two immense oceans, power projection becomes the means by which we effect our national strategy. That places the responsibility on strategic airlift and sealift.[14]

The Secretary of Defense has listed seven critical requirements for our land force structure. Three of those are particularly germane to the discussion: forward defense through forward presence, CONUS-based forces to reinforce forward-deployed units, and rapid deployment capabilities.[15] And the U.S. Army has committed itself to a mix of heavy, light, and special operations forces that are structured to deploy combat ready. But even the most

deployable and combat ready forces can't get there without strategic lift.[16]

Thus even though we're entering a decade and beyond of great change and uncertainty, there is a foundation upon which we can build our military strategy. I chose CFE as the departure point for this paper because it represents that time of change and is itself perhaps one of the greatest drivers for change to our strategy and thus to our airlift requirements.

The next two chapters will look at our airlift system and CFE. The final chapter will look at the world, our military strategy, and our airlift requirements after CFE and attempt to draw some conclusions about those requirements.

ENDNOTES

1. Military Airlift Command, Master Airlift Plan, Vol. I, p. ix.

2. Ibid., p. x.

3. Charles E. Miller, Airlift Doctrine, p. 275.

4. Jeane Kirkpatrick, "Beyond the Cold War," Foreign Affairs, 1990, p. 3.

5. Miller, pp. 371-372.

6. Kirkpatrick, p. 1.

7. Michael R. Gordon with Stephen Engleberg, "Soviet Changes Mean Earlier Word of Attack," New York Times, 26 November 1989, p. 18.

8. Patrick E. Tyler, "CIA's Webster Says Soviet Military Threat Declining," Washington Post, 24 January 1990, P. A4.

9. Harry Summers, "U.S. Troops Are Needed to Protect Soviets," Army Times, 5 March 1990, p. 21.

10. David E. Shaver, On Disarmament: The Role of Conventional Arms Control in National Security Strategy, p. 17.

11. Charles Krauthammer, "Don't Cash the Peace Dividend," Time, 26 March 1990, p. 88.

12. Sterling J. Kernek, "Whither the Long Peace?" Parameters, March 1990, p. 71.

13. Donald B. Rice, "AF's Future Strategy: 'Punch Hard and Terminate Quickly'," Air Force Times, 26 March 1990, p. 23.

14. Harry Summers, "Build Strategy on Firm Ground for Success," Army Times, 19 March 1990, p. 25.

15. Report of the Secretary of Defense to the President and the Congress, January 1990, p. 36.

16. Carl E. Vuono, General, A Strategic Force: For the 1990s and Beyond, January 1990, p. 13.

CHAPTER II

MILITARY AIRLIFT

As noted in Chapter I, the world scene has changed dramatically in the last decade and particularly in the past year. However, in regard to our military strategy, as Air Force Secretary Donald B. Rice recently observed, "Deterrence will remain the core of our national military strategy."[1] Given that, the ability to project our nation's military power will remain at a premium.

When we hear the term power projection, we must think about our lift forces -- both airlift and sealift. The U.S. projects power and sustains combat forces through a mobility program consisting of three components: airlift, sealift, and prepositioning. Airlift is the quickest and most flexible, but it is limited by capacity and airfield availability. Sealift, on the other hand, has a tremendous capacity with some flexibility, but it is relatively slow and, it too, is limited by facilities, in this case seaports. Speed, of course, is relative. However, when one compares sealift to airlift, one is talking about days versus hours. In the early days of a conflict, that difference is critical. Prepositioning, the storing of equipment and supplies in or near a theater of expected operations, reduces the need to move that equipment over long distances, but it lacks flexibility, is

inherently vulnerable, and the equipment must still be married up with personnel lifted into the area of operations in a timely manner.[2] The relationship between these components is depicted in Figure 1.

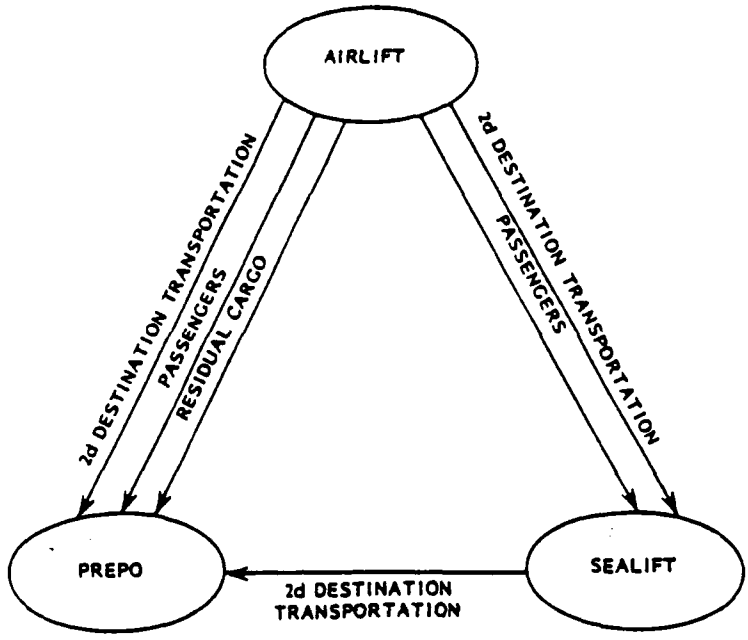

Figure 1. Mobility Interrelationships [3]

Of these three parts of the mobility triad, airlift is by far the most responsive, the fastest, and the most flexible, and is, without a doubt, a critical national asset. Its history, capabilities and resources, requirements, and future will be the subjects of this chapter. Definitions of two terms are necessary first however. Intertheater, or strategic, airlift is long range between theaters, for example, from CONUS to Europe. Intratheater, or tactical, airlift is short range within a theater.

HISTORY

Air Force Lieutenant Colonel Charles Miller, who has written an important book on airlift history and airlift doctrine, divides that history into six time periods or eras: pre-World War II, World War II, the postwar years, 1955-1965, Vietnam, and the modern era.[4] A detailed history is not required for the purposes of this paper, however it is necessary to appreciate how our airlift system and doctrine arrived at where they are today.

The pre-World War II era can best be summed up in the words of Secretary of War Harry Woodring who said in August 1937 that he saw no rationale "for buying any transports due to their high price."[5] As a result of his short-sightedness, less than four percent of all U.S. military aircraft were transports on the eve of the war. Unofficial doctrine classified airlift as supporting primarily air forces and less important than combat forces. That same doctrine saw wartime airlift needs as coming from the civil air fleet.[6] Taken as a whole, the U.S. entered the war with a woefully inadequate airlift arm.

The war years saw airlift emerge as an essential element of airpower. Several important doctrinal changes occured: airlift supports the entire military, not just the air forces; airlift is a vital element of national strategy; centralized control is essential; and the intertheater and intratheater missions are distinct.[7]

The postwar period resulted in an airlift structure constrained by the hasty demobilization and the resultant budgetary limitations that affected all of the services. However, the creation of the Air Force as a separate service, the Berlin Airlift, and the Korean War showed the flexibility and responsiveness of airlift and, with the Air Force as a separate service, gave it an advocate.[8]

The years between 1955 and 1965 were extremely turbulent ones for airlift as the nation's military strategy revolved around our nuclear arsenal. For instance, when budget reductions during the Eisenhower years forced the Air Force to reduce its structure by six wings, the entire cut was taken out of the airlift force.[9] The other side of the coin however, saw the nation emerge from this period with one new airlift aircraft, the C-141 Starlifter, in service, and one on order, the C-5 Galaxy. These two aircraft are the foundation of our airlift capability today.

