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MEMORANDUM

NATIONAL SECURITY COUNCIL

ACTION

May 4, 1982

MEMORANDUM FOR ADMIRAL POINDEXTER

FROM: DENNIS BLAIR/SVEN KRAEMER

SUBJECT: NATO Force Comparison Paper, Press Statement

Attached for your approval is a proposed press statement to be issued by the White House at the regular noon briefing. Its purpose is to call attention to the NATO Force Comparison Paper (copy attached) released earlier this morning by NATO. We hope this paper, revised annually, will become the definitive East-West military balance reference.

Both State and Defense will be issuing statements in their regular briefings. This White House statement is based on the longer State guidance.

Once you approve, Mort Allin will ensure that the guidance statement is run through Dick Darman and then released at noon.

RECOMMENDATION:

OK NO

OK

— — That you approve the press statement at Tab I.

Clear with speechwriters.

Attachments:

Tab I Proposed Press Statement

Tab II "NATO and the Warsaw Pact Force Comparisons"

N.B. Florence, please call Blair (X5732) once the Admiral approves.

NSC #8203109

WHITE HOUSE PRESS RELEASE

NATO FORCE COMPARISON PAPER

Today in Brussels NATO Secretary General Joseph Luns released an Alliance publication entitled "NATO and Warsaw Pact Force Comparisons." This is the first unclassified document published by NATO comprehensively listing Alliance and Warsaw Pact conventional and nuclear forces in Europe.

The Force Comparison Paper contains a wealth of detailed data on the military balance. Its overall message is summed up in an introduction by Secretary General Joseph Luns: "The numerical balance of forces has moved slowly but steadily in favour of the Warsaw Pact over the past two decades ... It is clear that the trend is dangerous. Nevertheless the overall deterrent continues to safeguard peace."

The President believes strongly that the reversal of this dangerous trend is essential if we are to safeguard the interests of the United States and its allies and to provide the incentive to the Soviet Union to negotiate a stable military balance at reduced levels of force. He welcomes the contribution that this NATO paper makes in public understanding of the balance.

NATO
and
the
WARSAW
PACT

FORCE
COMPARISONS

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E d i t o r i a l N o t e

France is a member of the North Atlantic Alliance but does not participate in its integrated military structure. No account of French forces is taken in this comparison.

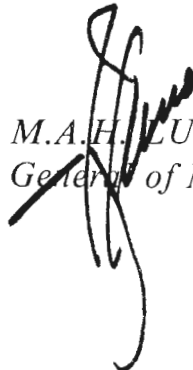
FOREWORD

It is the essential purpose of the North Atlantic Treaty Organization to search for a more stable relationship between East and West in which the fundamental political issues dividing them can be resolved peacefully. As matters stand, we continue to be compelled to safeguard peace through our ability to deter aggression and to protect ourselves from political blackmail. But we also continue to seek ways of improving this situation. Deterrence and defence, together with arms control and disarmament, are integral parts of Alliance security policy. The Allies remain committed to vigorous efforts in all appropriate fora to achieve substantial, balanced and verifiable arms limitations and reductions. The object of this policy is a stable military balance, if possible at reduced levels of forces.

The numerical balance of forces has moved slowly but steadily in favour of the Warsaw Pact over the past two decades. During this period the members of the North Atlantic Alliance have lost much of the technological advantage which permitted NATO to rely on the view that quality could compensate for quantity. It is clear that the trend is dangerous. Nevertheless the overall deterrent continues to safeguard peace.

Security is fundamental to well-being. The publics of each member nation of NATO therefore have the right to know what efforts are being undertaken to ensure their future security and what constitutes the challenges. This is why this publication comparing NATO and Warsaw Pact forces has been prepared. It carries the conviction and authority of all the NATO nations which participate in the integrated military structure of the Alliance; as such its presentation is factual, objective and unbiased. I commend it not only within NATO but to the much wider publics outside the Alliance for whom the maintenance of peace and security in the West is of fundamental importance.

Joseph M.A.H. LUNS
Secretary General of NATO



INTRODUCTION

General

1. The North Atlantic Treaty Organization is a defensive alliance of sovereign and independent nations. It is dedicated to safeguarding the freedom, common heritage and civilization of their peoples, founded on the principles of individual liberty and the rule of law. The Alliance aims to prevent war; indeed the ultimate political purpose of the Alliance is to achieve a lasting peaceful order accompanied by appropriate security guarantees. It works to achieve this by improving understanding between East and West and by possessing sufficient strength to ensure that an attack on any member of the Alliance will not take place. The Treaty provides that Alliance members will come to each other's assistance in the event of an armed attack upon any one of them.

2. Since it was established in 1949, NATO has supported many efforts to achieve real improvements in international relations. While doing what is necessary for their defence, NATO nations try to bring about progress in East-West detente. For instance, they continue to make a constructive contribution to detente by their active participation in the process initiated by the Conference on Security and Co-operation in Europe, aimed at enhancing stability, reducing confrontation and strengthening co-operation. They participate in or are associated with a number of arms control negotiations, including the East-West force reductions talks in Vienna (MBFR) and the negotiations between the United States and the Soviet Union on Intermediate Range Nuclear Forces (INF) in Geneva, with the aim of achieving more stable and balanced East-West relations at lower force levels. The United States is also actively preparing for Strategic Arms Reduction Talks (START) and is

committed to negotiate an equitable and verifiable agreement on strategic nuclear weapons with the Soviet Union resulting in substantial reductions. Negotiations for phased arms limitations and reductions need to take account of the military efforts of the other side so that the Alliance's defensive capabilities remain guaranteed at each stage of the negotiating process. Unilateral nuclear disarmament would give the Soviet Union, which could not be relied upon to follow suit, an overwhelming military advantage. Therefore, these efforts need the backing of a firm defence policy and sufficient military forces to implement it. NATO must be able to make clear to any potential aggressor that it has both the political will and the military capabilities to defend its members. Such a policy is the greatest safeguard that no one will attack a member of the Alliance or use the threat of military force as a means of coercion. This posture is known as deterrence.

3. The size and type of forces which could be used against NATO are factors which influence the kinds of forces the Alliance needs to deter a military threat and thereby to prevent aggression in any form. NATO as a defensive alliance does not seek superiority nor does it attempt to match the Warsaw Pact man for man or system for system. However, to ensure preservation of stability and peace, the relationship between the overall military capabilities both nuclear and conventional of NATO and the Warsaw Pact must not become unbalanced to the extent that the credibility of NATO's deterrent could be called into question. In other words, the Alliance requires enough forces of the right kinds to make clear that it would be able to respond to any type of aggression in an effective way. The Triad which provides this NATO deterrent comprises the strategic nuclear forces,

its intermediate- and short-range nuclear forces(1), and its conventional forces. Any gap in the field of intermediate and short-range nuclear forces could give rise to the risk that the Soviet Union might believe - however incorrectly - that it could make or threaten limited strikes against NATO Europe from a sanctuary in the Soviet Union. Intermediate- and short-range nuclear forces in NATO Europe provide a crucial link between the conventional defence of NATO Europe and the United States strategic nuclear forces, the ultimate guarantee of NATO's security. These capabilities would enable the Alliance to choose amongst a number of options and to ensure that an aggressor is left in no doubt as to NATO's readiness and will to defend itself while leaving it uncertain as to the form that defence would take. This is the essence of NATO's overall strategy known as "flexible response". For deterrence to be effective the Alliance must be able both to make credible its capability and willingness to defend itself and to make the risks unacceptable for any potential aggressor.