The ten years of the Vietnam War reaffirmed many previously learned lessons, including the fact, proved at Khe Sanh, that airlift makes a critical contribution to the in-theater ground force employment and sustainment. In addition, a new theme gained popularity -- airlift forces must be organized under a single, high-level command in order to increase responsiveness and to provide necessary economies.[10]

Finally, the modern era has seen the merger of intra- and

intertheater airlift and the emergence of our airlift forces as the true linchpin of national military strategy -- "The Backbone of Deterrence" as the Military Airlift Command's motto states.[11]

AIRLIFT CAPABILITY AND RESOURCES

In order to understand the airlift system, it is first necessary to have some knowledge of its resources and capability.

The Air Force's Military Airlift Command (MAC) is responsible for airlift within the Department of Defense. MAC uses a mix of active duty Air Force, Air Force Reserve, Air National Guard, and the Civil Reserve Air Fleet (CRAF) equipment and personnel to meet the nation's military airlift needs. MAC maintains three primary aircraft to accomplish the airlift mission: the C-5 Galaxy, the C-141 Starlifter, and the C-130 Hercules. A new airlifter, the C-17, is programmed to fly for the first time in the summer of 1991. The relative size of each aircraft and the payloads and ranges are shown in the following two figures.

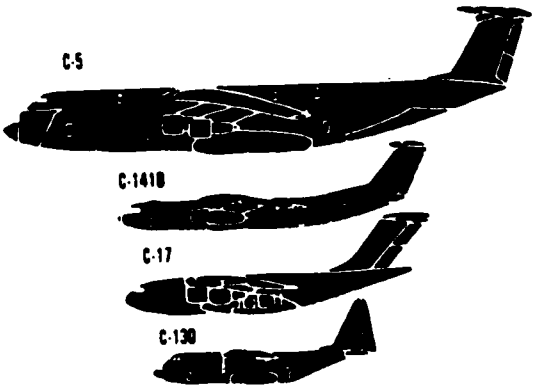

Figure 2. Military Airlift Aircraft [12]

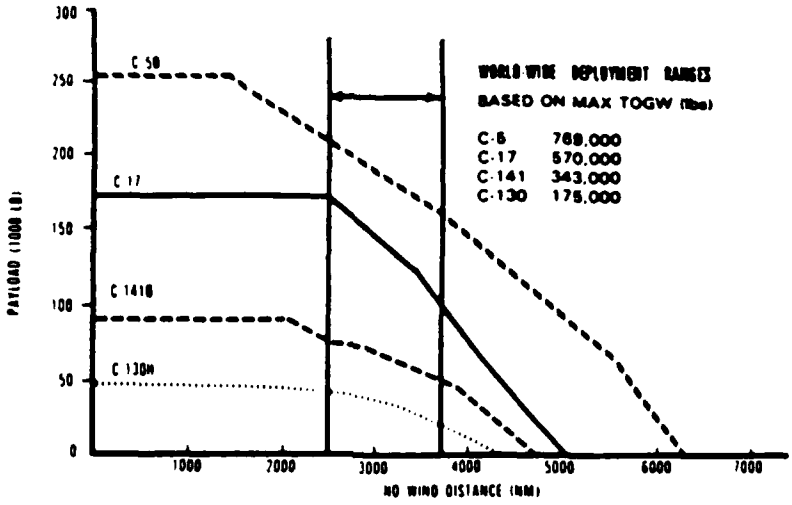

Figure 3. Aircraft Payload Range [13]

The CRAF is made up of U.S. civil aircraft that operate within the civil sector during peacetime, but are committed to augment MAC in time of war or national emergency. Aircraft types in the CRAF are depicted below.

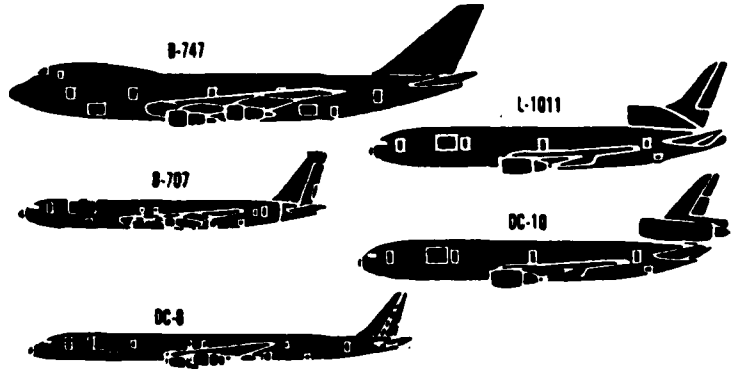

Figure 4. CRAF Airlift Aircraft [14]

The CRAF aircraft are committed by stages:

Stage I -- Committed Expansion: Provides aircraft to perform airlift when MAC can't meet requirements. The MAC Commander-in-Chief (CINCMAC) has the authority to activate

this stage. Aircraft must be at the onload site in 24 hours.

Stage II -- Airlift Emergency: Provides additional airlift for a major airlift emergency that doesn't warrant national mobilization. The Secretary of Defense activates this stage. Response time is again 24 hours.

Stage III -- National Emergency: Provides all of the aircraft in the CRAF. This stage is activated by the Secretary of Defense after a national emergency is declared by the President or Congress. Response time is 48 hours.[15]

In the event of CRAF activation, nearly all troop movement (95 percent) and a large portion of cargo requirements (28 percent) would be met by the civil aircraft.[16] Numbers of aircraft committed to the program vary from month to month, however, Figure 5 represents typical numbers.

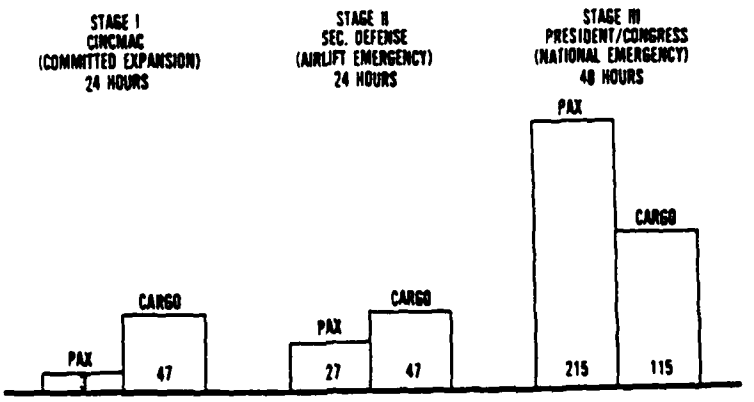

Figure 5. CRAF Contributions [17]

Activation of the CRAF is not only a military decision, but is also obviously very political. To that end, the CRAF

has never been activated since its inception, although CRAF-committed aircraft fly daily missions under contract to the government.

In addition to types of aircraft, it's also important to understand the different types of equipment that are required to be airlifted. Bulk cargoes are those that can be configured on pallets or by direct loading on aircraft. Oversize cargo is larger than the usable dimensions of a pallet (a standard military pallet measures 88 inches by 108 inches), but it can still be accommodated on a C-130 or a C-141. Outsize cargo will only fit on a C-5.[18] An important point that should be noted here is that although several CRAF aircraft are comparable in size to the C-5, structural limitations do not allow them to carry outsize cargo in combat configuration. The significance of the above discussion is that merely stating an airlift requirement in tons or numbers is inadequate, because type and/or configuration is equally important. The example that follows illustrates this point.

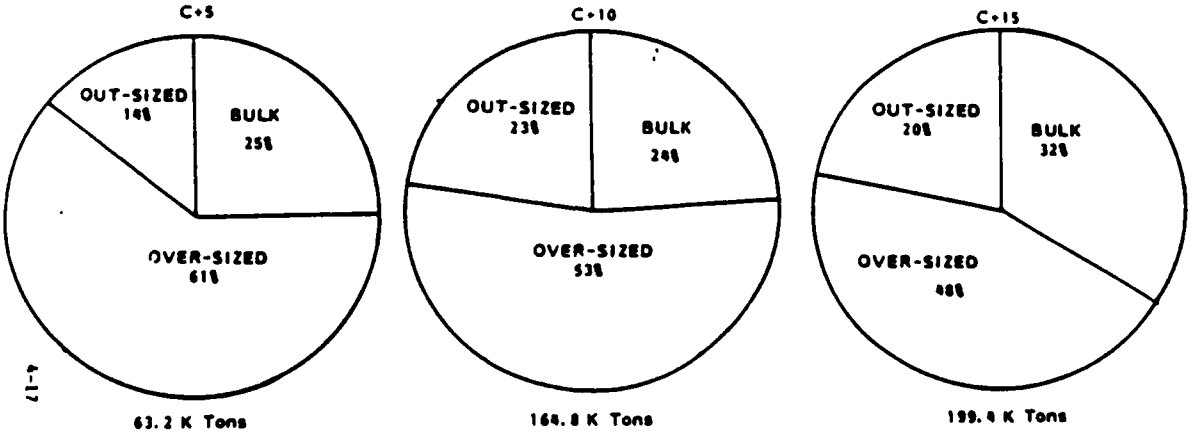

Figure 6. Distribution of Cargo (First 15 days) [19]

Note that total tons to be moved doesn't give a true picture of requirements, since a significant portion, up to 23 percent must be carried by C-5s.

One final point to understand is how airlift capabilities are determined and measured. Passenger movement is expressed in Millions of Passenger-Miles per Day (MPM/D). Intratheater airlift capability is measured in Tons per Day (T/D). Intertheater capability is measured in Millions of Ton-Miles per Day (MTM/D). That capability is a measure of aircraft speed, utilization rate, payload, and a standard productivity factor. For example, for a C-5 flying an intertheater mission at 423 knots with a payload of 68.9 tons, the measured capability would be .171 MTM/D (423 times 68.9 times 12.5 hours/day utilization rate times a productivity factor of .47 divided by one million tons).[20] The MTM/D measurement has become one of extreme importance to airlift system planners and analysts as we shall see in the next section. One final point is the concept of airlift operations shown in Figure 7.

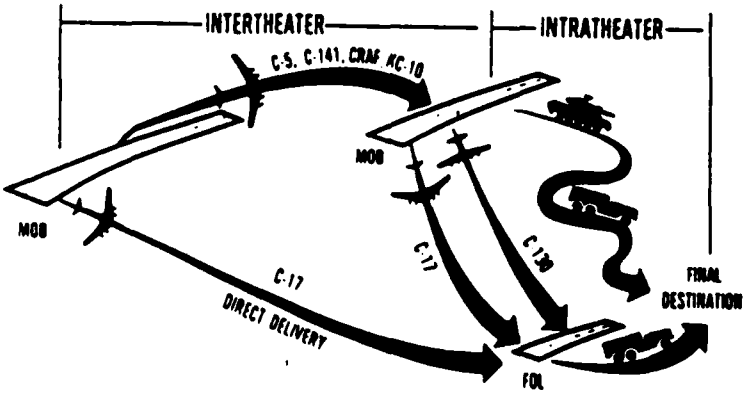

Figure 7. Airlift Concept of Operations [21]

The objective of all airlift missions is the timely delivery of personnel and materiel, thus the system must be responsive to its users.

THE REQUIREMENTS FOR AIRLIFT

Since 1974 there have been at least 17 major mobility studies conducted which have compared requirements for airlift to capability. In every one of the studies, the overall requirements exceeded the capabilities.[22] There is one study however, that has become the standard upon which airlift requirements are based. That study is the Congressionally Mandated Mobility Study (CMMS) which was released in April 1981. The CMMS was the result of the Department of Defense Authorization Act of 1981 which required the Secretary of Defense to determine the mix of airlift, sealift, and prepositioning that would provide an acceptable military response to contingencies in areas of potential conflict throughout the 1980s and into 1990.[23] The CMMS, prepared by the services, the Joint Chiefs of Staff, and the Department of Defense, concluded that the U.S. needed an intertheater airlift capability of 66 MTM/D.[24]

The CMMS, the most detailed study of airlift ever conducted, evaluated four scenarios in which the U.S. might find itself involved. It's important to remember the time frame during which the study was conducted was 1980. The four scenarios were: a Soviet-backed indigenous force attacking Saudi Arabian oilfields; a Soviet invasion of Iran; a

NATO/Warsaw Pact conflict; and a two-front conflict involving the Persian Gulf and a precautionary reinforcement in Europe.[25]

Even though the CMMS has become the baseline for our airlift requirements, there are several caveats to the study that must be noted. First, the CMMS evaluated only the intertheater airlift requirements, and did not consider requirements for reshipment by airlift, rail, or truck once equipment and troops arrived in a theater of operations. Since many areas of the world do not have a transportation infrastructure adequate to support U.S.-type mobility requirements, intratheater airlift will be the only means of moving personnel and materiel. Thus the omission of this part of the mobility mission becomes significant. Secondly, the CMMS assumed unconstrained enroute basing and overflight rights, unlimited petroleum, oil, and lubricants (POL) support, unconstrained port throughput, and finally no loss of aircraft due to accidents or enemy action.[26] Perhaps the ultimate caveat, however, is that the 66 MTM/D is not even the actual requirement that the study concluded was needed. The least demanding scenario actually required an 83 MTM/D airlift effort to meet delivery dates. The 66 MTM/D is in fact a minimum "goal" based, not on the requirements of the CMMS, but on fiscal realities. In other words, it is an affordable goal.[27]

It is also important to note that simply using a goal

like 66 MTM/D does not convey the complexity of the airlift system. As mentioned in the previous section, the dynamics of different types of cargo, the capabilities of each aircraft, and required delivery sequence and times are critical to understanding the needs of an airlift system. Also though 66 MTM/D may seem enormous consider the following: moving an M-1 tank from Fort Knox to Europe equates to about .25 MTM/D or moving four tanks equates to one million ton miles of capability. Thus 66 MTM/D is not an unthinkable number.[28]

Notwithstanding that argument however, the CMMS is still considered the standard, and the 66 MTM/D baseline is the requirement the Department of Defense and Congress has used since 1981. The bottom line, however, is that our current fleet of military aircraft and the CRAF cannot meet that requirement. The next section will discuss today's capability and what's being done to add to it.