4. The Warsaw Pact leadership has repeatedly stated that the Warsaw Pact is strictly defensive and its strategy is designed to prevent war. On the other hand, the Soviet leadership continues to work for the spread of Communism worldwide and sees the disappearance of competing political systems as an historically inevitable process. Further, its declared military doctrine equates defence with offensive operations and Warsaw Pact military strength is on a scale well in excess of reasonably justifiable requirements for defence.

(1) This terminology is consistent with that used in the arms control negotiations currently taking place between the United States and the Soviet Union; these forces were previously covered under the term theatre nuclear forces.

5. Moreover, Warsaw Pact military doctrine as shown by its literature and military exercises calls for large-scale penetration into enemy territory in order to secure strategic objectives; it continues to emphasize the element of surprise and the necessity of rapid offensive operations. Warsaw Pact forces are therefore organized and equipped in accordance with the fundamental principle that they must be able to take the offensive in a conflict. This means the use of combined arms operations in which all forces, conventional and nuclear, are brought to bear in a unified manner, using all necessary assets. Soviet military capabilities would enable the use of chemical weapons on a large scale.

Comparing NATO and Warsaw Pact Forces

6. Many factors contribute to the capability to deter or defend against aggression, including political and social stability, geography, economic strength, human resources, industrial and technological resources, as well as military capabilities. The military forces possessed by each side are clearly important elements in this equation. But in comparing each side's military forces it is important to avoid over-simplifying the picture. A complete assessment of the global balance of power would have to take into account forces other than those that are available to NATO and the Warsaw Pact. Even a full assessment restricted to NATO and the Warsaw Pact capabilities would have to take into account not just the conventional forces deployed by each side in Europe but also certain worldwide deployments by a number of NATO countries as well as by the Soviet Union. For instance, both the United States and the Soviet Union maintain substantial forces in Asia and the Pacific.

7. In addition to simple force differences there are also other elements important to an understand-

ding of the balance. They are, for example, differences in military strategy and structure, political organization and cohesion, naval capabilities and rôles, nuclear capabilities and the impact of timely reinforcements. Other important considerations are the amount of ammunition, fuel and other stocks possessed by each side, the quality of their equipment, their organization, their personnel, their leadership and morale, as well as each side's economic, industrial and technological ability to sustain a military conflict. This publication cannot attempt to cover all these issues. Instead, it supplies up-to-date information on the more important aspects of the military postures of NATO and the Warsaw Pact, thus providing the reader with a basis for forming his own judgements. In this connection, it must be realised that both NATO and the Warsaw Pact deploy a number of weapon systems capable of being used both in a conventional and a nuclear rôle; in general such systems are considered in both the conventional and the nuclear sections of this publication. The allocation of forces shown in this publication is for comparative purposes only and does not necessarily correspond to any specific scenario or situation. This applies particularly to comparisons of conventional forces where the criterion is based on in place forces; this suggests that such forces are intended a priori for use in Europe only. This presentation obviously has no bearing on the need, in the course of negotiations which may lead to the establishment of permanent constraints concerning military activities in Europe, such as those which may take place at a Conference on Disarmament in Europe, to take account of the activities of conventional forces deployed in Europe including the entire European part of the Soviet Union. The Allies have on many

occasions explained the political reasons (equal treatment of participating countries) and the military reasons (mobility of conventional forces) which justify this necessity.

8. Geographic and economic dissimilarities between NATO and the Warsaw Pact directly affect rôles and missions of their armed forces. The Warsaw Pact, for example, is one geographic entity in contrast to NATO, which is separated by oceans, seas and in some regions, particularly in the south, by the territory of nations which are not members of the Alliance. This allows the Warsaw Pact to transfer land and air forces and support between different areas via internal and generally secure lines of communications. It also contributes to enabling the Warsaw Pact to select the time and place in which to concentrate its forces. However, Soviet naval forces are divided in four widely separated fleets; this makes it difficult for them to mass naval power for joint operations.

9. NATO, on the other hand, must transfer resources along lengthy and vulnerable air and sea routes to and around Europe. The most powerful partner in NATO, the United States, is separated from its European allies by an ocean 6,000 km wide. Moreover, NATO nations, to a far greater extent than those of the Warsaw Pact, depend on shipping for vital economic purposes. Thus, unlike the Warsaw Pact, NATO has a fundamental dependence on shipping during peace and war. This fact requires markedly different missions for Warsaw Pact naval forces on the one hand and NATO naval forces on the other. Additionally, NATO lacks geographical depth between the possible areas of conflict and the coasts, so rendering its rear areas, headquarters and supplies more vulnerable to enemy attack and more difficult to defend.