THE FUTURE

It has become axiomatic that after a decade of neglect, things began to look up for airlift in the 80s as a result of the Reagan buildup. The last decade saw the C-141 stretched and made air refuelable to appreciably increase its capability, saw the rewinging of the C-5A, and saw the procurement of an additional 50 aircraft, the C-5B. That equated to a quantum leap for airlift capability. As a comparison, at the time of the CMMS in 1981, our airlift

capability stood at approximately 30 MTM/D.[29] Today, thanks to the strides made in the 80s, that capability stands at 48 MTM/D -- 32.6 MTM/D consists of military aircraft capability and 15.4 MTM/D from the CRAF.[30] Yet that figure, representing a 60 percent increase in capability in nine years, still falls far short of the 66 MTM/D goal set by the CMMS.

That shortage is further exacerbated by several other factors. Both the C-141 and the C-5 need relatively long, paved runways (5,000 to 6,000 feet) for safe operation. This limits the number of usable airfields throughout the world. Additionally, as discussed previously, only the C-5 can carry outsize cargo, and despite the fact that the U.S. Army has been developing lighter (in terms of equipment and number of troops) forces, any major conflict will require movement of a great deal of such cargo. For example, 40 percent of an armored division's equipment is outsize, as is 43 percent of that of a mechanized division. Finally, the intratheater airlifter, the C-130, has a relatively limited range and cargo capacity and no provisions for inflight refueling.[31]

It's also significant to note that neither MAC nor CRAF aircraft currently carry any defensive equipment and are thus vulnerable to any type of threat to aircraft. The CMMS 66 MTM/D has no attrition reserve.[32] That means graphically that a C-141 moving 20 tons of needed equipment 5000 miles across an ocean that is shot down two miles from its

destination has delivered zero ton miles.[33]

The Department of Defense answer to both the shortfall in capacity and to the above constraints is the C-17, a new airlifter currently under development by the McDonnell Douglas Corporation. Although approximately the same size as a C-141 (see Figure 2), the C-17 will have twice the payload, one half the crew, and operate at the same cost per flying hour. Additionally, the C-17 will carry outsize cargo and can operate into runways as short as 3,000 feet, opening up approximately 6,400 more airfields worldwide.[34]

The Air Force wants to procure 210 of the new airlifters by the end of the century. With that number, the C-17 fleet would provide 27.36 MTM/D of capacity and bring the airlift fleet up to the CMMS goal.[35]

The main stumbling block for the C-17 program is its cost. Projected at $178 million per aircraft, the total program cost is close to $37 billion. The big question is whether we can expect Congress to fund a new program requiring that amount of money in these times of reduced defense spending.[36]

In reality, there are four directions the C-17 program could take: procurement of all 210 aircraft as planned, procurement of all 210 aircraft stretched into the next century, a reduced buy, or cancellation. Options three and four have the effect of negating any chance of ever meeting the 66 MTM/D goal. If the buy is stretched out, the

retirement of both C-141 and C-130 aircraft will also cause total capacity to fall short of the goal. And as the following table shows, our airlift aircraft are aging.[37]

TYPE	NUMBER	AVERAGE AGE (1992)
C-141	267	27 Years
C-5A	77	21 Years
C-5B	50	5 Years
C-130 (All Models)	575	28 Years

Alternatives have been suggested and investigated over the past several years. Those alternatives have included procurement of off-the-shelf commercial aircraft such as the Boeing 747 or the McDonnell Douglas DC-10. The attractiveness of these aircraft is the currently operating production line, which offers significant initial procurement savings. However, neither of these aircraft provides the military utility of either the C-5 or the C-17, since they cannot structurally accommodate the Army's heavy equipment. Additionally, the height of their cargo doors requires special onload and offload equipment, increasing mission complexity and times. Coupled with longer runway requirements (7,000 feet minimum), adding these aircraft to the airlift fleet would severely limit areas of operation.[37]

Thus, if the U.S. is going to meet the airlift goal set in 1981 and have an aircraft that offers flexibility we've never had for both the overall airlift system or for the theater commander, it's necessary that the C-17 procurement

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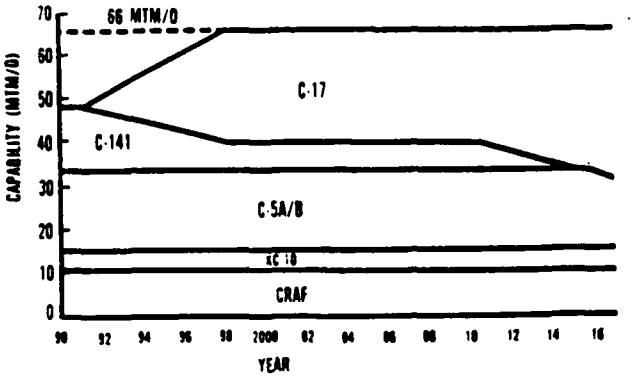

Figure 8. Meeting Airlift Requirements [39]

ENDNOTES

1. Donald B. Rice, "The Future Air Force," Air Force Policy Letter for Commanders, February 1990, P. 1.

2. Military Airlift Command, Master Airlift Plan, Vol. I, p. x (hereafter referred to a Master Airlift Plan).

3. Congressionally Mandated Mobility Study, Vol. II, p. 10-13 (hereafter referred to as CMMS, Vol. II).

4. Charles E. Miller, Airlift Doctrine, p. xi.

5. Ibid., p. 17.

6. Ibid., p. 19.

7. Ibid., pp. 73-74.

8. Ibid., p. 225.

9. Robert C. Wendzel, and James L. True, "Selective Involvement and Strategic Mobility," Air University Review, May-June 1986, p. 4.

10. Miller, p. 357.

11. Ibid., p. 415.

12. Master Airlift Plan, p. II-4.

13. C-17 Production: The Operator's View, p. 23.

14. Master Airlift Plan, p. II-8.

15. Ibid., pp. II-4-8.

16. Military Airlift Command, Airlift: Protecting America's Interests Worldwide, p. 5.

17. Master Airlift Plan, p. II-6.

18. CMMS, Vol. II, p. 4-14.

19. Ibid., p. 4-17.

20. Master Airlift Plan, p. A-10.

21. Ibid., p. III-1.

22. Ibid., p. II-10.

23. Congressionally Mandated Mobility Study, Executive Summary, p. 1 (hereafter referred to as CMMS, ES).

24. Master Airlift Plan, p. III-5.

25. Byron R. Hooten, The C-17: We Need It Yesterday, p. 4.

26. CMMS, Vol. II, p. 1-9.

27. Miller, p. 373.

28. Kenneth M. Jenkins, Enhancing Strategic Mobility: Applying Lessons from the Past, p. 14.

29. Ibid., p. 16.

30. Airlift: Protecting America's Interests Worldwide, pp. 4-5.

31. Ibid., p. 6.

32. John A. Skorupa, Lt Col, USAF, Self-Protection Measures to Enhance Airlift Operations in Hostile Environments, p. 174.

33. H.T. Johnson, General, USAF, Remarks to MAC Tactics Conference, 16 January 1990. Cited with special permission of HQ MAC/PAK.

34. Airlift: Protecting America's Interests Worldwide, pp. 14-15.

35. Jeffrey P. Rhodes, "The First C-17," Air Force Magazine, August 1988, p. 54.

36. Jenkins, p. 18.

37. C-17 Production: An Operator's View, p. 8.

38. Airlift: Protecting America's Interests Worldwide, pp. 15-16.

39. Master Airlift Plan, p. V-10.

CHAPTER 3

CONVENTIONAL ARMED FORCES IN EUROPE (CFE)

The Conventional Armed Forces in Europe negotiations, or CFE as they're commonly called, actually are a part of a continuing arms control negotiation process that began with the Helsinki Final, which was signed in 1975, and the Stockholm Agreement, signed in 1986. These two accords between NATO and the Warsaw Treaty Organization (WTO) provided for advanced notification and observation of large-scale exercises conducted by either of the treaty organizations. Their purpose was to reduce tensions and apprehension. The CFE negotiations, which began in March 1989 and to date have included a series of six sessions, involve the 16 members of NATO and the 7 members of the WTO. CFE negotiations, in turn, are held under the much larger umbrella of the Conference on Security and Cooperation in Europe (CSCE) and the Talks on Confidence-and-Security-Building Measures (CSBMs). These 35-member organizations include not only the NATO and WTO members, but also the neutral and non-aligned states.[1]

The purpose of this chapter is not to present a detailed chronology or analysis of CFE, but rather to discuss what CFE means in terms of force structure, European stability, and a desire on the part of both NATO and the WTO to reduce the level of conventional forces and the potential for conflict.

GOALS OF CFE

The general goals of CFE are to build greater stability in Europe, to reduce the potential for surprise attack, and to redefine the NATO-WTO balance at reduced, but equal levels.[2] Even with the uncertainties about the future of NATO, the WTO, and the Soviet Union today, the general feeling among the Western allies is that CFE represents a unique opportunity to reduce the real threat in Europe and to encourage the Soviet Union to restructure its military forces and redefine its political aims.[3] In other words, CFE provides a path to establish a new order politically and militarily in a Europe that has existed in roughly its present form since the end of World War II. At the Malta Summit in December 1989, President Bush and Soviet leader (now President) Mikhail Gorbachev agreed to signing a CFE treaty by the end of 1991, although recent events in Eastern Europe could accelerate that pace considerably. Based on the proposed date the reductions would be completed in 1993 for NATO and in 1997 for the WTO, which takes into account the greater reductions required by the WTO.

Force Tallies

The CFE reductions will center around what are termed Treaty Limited Items (TLI). The TLIs and the proposed levels to which they will be reduced are as follows:

Tanks	NATO	20,000
	WTO	20,000

Artillery	NATO	16,500
	WTO	24,000
Armored Combat Vehicles	NATO	28,000
	WTO	28,000
Aircraft	NATO	5,700
	WTO	4,700
Helicopters	NATO	1,900
	WTO	1,900
Troops	NATO	225,000 (30,000 of these outside Central Europe)
	WTO	195,000

The reductions are very asymmetric which strongly favor the U.S. and NATO, however the end result is relative parity in numbers, but not necessarily in capability. And differences remain in the definitions of tanks, armored combat vehicles, and aircraft, and in the numbers and sizes of artillery pieces. However, these are not considered insurmountable obstacles.[4]

IMPLICATIONS OF CFE

Some of the implications of a CFE treaty are obvious while some are more esoteric. Chief among the former are that CFE promises to enhance military security and stability in Europe by reducing forces to levels adequate for deterrence and defense but inadequate for offensive operations without reinforcement and buildup.[5] One not-so-obvious implication is the difference in withdrawal distances. Under the terms of CFE the Soviet Union will withdraw and/or destroy the TLIs from Europe to east of the Ural Mountains, and the U.S. will

do the same to CONUS. The dichotomy is that the Soviet forces remain 600 kilometers (by land) from Central Europe while the U.S. forces have moved 6000 kilometers (by sea or air) from Central Europe. That theme will be expanded upon in the next chapter.

The end result and the most important implication is a significant reduction in terms of forces by both the U.S. and the Soviet Union in Europe, hopefully raising the threshold of war. However, as Colonel Ralph Hallenbach writes in On Disarmament, "stability and security will ultimately depend on more than the military dimension of the East-West situation. In the final analysis, both alliances must also reach out politically, economically, commercially, and socially in ways that will cement the potential for new, and much more cooperative relationships. Only then will lasting security and stability be assured."[6]

ENDNOTES

1. Elizabeth J. Kirk, "Major Issues in the CFE Negotiations: An Introduction," Conventional Arms Control and European Security, p. 1.

2. "Implications of Arms Control for Defense Electronics," 4 October 1989.

3. Stanley R. Sloan, Conventional Arms Control and Europe's Future, p. 6.

4. "Implications of Arms Control for Defense Electronics."

5. David E. Shaver, On Disarmament: The Role of Conventional Arms Control in National Security Strategy, pp. 114-115.

6. Ibid., p. 115.

CHAPTER 4

AIRLIFT REQUIREMENTS AFTER CFE

As I stated in Chapter I, I chose to look at strategic airlift requirements in the context of CFE because those negotiations signal a significant change in U.S. national military strategy. No one would argue that we've lived in a bipolar world since the end of World War II, but as Jea. Kirkpatrick has avowed, that era is finished and so is the theme that has unified the U.S. and its allies during that period, containment of the Soviet Union.[1] That fact, coupled with CFE, and the stunning geopolitical changes in Eastern Europe, have apparently lessened the importance of the U.S. role in Europe. Thus, it would seem to logically follow that U.S. strategic airlift requirements could be reduced. My thesis is that airlift requirements are as stringent as ever. What we're really seeing is a shift, as Marine Corps Commandant General Alfred Gray puts it, "from a bipolar balance to a multipolar one with polycentric dimensions."[2] Or as Secretary of the Air Force Donald B. Rice asserts, "The recent 'outbreak of peace' stems from a relaxation of artificially imposed totalitarian systems. The potential exists for a bubbling up of fermented discontent."[3]

The remainder of this paper will discuss the reasoning behind my argument that we cannot afford to reduce our

capability to project power and rapidly deploy our forces to any spot on the globe.

EUROPE

In addition to CFE, several other factors figure prominently in U.S. military strategy for Europe. First is that the newly non-communist governments of Eastern Europe have asked the Soviet military to leave their countries.[4] The impact for the U.S. is that CFE will mandate 195,000 troops in Central Europe, leaving a U.S. Army with two divisions and two armored cavalry regiments (as opposed to today's four and five respectively). And the Soviet military withdrawal will create a de facto buffer zone between the Soviet Union and U.S. forces. Additionally, because of the Soviet withdrawal and the CFE limitations, the CIA has concluded that warning time of a full-scale Soviet attack has increased from 14 days to a month or more.[5] This logic would seem to dictate a significant lowering of airlift requirements. There are, however, additional factors that must be considered to give a true picture of the European equation.