GEOGRAPHICAL DISSIMILARITIES A NATO PROBLEM

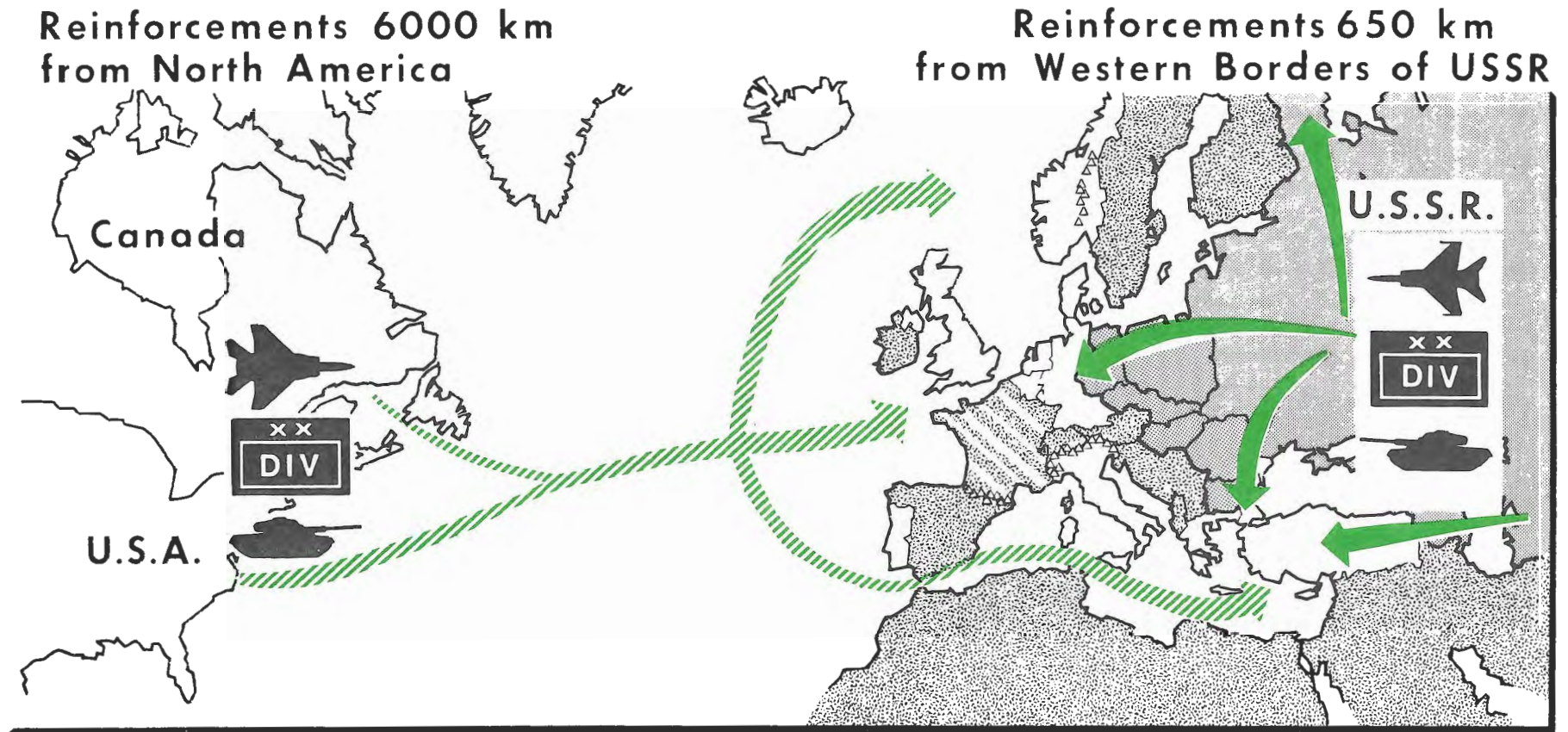


FIGURE 1

10. The Warsaw Pact nations have a standing force of some 5.7 million personnel of which some 4 million face NATO in Europe. In addition, there are over 700,000 personnel with some military training enrolled in the national security forces. Warsaw Pact forces worldwide include 244 active divisions plus 27 brigades, with 60,000 main battle tanks and air forces equipped with over 12,000 aircraft. Ground and air forces in Europe are forward deployed, well structured, positioned and prepared for offensive operations. The Warsaw Pact possesses an impressive inventory of naval forces, the largest component of which is the Soviet Navy. In addition to ballistic missile submarines Soviet active naval forces include more than 300 other submarines (a number of which are equipped to launch Cruise missiles), about 40 major surface combatant ships (carriers and cruisers) and about 400 naval bombers (most of which are equipped to deliver anti-ship missiles). A large number of these forces are not in the NATO/Warsaw Pact area and indeed some, primarily those of the Soviet Union, are deployed worldwide. Overall, the Warsaw Pact has, in recent years, significantly improved the quality of equipment in all components of its armed forces; strategic, ground, air and naval.

11. The standing forces of the NATO nations total 4.4 million personnel, of which some 2.6 million are stationed in Europe. There are also about half a million other militarily trained personnel, such as Home Guards and Gendarmerie. Total armed forces belonging to NATO nations, but not all committed to NATO, include 76 active divisions plus 123 brigades (normally in NATO 3 brigades equal 1 division), with about 22,670 main battle tanks and air forces equipped with approximately 11,270 combat aircraft. NATO forces are well trained and, given the full range of capabilities at their disposal, are capable of presenting a credible defence of

Alliance territory. In most NATO countries, modern and effective aircraft, tanks and anti-tank weapons are being introduced into the armed forces. The naval forces of some NATO nations include elements deployed on a worldwide basis. Of an overall total of about 190 attack submarines, 40 major combatant ships (carriers and cruisers), and more than 500 attack aircraft, not all could be made available in the NATO area. That is to say, the forces shown as available to NATO are not a simple aggregation of the forces possessed by each member country, but are based on availability and allocation(2).

12. The overall global figures given in the previous paragraphs have been mentioned to enable the statistics and comparisons which follow to be seen in their proper perspective. From now on the figures on military forces in this publication show the forces which could be expected to be available to NATO (less those of France) and those of the Warsaw Pact which it is considered would be facing them. The focus is on Europe. In particular, United States and Soviet forces in the Pacific and Soviet forces facing China have not been included.

The Problems of Mobilization and Reinforcement

13. The bulk of NATO and Warsaw Pact divisions would require some degree of completion in manpower and equipment to achieve full wartime establishments. Both NATO and the Warsaw Pact rely heavily on mobilization of reservists to bring up to strength existing divisions and to mobilize new formations. Because of the closely controlled social structures in the Warsaw Pact nations and the length and intensiveness of their military conscription, the

(2) For more detailed explanation see Explanatory Notes.

maintenance of a significant pool of trained reserve manpower can be accomplished on a continuing basis by the Warsaw Pact more readily than in most NATO nations.

14. The Warsaw Pact can therefore mobilize its man power more readily than NATO. It can also reinforce more quickly because most of NATO's reinforcements of men and equipment must be moved across the Atlantic and the English Channel. The Warsaw Pact on the other hand can move many of its central reserves rapidly by road and air; some of its airborne and air-mobile forces could be moved in even less time. NATO cannot sustain an effective defence against these reinforced Warsaw Pact forces solely with in-place forces. Therefore a successful defence is largely dependent upon the timely arrival of substantial reinforcements, principally from the United States, but also from Canada and in Europe itself from the United Kingdom and Portugal. However, the problems would be considerable even if there were to be

reasonable warning time. Rapid reinforcement is a very complex operation that demands the timely availability of numerous resources, particularly transport aircraft and shipping. There are a considerable number of reinforcement air squadrons available to cross the Atlantic in a few hours, but these would have to wait for the subsequent arrival of their ground crew and support equipment before becoming operational.

15. As will be seen from the later sections of this publication, standing Warsaw Pact forces are more numerous than those of NATO. This advantage for the Warsaw Pact is likely to remain and indeed could increase at least for some considerable time as both sides reinforce, with NATO having to bring most of its reinforcements, and particularly its equipment, across the Atlantic, and the Warsaw Pact benefiting from internal and shorter lines of communication.

CONVENTIONAL FORCES

Land Forces

16. Warsaw Pact forces facing Allied Command Europe (ACE), which is the NATO military command which stretches from the northern tip of Norway to the eastern borders of Turkey, consist of about 164 divisions plus the equivalent of 9 divisions of airborne, air assault and air-mobile formations, which could be used in a number of different areas. Many of these 173 divisions are ready to fight at very short notice. These standing Warsaw Pact forces can be reinforced by about 15 divisions from the Strategic Reserve based in the central Military Districts of Russia (Moscow, Ural and Volga Military Districts) which could also be used in a number of different areas. Warsaw Pact divisions normally consist of fewer personnel than NATO divisions but contain more tanks and artillery, thereby producing similar combat power. The majority of Warsaw Pact land forces are positioned well forward. Their principal offensive conventional capabilities consist of tanks, modern mechanized infantry vehicles and highly mobile long range artillery and mortars; large numbers of these are to be found in all their units. A range of nuclear and chemical weapons are assigned to the larger formations, namely fronts and armies. Growing numbers of transport, support and attack helicopters provide the Warsaw Pact with a quick assault and reaction capability, as well as a significant supplement to their fixed-wing tactical aircraft in the battlefield area.