The second element is that the Soviet Union has by no means become a pacifist state. It continues to modernize its forces, emphasizing quality over quantity.[6] The military remains a potent threat, with the world's largest army, a growing navy, soon to commission its first real aircraft

carrier, an expanding intelligence service aimed at the U.S., and deployment of a new mobile nuclear missile.[7] And as previously mentioned, that threat terminates only 600 kilometers from Central Europe.

The third and fourth key elements go together under the axiom that "power abhors a vacuum."[8] First is that with the decline of the Soviet hegemony, we're already seeing a resurfacing of irredentism in Eastern Europe that threatens any stability.[9] Second is the reunification of Germany. Many Europeans fear a reunited Germany, as does a Soviet Union that has twice in this century seen German invasions that have killed millions of its citizens. Therefore, it may be necessary that a strong U.S. presence, acting as what Harry Summers calls "an honest broker," will remain in Europe to allay the concerns of Europeans and the Soviets and to act as a stabilizing force while Eastern Europe seeks to restructure after decades of domination.[10] That presence will also serve as a "tripwire" for the rapid deployment of U.S. forces from CONUS should conflict occur.

The final element of the equation is NATO itself. Even though NATO won the Cold War in Europe, the alliance has not outlived its usefulness, nor has U.S. membership. A U.S. withdrawal from NATO would leave the Soviets as the strongest force in Europe. But it's also true that an American military presence in Europe without a NATO framework is probably unacceptable.[11]

Therefore, it seems probable that the U.S. will remain in Europe at CFE strength limits with enough Army infrastructure to build up to six or seven divisions in two to three weeks.[12] According to General H.T. Johnson, Commander-in-Chief of USTRANSCOM, that structure, i.e. forward presence rather than forward deployment might involve more airlift than is required today.[13]

THE THIRD WORLD

Despite the multitude of changes in the world, one fact remains -- the "factors which have caused conflict since the beginning of recorded history did not change in 1989. Economic problems, religious and ethnic strife, territorial disputes and ideological differences still remain."[14] In fact, even as the Soviet threat has seemingly abated, we've seen the use of chemical weapons in the Iran-Iraq war, the proliferation of high technology weapons throughout the Third World, increases in terrorism, and the increased flow of and disputes over narcotics. It's highly probable that the future will be characterized not by major warfare, but by low intensity conflicts that have great potential to involve U.S. interests.[15] And as history has demonstrated, small or Third World nations, such as Vietnam or Afghanistan, can fight superpowers or other Third World nations with equal effectiveness.

In the past the flow and use of high technology weapons

have been controlled by a few nations, mainly because few Third World countries had the expertise to either maintain or operate the weapons. That gave the industrialized nations, i.e. the suppliers, a tremendous amount of influence, because they could either cut off the flow of weapons and spare parts or fail to maintain the equipment. Today that's changing as two trends become evident. Eastern European countries are eager to sell their no longer needed Soviet equipment for much needed cash, and the Third World countries are increasingly able to operate and maintain high technology weapons themselves.[16]

Thus any future Third World conflicts are likely to become protracted, and the longer they continue, the more likely the U.S. will become involved as our own interests become threatened. For example, all one has to do is consider oil. The U.S. currently imports about half of it's oil from the Persian Gulf. With our own economically recoverable reserves expected to be exhausted in less then 50 years, that dependence will increase. Any conflict in that area would almost certainly affect the flow of oil and signal the likelihood of U.S. military intervention.[17]

In that type of conflict, the rapid deployment capability of airlift is crucial. An excellent example is the 1973 Arab-Israeli War. Although the first ship carried almost as much equipment as the total airlift had carried in the previous 19 days, it didn't arrive until five days after the war was

over.[18] Figures 9a and 9b show that reality graphically.

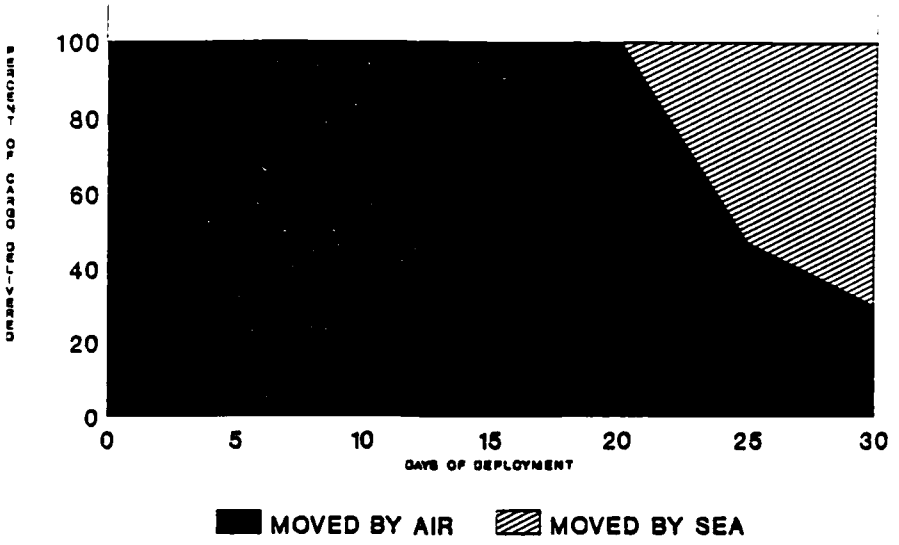

Figure 9a. 30-Day Deployment [19]

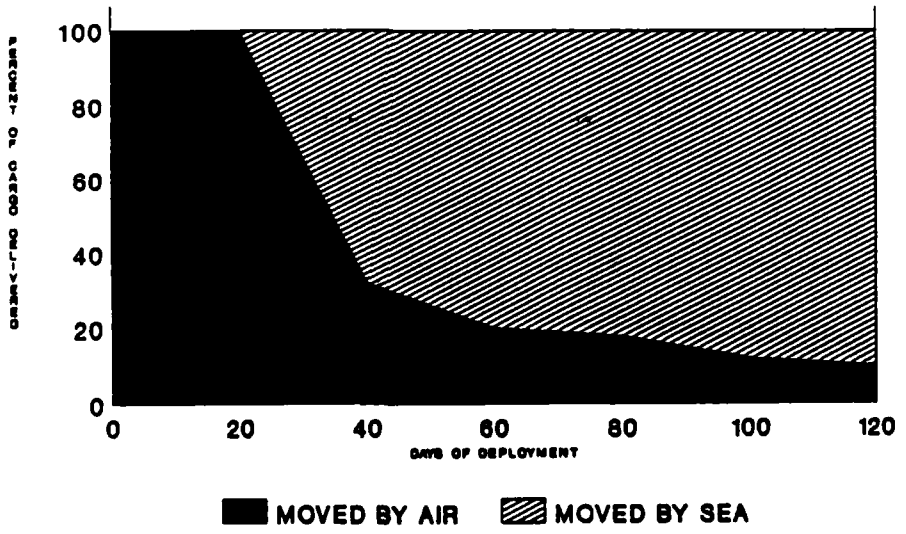

Figure 9b. 120-Day Deployment [20]

An additional constraint to any future conflict in the Third World will be basing. As the following figure shows, the general trend has been our loss of bases and/or basing rights overseas.

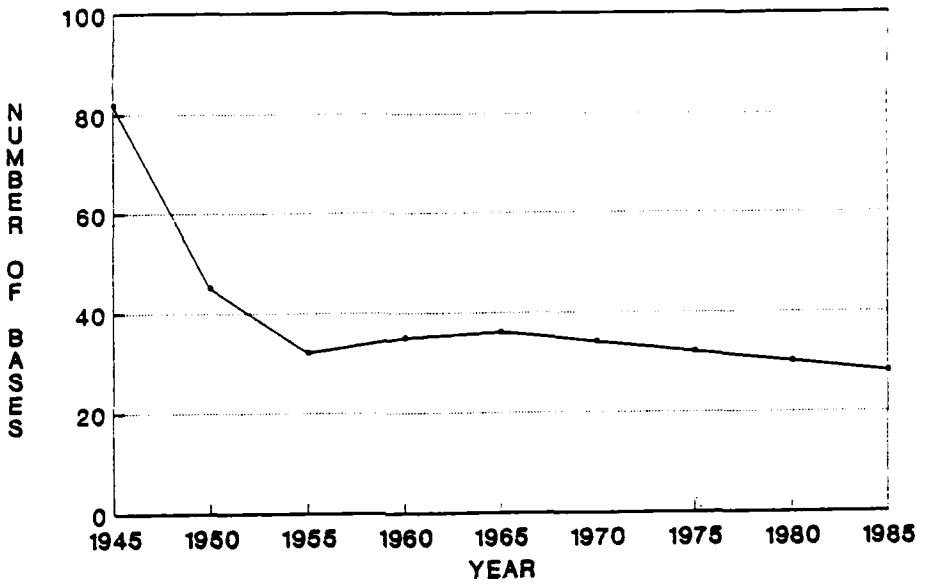

Figure 10. Overseas Basing [21]

COLLECTIVE SECURITY

Any discussion of U.S. interests around the world has to consider one of the building blocks of our national security policy -- our alliances. The U.S. is currently party to seven formal alliances and also to several other defense agreements and less formal arrangements.[22] In addition to NATO, several of these alliances involve nations in areas of the world that have potential for conflict, such as the Philippines, Korea, Southeast Asia, and Latin America. Our commitments to these nations and the rapid response required

will place airlift at a premium. An example is JUST CAUSE.

JUST CAUSE

It's difficult to quantify the requirements for airlift in any conflict, and it's not the purpose of this paper to do so, however, the U.S. intervention in Panama in December 1989 is a good case in point for airlift demand. First of all it's important to note several facts: we had secure bases in Panama, we had 12,000 troops already in place, the Panamanian Defense Force was smaller than the Washington D.C. Police Department, and by air, Panama is closer to Miami that Miami is to New York City.[23] Yet, as Secretary Rice testified to Congress, D-Day required fully 25 percent of our total airlift force to accomplish the mission. That didn't include aircraft on alert, in maintenance, or being prepared for follow-on missions. The need for airlift was so great, that MAC had to cancel over 170 training missions in the nine-day period following D-Day. In addition, the requirement for formation lead-qualified aircrews and the need to augment aircrews due to the flying times involved, cut sharply into the available crew force. Altogether, 50 to 55 percent of the strategic airlift force was committed during the two days prior to and the two days after D-Day.[24]

If one projects such an operations to a country in the Middle East, for example, negates the in-country troop strength and the secure bases, and multiplies the flying distances five-fold, one can appreciate why airlift is

critical today and will be in the future.

CONCLUSION

Airlift will continue to be the "Backbone of Deterrence" for the United States into the foreseeable future. It's capability for rapid force projection over long distances will be critical to U.S. interests overseas and ultimately to our way of life in the U.S.

While Europe may no longer be the pre-eminent factor in the threat equation, the U.S. needs to maintain a strong presence there in the interests of stability and deterrence. That presence will require a strong airlift force. In other areas of the world, as modern, high technology weapons proliferate and old tensions and animosities surface, regional conflicts will be more difficult to contain and, as President Bush told the UN, "may well threaten world peace as never before."[25] As Sun Tzu wrote centuries ago: "There has never been a protracted war from which a country has benefited."[26] The U.S. must have the capability to reach, hit hard, and end any conflict quickly. The best fighting forces in the world can't achieve their mission unless they can get to where they're needed when they're needed. Only the speed and flexibility of airlift gives us that capability.[27]

The events of the past year have brought great change, though not necessarily peace and security. When viewed in the context of the CMMS, the changes have caused three of the four

scenarios to be invalidated. It's significant that the focus of our strategy has shifted from Europe to the Third World. But it's also important to remember that even the least critical scenario in the CMMS actually required 83 MTM/D to get the job done. So if our nation wants to maintain a strong deterrent military that has the capability to protect not only the U.S. but also our interests and our allies and to be able to influence and control events worldwide, we cannot afford to reduce the airlift force that gives us that capability.

ENDNOTES

1. Jeane J. Kirkpatrick, "Beyond the Cold War," Foreign Affairs, p. 1.

2. Michael R. Gordon, "Split Between Army and Marines Surfaces in Debate on 3d World," New York Times, 15 March 1990, p. A14.

3. Donald B. Rice, "AF's Future Strategy: 'Punch Hard and Terminate Quickly'," Air Force Times, 26 March 1990, p. 23.

4. Glenn Frankel, "East Europeans Seek Full Pullout of Soviet Troops," Washington Post, 19 January 1990, p. A14.

5. Michael R. Gordon, "Discount Soviet Peril to Iran, Cheney Tells His Strategists," New York Times, 7 February 1990, p. A13.

6. Michael P. W. Stone and Carl E. Vuono, General, The Posture of the United States Army, Fiscal Year 1991, p. I-2.

7. David Ignatius, "Yes, It's Real: How Gorby Is Cutting the Soviet Threat," Washington Post, 5 November 1989, p. C1.

8. Paul A. Gigot, "After Communism, World Still Needs U.S. Troops," The Wall Street Journal, 16 February 1990, p. A12.

9. William E. Odum, "Military Doctrine, Force Structure, and Force Modernization," in Conventional Arms Control and European Security, ed. by Elizabeth J. Kirk, p. 16.

10. Harry Summers, "U.S. Troops Are Needed to Protect Soviets," Army Times, 5 March 1990, p. 21.

11. Kirkpatrick, p. 11.

12. Benjamin F. Schemmer, "Army Volunteers 5-Division Cut by 1994, to Be Remodeled as a Contingency Army," Armed Forces Journal International, January 1990, p. 14.

13. David F. Bond, "Tactical Programs Up for Grabs in 'Gramm-Rudman-Gorbachev' Era," Aviation Week and Space Technology, 19 March 1990, p. 56.

14. H.T. Johnson, General, USAF, Remarks to Altus, Oklahoma Air Force Association, 8 March 90. Cited with permission of HQ MAC/PAK.

15. Report of the Secretary of Defense to the President and the Congress, January 1990, p. 3.

16. The Future Security Environment, October 1988, pp. 47-48.

17. William Matthews, "The New Threat: A CinCs-eye View of the Post-Cold War World," Army Times, 26 February 1990, p. 10.