17. NATO land forces stationed in Europe number some 84 divisions (including three airborne/air mobile divisions), many of which are also ready to fight at very short notice.

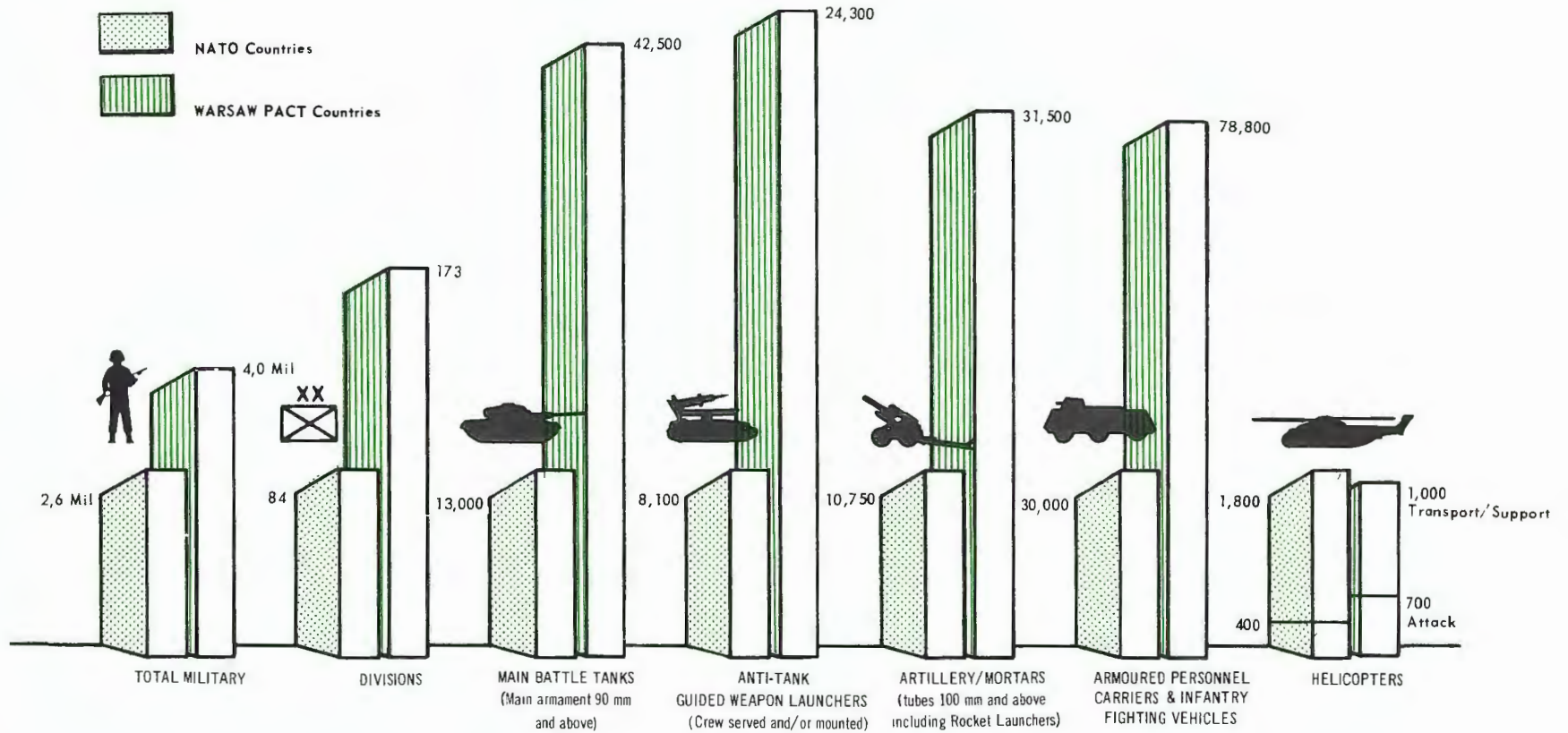
There are in addition 13 active United States divisions including two Marine divisions and a Canadian brigade in North America which could be made available in Europe in due course. Almost half of NATO's tank and mechanized divisions are equipped with modern weapons although there is a very unfavourable ratio between NATO anti-tank guided weapons and Warsaw Pact tanks and armoured personnel vehicles. NATO similarly has a lower proportion of armed attack helicopters. Only the United States has a retaliatory chemical capability, and a number of NATO nations lack adequate protection against chemical weapons. Figure 2 compares the in-place manpower, divisions and major equipment of both sides.

18. In Figure 2 the totals of main battle tanks, artillery and mortars take account of the current reorganization of Soviet divisions. The total inventory in combat units has thus increased by about 500 tanks and 1,500 artillery pieces. The figure of over 78,000 Warsaw Pact armoured vehicles includes about 58,000 armoured personnel carriers and infantry fighting vehicles, plus 20,000 additional armoured vehicles whose primary rôle is command and control, forward air control and reconnaissance but which also have a secondary rôle of direct combat. NATO forces have been counted in a similar manner. The anti-tank guided weapons mounted on Warsaw Pact vehicles for self defence have been included in the total figures as have been helicopter-mounted anti-tank guided weapons to ensure an accurate comparison with NATO forces.

19. Relative trends over the last few years in main battle tanks and artillery are shown in Figure 3.

NATO-WARSAW PACT FORCE COMPARISON

(IN PLACE IN EUROPE)



- NOTES: 1. WARSAW PACT DIVISIONS NORMALLY CONSIST OF FEWER PERSONNEL THAN MANY NATO DIVISIONS BUT CONTAIN MORE TANKS AND ARTILLERY, THEREBY OBTAINING SIMILAR COMBAT POWER.
 2. FORCES IN PLACE IN NATO EUROPE, WARSAW PACT FORCES AS FAR EAST AS BUT EXCLUDING THE 3 WESTERN MILITARY DISTRICTS IN WESTERN RUSSIA (MOSCOW, VOLGA & URAL MILITARY DISTRICTS).