18. Airlift: Protecting America's Interests Worldwide, p. 3.

19. Charles E. Miller, Airlift Doctrine, p. 369.

20. Ibid., p. 369.

21. The Future Security Environment, p. 60.

22. Report of the Secretary of Defense to the President and the Congress, January 1990, p. 5.

23. Johnson, p. 9.

24. Telephone interview with Mike Martin, Major, Airlift Operations School, 19 March 1990.

25. Paul Wolfowitz, "Regional Conflicts: New Thinking, Old Policy," Parameters, March 1990, p. 2.

26. Sun Tzu, The Art of War, p. 73.

27. Rice, p. 23.

BIBLIOGRAPHY

1. Bond, David F. "Tactical Programs Up for Grabs in 'Gramm-Rudman-Gorbachev' Era." Aviation Week and Space Technology, Vol. 132, 19 March 1990, pp. 53-56.

2. C-17 Production: The Operator's View. Scott Air Force Base: Headquarters Military Airlift Command, 1988.

3. Congressionally Mandated Mobility Study, Executive Summary, Washington: Department of Defense. 30 April 1981.

4. Congressionally Mandated Mobility Study, Volume II, Washington: Department of Defense. 30 April 1981.

5. Frankel, Glenn. "East Europeans Seek Full Pullout of Soviet Troops." Washington Post, 19 January 1990, p. A14.

6. The Future Security Environment. Report of the Future Security Environment Working Group to the Commission of Integrated Long Term Study. Washington: Government Printing Office, October 1988.

7. Gigot, Paul A. "After Communism, World Still Needs U.S. Troops." The Wall Street Journal, 16 February 1990, p. A12.

8. Gordon, Michael R. "Discount Soviet Perils to Iran, Cheney Tells His Strategists." New York Times, 7 February 1990, p. A13.

9. Gordon, Michael R. "Split Between Army and Marines Surfaces in Debate on 3d World." New York Times, 15 March 1990, p. A14.

10. Gordon, Michael R. with Engleberg, Stephen. "Soviet Changes Mean Earlier Word of Attack." New York Times, 26 November 1989, p. 18.

11. Hooten, Byron R. The C-17: We Need It Yesterday. Thesis. Carlisle Barracks: U.S. Army War College, 25 April 1985.

12. Ignatius, David. "Yes It's Real: How Gorby Is Cutting the Soviet Threat." Washington Post, 5 November 1989, p. C1.

13. "Implications of Arms Control for Defense Electronics." Briefing by Electronics Industries Association (EIA) to EIA National Symposium. Los Angeles, 4 October 1989.

14. Jenkins, Kenneth M. Enhancing Strategic Mobility: Applying Lessons from the Past. Thesis. Carlisle Barracks: U.S. Army War College, 7 April 1989.

15. Johnson, H.T., General, USAF. Remarks to Altus, Oklahoma Air Force Association, 8 March 1990. Cited with special permission of Headquarters Military Airlift Command Public Affairs.

16. Johnson, H.T., General, USAF. Remarks to Military Airlift Command Tactics Conference, 16 January 1990. (Cited with special permission of Headquarters Military Airlift Command Public Affairs).

17. Kernek, Sterling J. "Whither the Long Peace?" Parameters, Vol. 20, March 1990, pp. 64-75.

18. Kirk, Elizabeth J. "Major Issues in the CFE Negotiations: An Introduction." Conventional Arms Control and European Security. Washington: American Association for the Advancement of Science, 9 March 1989, pp. 1-4.

19. Kirk, Elizabeth J., ed. "Major Issues in the CFE Negotiations: An Introduction." Conventional Arms Control and European Security. Washington: American Association for the Advancement of Science, 9 March 1989. pp. 11-16: "Military Doctrine, Force Structure, and Force Modernization," by William E. Odum.

20. Kirkpatrick, Jeane J. "Beyond the Cold War." Foreign Affairs, Vol. 69, No. 1, 1990, pp. 1-16.

21. Krauthammer, Charles. "Don't Cash the Peace Dividend." Time, Vol. 135, 26 March 1990, p. 88.

22. Martin, Michael, Major. Scott Air Force Base: Airlift Operations School. Telephone interview. 19 March 1990.

23. Matthews, William. "The New Threat: A CinCs-eye View of the Post-Cold War World." Army Times, 26 February 1990, p. 10.

24. Military Airlift Command. Airlift: Protecting America's Interests Worldwide. Scott Air Force Base: Headquarters Military Airlift Command, March 1990.

25. Military Airlift Command. Master Airlift Plan: Intertheater and Intratheater Airlift, Vol. I. Scott Air Force Base: Headquarters Military Airlift Command, 24 March 1983.

26. Miller, Charles E., Lt Col, USAF. Airlift Doctrine. Maxwell Air Force Base: Air University Press, March 1988.

27. Report of the Secretary of Defense to the President and the Congress. Washington: Government Printing Office, January 1990.

28. Rhodes, Jeffrey P. "The First C-17." Air Force Magazine, Volume 71, August 1988, pp. 54-59.

29. Rice, Donald B. "AF's Future Strategy: 'Punch Hard and Terminate Quickly'." Air Force Times, 26 March 1990, pp. 23, 68.

30. Rice, Donald B. "The Future Air Force." Air Force Policy Letter for Commanders. Washington: Office of the Secretary of the Air Force, February 1990, p. 1.

31. Schemmer, Benjamin F. "Army Volunteers 5-Division Cut by 1994, To Be Remodeled as a 'Contingency Army'." Armed Forces Journal International, January 1990, p. 14.

32. Shaver, David E. On Disarmament: The Role of Conventional Arms Control in National Security Strategy. Carlisle Barracks: Strategic Studies Institute, U.S. Army War College, 1989.

33. Skorupa, John A., Lt Col, USAF. Self-Protective Measures to Enhance Airlift Operations in Hostile Environments. Maxwell Air Force Base: Air University Press, September 1989.

34. Sloan, Stanley R. Conventional Arms Control and Europe's Future. New York: Foreign Policy Association, Headline Series No. 287, Winter 1988/89.

35. Stone, Michael P. W., and Vuono, Carl E., General. The Posture of The United States Army, Fiscal Year 1991.

36. Summers, Harry. "Build Strategy on Firm Ground for Success." Army Times, 19 March 1990, p. 26.

37. Summers, Harry. "U.S. Troops Are Needed to Protect Soviets." Army Times, 5 March 1990, p. 21.

38. Sun Tzu. The Art of War. Translated by Samuel B. Griffith. New York: Oxford University Press, 1971.

39. Tyler, Patrick E. "CIA's Webster Says Soviet Military Threat Declining." Washington Post, 24 January 1990, p. A4.

40. Vuono, Carl E., General. A Strategic Force: For the 1990s and Beyond. United States Army, January 1990.

41. Wendzel, Robert C., and True, James L. "Selective Involvement and Strategic Mobility." Air Universaity Review, May-June 1986, Volume 37, pp. 2-18.

42. Wolfowitz, Paul. "Regional Conflicts: New Thinking, Old Policy." Parameters, Vol. 20, Carlisle Barracks: U.S. Army War College, March 1990, pp. 2-8.