FIGURE 2

RELATIVE TRENDS IN MAIN BATTLE TANKS AND ARTILLERY IN PLACE IN EUROPE

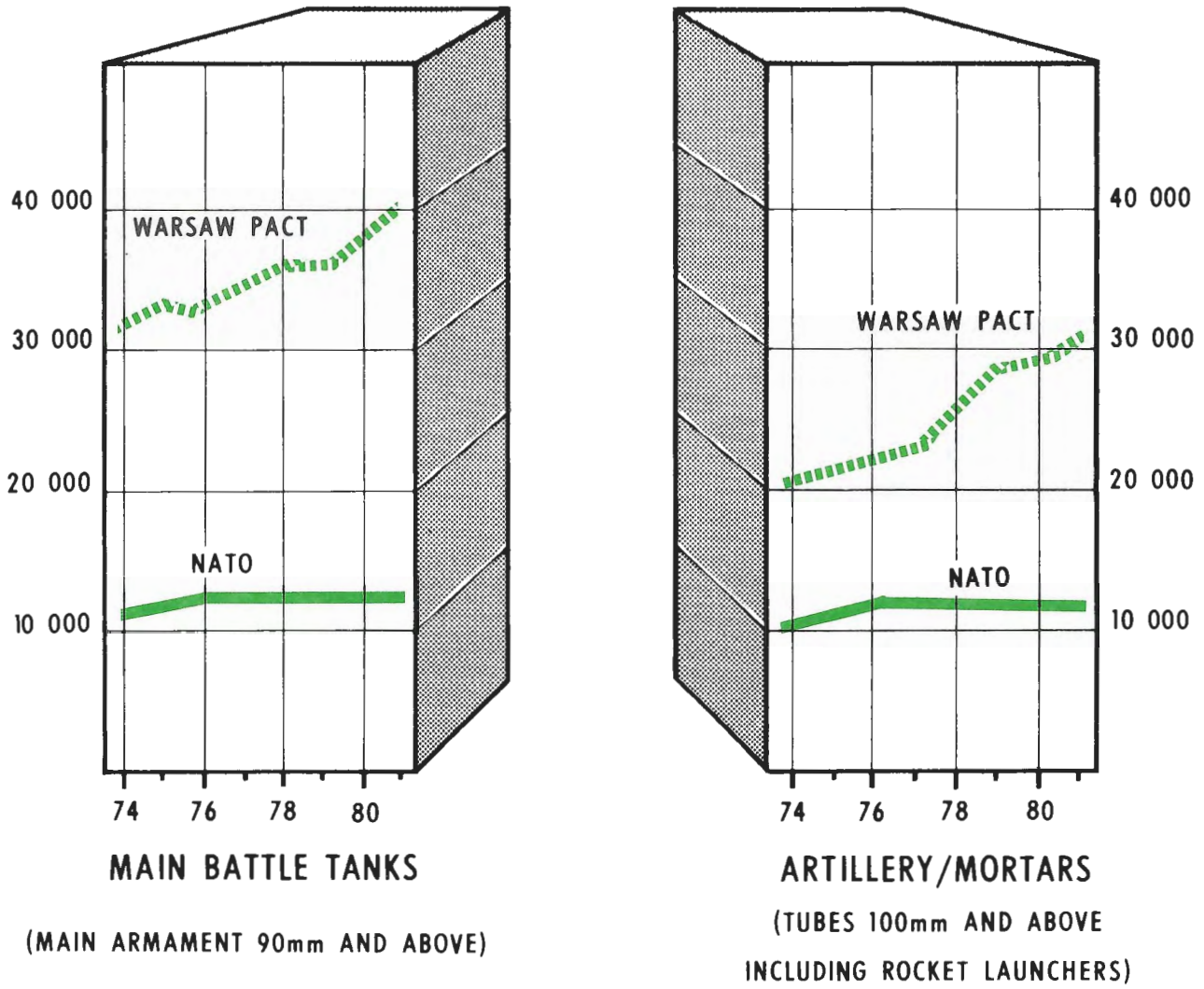


FIGURE 3

Air Forces and Air Defence Forces

20. The overall global total of Warsaw Pact aircraft is more than 12,000*. More than 10,000* of these are facing NATO Europe, of which 7,500* are of types technically capable of delivering nuclear weapons; these figures include aircraft not assigned to combat units. The majority of these nuclear capable aircraft would be likely to be used in conventional attacks over Europe. The total number of combat aircraft in operational units facing NATO Europe is 7,240 (see figure 4). Warsaw Pact air and defence forces as far east as the Urals (but excluding those in the Moscow Military and Air Defence Districts) consist of some 4,370 interceptor/air-combat aircraft. Many of these aircraft can be used in offensive roles such as assuring air superiority over the battlefield and they are backed up by extensive modern surface-to-air missile systems. Additionally there are some 1,920 ground-attack fighter bombers, 600 reconnaissance aircraft and about 350 bombers (excluding Soviet Naval Aviation), the majority of which would likely be used in a conventional rôle. There are also about 50 long-range aviation Backfire bombers which have a major conventional rôle in Europe. The Backfire bomber is however dealt with in the nuclear section. These air forces could be reinforced with some 750 combat aircraft from central Russia at a faster rate than NATO's

air forces could be effectively reinforced across the Atlantic. Significant numbers of new combat aircraft are introduced each year, replacing older models. The introduction of these modern tactical aircraft has considerably increased the Warsaw Pact's offensive capability, as its latest aircraft are capable of carrying up to twice the payload, can travel over three times the range, at higher speeds, and can conduct operations at lower altitudes than the aircraft they are replacing; this renders them less vulnerable to NATO air defences. Their increased combat radius would allow for Warsaw Pact operations from more distant bases in case of Warsaw Pact aggression against NATO, rendering more difficult counter-air operations by NATO, since NATO fighter-bombers would have to penetrate deeper into defended enemy airspace to counter-attack Warsaw Pact airbases. An increasing proportion of these modern aircraft can operate in adverse weather conditions by day or by night. The Warsaw Pact airlift capability is substantial. Soviet military transport aviation alone, consisting of over 600 long and medium-range aircraft, provides sufficient airlift to transport one complete airborne division and its equipment at any one time up to distances of 2,000 km. This capability can be supplemented in particular by Aeroflot civilian aircraft.

NATO/WARSAW PACT COMBAT AIRCRAFT IN PLACE IN EUROPE				
	Fighter-Bomber Ground-Attack	Interceptor	Reconnaissance	Bombers
NATO	1,950	740	285	-
WARSAW PACT	1,920	4,370	600	350

N.B. Many interceptors can be used in ground-attack roles.

* These totals include all aircraft of combat types including those in non-combat units as well as combat units (a criterion essential for arms control); all other numbers are based on aircraft in combat units.

NATO-WARSAW PACT COMBAT AIRCRAFT QUANTITATIVE COMPARISONS

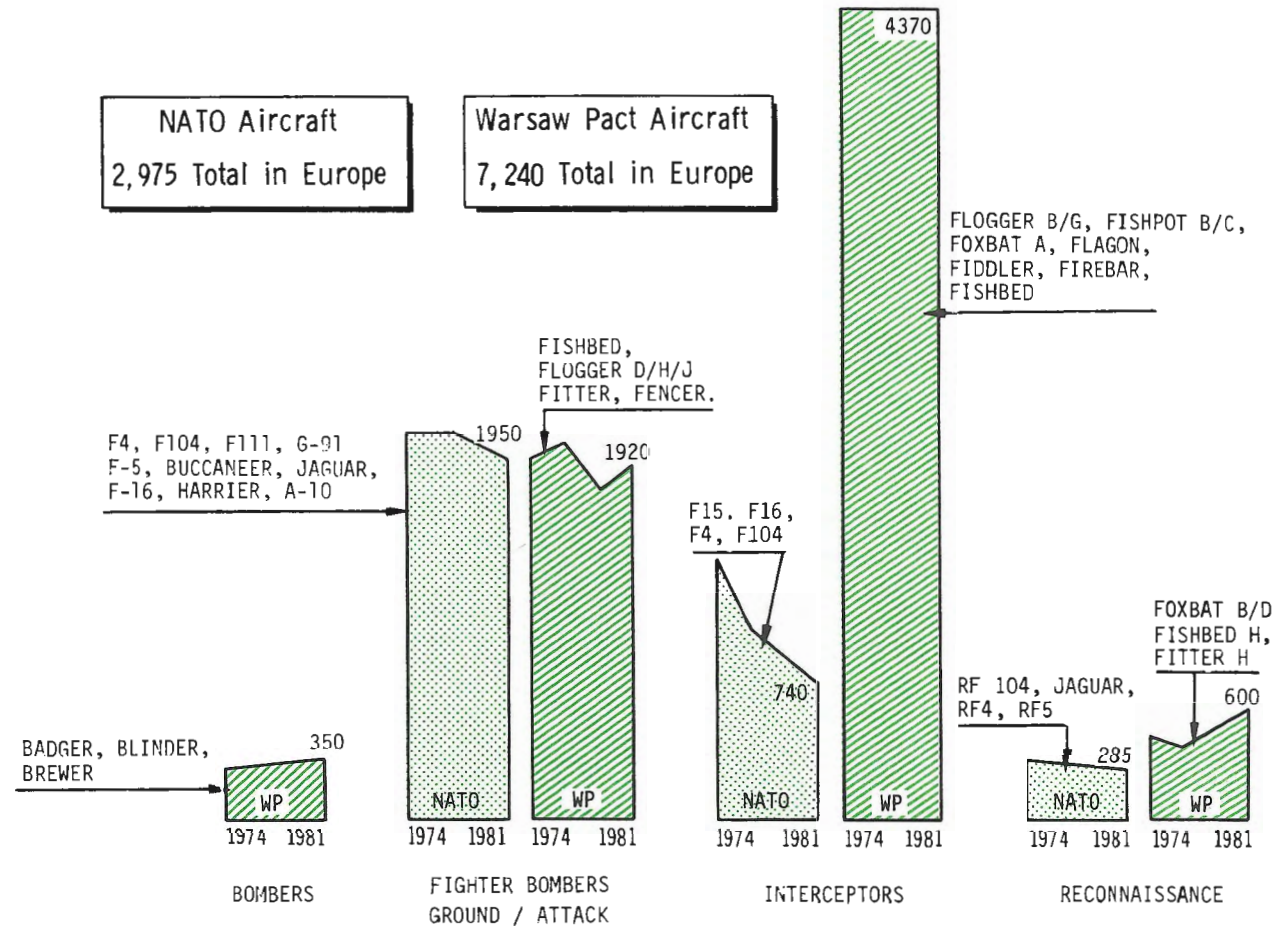
SELECTED TYPES OF AIRCRAFT IN PLACE IN EUROPE (EXCLUDING MOSCOW AIR DEFENCE DISTRICT)

WARSAW PACT

BADGER	TU-16
BLINDER	TU-22
BREWER	YAK-28
FISHBED	MIG-21
FLOGGER	MIG-27
FITTER A	SU-7
FITTER C/D/H	SU-17
FENCER	SU-19/24
FLOGGER B/G	MIG-23
FOXBAT A/B/D	MIG-25
FISHPOT B	SU-9
FISHPOT C	SU-11
FLAGON	SU-15
FIDDLER	TU-28
FIREBAR	YAK-28

NATO

PHANTOM	F-4, RF4
STARFIGHTER	F-104, RF-104
THUNDERBOLT II	A-10
FIGHTING FALCON	F-16
EAGLE	F-15
FREEDOM FIGHTER	F-5, RF-5



NB. A LARGE PROPORTION OF INTERCEPTOR AIRCRAFT CAN BE USED IN GROUND / ATTACK ROLES. THE FIGURES MENTIONED ABOVE REFER TO COMBAT AIRCRAFT IN OPERATIONAL UNITS ONLY.

FIGURE 4

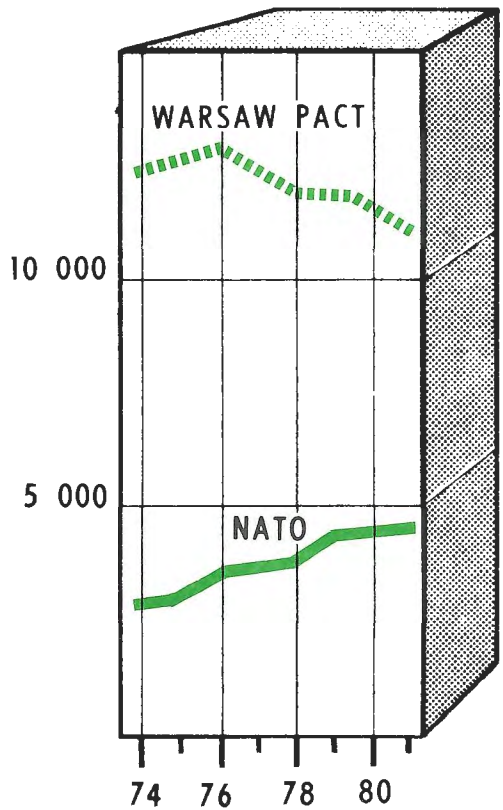
21. The land-based air forces, available in-place for NATO's Allied Command Europe, consist of 1,950 ground-attack fighter bombers, 740 interceptors and 285 reconnaissance aircraft. The few remaining United Kingdom Vulcan bombers no longer have a conventional role. The United States and Canada could reinforce rapidly with some 1,900 more combat aircraft, though airlift will be required for ground crew and equipment. The quality of NATO aircraft will improve with the continuing introduction of F-16 and as Tornado aircraft start to enter service. These have a greater all-weather capability than the previous generation of NATO aircraft, though the range and payload improvement is not as great as that gained recently by the Warsaw Pact. In respect of range and payload, NATO and Warsaw Pact aircraft now have comparable characteristics. Fighter-bomber aircraft, in addition to fighting the air battle would have to assist NATO ground forces in repulsing a Warsaw Pact attack. NATO's military airlift assets consist of nearly 750 transport aircraft, which can be augmented by the civil air fleets of the United States and the other Allies. These are considerably larger than the civil air fleets available to the Warsaw Pact which, however, are centrally controlled.

22. NATO nations have made considerable progress in improving the ability of their air forces to

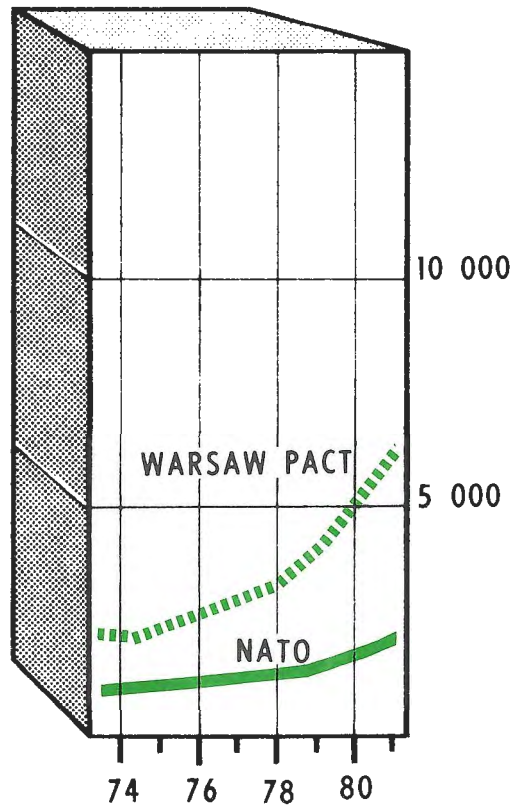
operate and survive in a hostile environment, particularly by providing better protection for vital operational and logistical facilities. However, there would still be too few military airfields available under wartime conditions to operate all the aircraft that might be available at any one time and to provide for adequate dispersal of aircraft for survival. To a considerable degree, NATO air forces maintain a high state of readiness and are qualitatively superior to those of the Warsaw Pact in terms of training and weapon systems. The tactical flexibility of NATO air forces and the ability to augment in-place forces rapidly in time of tension or war are also positive factors.

23. Warsaw Pact forces have an extensive range of static and mobile air defences, including a variety of surface-to-air missiles and guns. As the following graphs show, the Warsaw Pact has three times as many anti-aircraft guns over 20 mm calibre as NATO, and a similarly high ratio of mobile surface-to-air missile systems (SAM). This, together with large numbers of interceptors, produces a very hostile air environment over and behind advancing enemy ground formations; this requires a combination of low-level tactics and electronic countermeasures for NATO aircraft. All this would make it very difficult to conduct operations successfully over and behind the battle area.

RELATIVE TRENDS IN ANTI-AIRCRAFT ARTILLERY
 AND MOBILE SURFACE TO AIR MISSILES
 (IN PLACE IN EUROPE)



ANTI-AIRCRAFT ARTILLERY
 20mm CALIBRE AND OVER



MOBILE TACTICAL SURFACE TO
 AIR MISSILE LAUNCHERS
 EXCLUDING MAN-PORTABLE INFANTRY WEAPONS

FIGURE 5

Maritime Forces

24. As noted earlier there are fundamental differences in the respective missions of the naval forces of the Warsaw Pact and NATO resulting from the geographic and economic dissimilarities in the two alliances. The security of NATO nations depends on the unimpeded use of the sea both to link the potential of North America and Europe and to provide access for trade, raw materials and energy. As continental powers, the Warsaw Pact nations have far less dependence on the sea. The rôle of the NATO navies as for all NATO forces is in the first instance to deter aggression. They must be able to demonstrate a capability in peace and take action in war to preserve, protect and maintain the sea lines of communication, neutralize hostile forces, and to project maritime power in support of land and air forces. Conversely, the role of the Warsaw Pact navies would be to deny to NATO its use of maritime power and to hinder reinforcement. Moreover, the Warsaw Pact has the capability to carry out amphibious landings in North Norway, on the Baltic coasts and in Northern Turkey protected by its naval power and by Soviet naval aviation. Historical precedents demonstrate that the defence of the use of the sea demands far greater resources than the denial of its use, and thus the maritime balance between NATO and the Warsaw Pact must be seen in this perspective.

25. Accordingly, in the Atlantic, NATO's emphasis would be on protection of reinforcement and supply shipping primarily from submarine attacks; whereas in the critically important Channel area the greatest risks to reinforcement and supply routes would be from submarines and mines, with Warsaw Pact aircraft and missile systems posing an additional hazard to Allied maritime forces.

26. Allied control of the Norwegian Sea in the event of conflict would

have to be sufficient to inhibit access by Soviet naval forces into the Atlantic. It would also be necessary, in conjunction with land and air forces, to protect NATO's Northern Region as a whole, including Norwegian air and naval facilities, Iceland, Denmark and the Faroes and to control the Baltic Straits to prevent the Soviet Fleet from transiting to and from the North Sea and Channel areas.

27. The Iberian Atlantic area is of importance to NATO's defence because of the vital sea lines of communication to the NATO Southern Region and to sources of vital raw materials and oil.

28. In NATO's Southern Region itself, maritime forces have major tasks in defence of the region as a whole, supporting the land and air forces and maintaining the sea lines of communication in the Mediterranean in the face of the Soviet Mediterranean Squadron. They also have the task of securing the Turkish and Gibraltar Straits, in order to deny the Soviet Black Sea fleet access to the Mediterranean and to guarantee the flow of reinforcements and resupplies to NATO Southern Region respectively.

29. These and other differences in the respective naval missions for NATO and the Warsaw Pact are reflected in the different types and quantities of naval forces of the two alliances. Simple numerical comparisons of types of ships do not tell the full story and the naval balance may be defined in terms of the comparative ability of the naval forces of NATO and the Warsaw Pact to accomplish their respective missions in the face of opposition by the other side.

Warsaw Pact Naval Forces

30. The Warsaw Pact navies are equipped with a wide range of modern surface vessels, each of which is fitted with a range of anti-sub-

marine, anti-air missiles and some of which carry fixed-wing aircraft and/or helicopters. The capabilities of these surface forces are complemented by a force of land-based naval attack aircraft and an increasingly modern submarine force: the respective equipment of these forces

include stand-off weapons and cruise missiles. Approximate numbers of Warsaw Pact naval forces expected to face NATO (i.e. excluding the Pacific Fleet) are shown below for both 1971 and 1981, to provide a trend in quantitative changes:

Warsaw Pact		
	<u>1971</u>	<u>1981</u>
Kiev class ships	0	2
Helicopter carriers	2	2
Cruisers	20	21
Destroyers and frigates	142	182
Coastal escorts and fast patrol boats	553	551
Amphibious ships		
- Ocean-going	7	16
- Independent coastal craft	190	155
Mine warfare ships	374	360
Total Submarines (All types)	248	258
- Ballistic Missile submarines	38(1)	52(1)
- Long-range Attack submarines	115	149
- Other types	95	57
- % Submarines nuclear powered	32%	45%
Sea-based tactical and support aircraft including helicopters	36	146
Land-based tactical and support aircraft (including some transport aircraft and transport helicopters)	521(2)	719(2)
Land-based Anti-Submarine Warfare fixed-wing aircraft and helicopters	225	179

(1) Also referred to in the section on Nuclear Forces.

(2) About 300 of these are bombers.

31. Together with the numerical increases in larger ships, submarines and attack aircraft, major qualitative improvements are being made in Warsaw Pact naval forces, particularly in submarines and large warships but also in naval aircraft.

This has resulted in the transition of the Soviet Navy from a mainly coastal defence force to an offensive force capable of global power projection. These qualitative improvements are demonstrated by the number of new classes of Soviet major warships and

nuclear submarines in their construction programme. The Soviet Navy continues to develop its modern anti-ship missile forces by constructing four new classes of heavily armed missile cruisers and destroyers including the 25,000 ton nuclear-powered cruiser Kirov. In the Kiev class ships, the Soviet Union, for the first time, has sea-based fixed-wing Forger aircraft in operation. Soviet submarine development continues apace, with the high-speed, deep-diving Alpha class attack submarine, the huge cruise missile-equipped Oscar class submarine and the ballistic missile submarine Typhoon with a submerged displacement

of at least 25,000 tons being outstanding examples.

Warsaw Pact Auxiliary Fleets

32. The Warsaw Pact merchant, fishing and oceanographic fleets are state-owned and under centralized command and control. This enables them to operate on a regular basis in support of naval forces. Particularly important are their intelligence gathering and logistic support operations. In wartime these assets would become even more valuable. Additional roles would then include support of amphibious operations and possibly minelaying.

NATO Naval Forces

33. NATO naval forces allocated to the Atlantic and European areas:

	<u>1971</u>	<u>1981</u>
Aircraft carriers	9	7
Helicopter carriers	6	2
Cruisers	11	15
Destroyers/frigates	381	274
Coastal escorts and fast patrol boats	180	167
Amphibious ships		
- Ocean-going	24	41
- Independent coastal craft	62	69
Mine Warfare Ships	349	257
Total submarines	195	190
- Ballistic missile submarines	38(1)	35(1)
- Long-range attack submarines	72	60
- Other types	85	95
--% NATO submarines nuclear powered	50%	49%
Sea-based, tactical and support aircraft including helicopters	801	712
Land-based tactical and support aircraft	112	180
Land-based Anti-Submarine Warfare fixed-wing aircraft and helicopters	471	450

(1) Also referred to in the section on Nuclear Forces.

34. There have been major qualitative improvements in individual naval units and supporting systems of the NATO navies which are reflected both in new construction and modernization programmes. Included amongst such improvements are the capabilities of shipborne aircraft, anti-surface ship missiles, anti-submarine warfare detection systems, command and control, electronic warfare, and submarine noise suppression. The strategic missile submarine forces will become more powerful with the introduction of the OHIO class submarines and the Trident missile system. Despite these improvements, a steady decline in numbers of units has set a trend which appears to be continuing. This decline in numbers is further aggravated by the increasing age of whole classes of some NATO naval units particularly in destroyer and frigate categories.

35. The numbers in the tables comparing NATO and Warsaw Pact maritime forces reveal varying strengths and capabilities which reflect the different missions of the forces concerned. For example, NATO is strong in sea-based tactical air, land-based ASW/surveillance patrol aircraft, anti-submarine systems, long-range amphibious forces and endurance at sea through under way logistic support and nuclear propulsion. On the other hand, the Warsaw Pact is particularly strong in

anti-ship missile equipped ships, submarines, and land-based attack aircraft, as well as in torpedo-attack submarines and mines. Warsaw Pact naval forces have the geographic handicap of long access routes from Murmansk around the North Cape and the choke points created by the Baltic and the Turkish Straits. However, since NATO is a defensive Alliance, the Warsaw Pact has the initiative of time and place in deploying its forces and in interdicting NATO sea lines of communication. In these circumstances, a substantial numerical advantage is needed by the defending side.

36. NATO does not have this substantial numerical advantage, and this shortage of forces inside the NATO area is made worse by the assumption of responsibility by some Allied navies, particularly that of the United States, outside the NATO area in order to deter aggression and to respond to requests by nations for help in resisting threats to their security and independence. The effect will be that essential maritime tasks cannot be carried out concurrently and that the priorities will be imposed by the Warsaw Pact; moreover, a severe price might be paid in loss of control in certain regions of the Alliance including early shipping losses, until the Soviet naval threat is dealt with.

REGIONAL CONSIDERATIONS

Northern and Central Regions

Land Forces

37. Warsaw Pact forces facing this area consist of some 104 divisions drawn from the armies of the Soviet Union, German Democratic Republic, Czechoslovakia and Poland and deploying some 27,200 tanks and 19,500 artillery and mortar pieces. Two-thirds of these divisions are deployed in the forward area. In the far north the Warsaw Pact has two Soviet divisions. Further down within the same Military District are an additional 7 divisions including one airborne division. 95 divisions face the southern part of the Northern Region and Central Europe. The Warsaw Pact also has considerable amphibious capabilities in the Barents Sea and the Baltic.

38. Opposing the Warsaw Pact, NATO's in-place land forces in Europe are composed of armed forces from Belgium, Canada, Denmark, the Federal Republic of Germany, Luxembourg, the Netherlands, Norway, the United Kingdom and the United States. The in-place land forces of NATO in this area consist of some 39 divisions including those forces in the United Kingdom, fielding about 7,700 tanks and 4,550 artillery and mortar pieces including prepositioned equipment. Most of these Northern and Central Region land forces are kept in a high state of readiness, but deficiencies include some maldeployment, and lines of supply which run too near and parallel to the border. Although all NATO formations are dependent in varying degrees on mobilization and redeployment, approximately 75% of these forces could be in position very quickly indeed. There are in addition 13 United States divisions in North America which together with their associated equipment and tanks, drawn from an overall total of some 5,000 tanks and 2,500 artillery/mor-

tars, could be available to move to Europe in due course. Some of these could be allocated to the Southern Region. Up to three of the divisions would arrive quickly by air. Other United States divisions, with their equipment would arrive later by sea. A Canadian brigade group also would reinforce the area.

39. In total, over half of the 104 Warsaw Pact divisions in the German Democratic Republic, Czechoslovakia, Poland and the Northern military districts of the Soviet Union could launch operations within a few days of mobilization. In the best situation, assuming simultaneous mobilization and deployment forward within the region, NATO could count on some 42 divisions, which would have to hold out until additional United States and Canadian forces arrive by sea. In the meantime, the Warsaw Pact forces could be quickly expanded to their full 104 divisions, plus a proportion of the 15 Strategic Reserve Divisions from the three Central Military Districts.

Air Forces

40. The Warsaw Pact is numerically superior in terms of fixed-wing tactical aircraft in this area. The NATO figures shown below include UK based aircraft and US aircraft based in Europe in peacetime. The high proportion of ground-attack fighter bomber aircraft in NATO air forces is partly required to counter the Warsaw Pact preponderance in armour on the Central Front. Against this force, however, the Warsaw Pact can deploy interceptor forces, many of which can also be used for ground attack, and exceptionally strong surface-to-air defence systems. Aircraft of the Moscow Air Defence District are excluded from the following table

because of their distance from the Northern and Southern Regions. Also some 1,900 United States and Can-

adian-based reinforcement aircraft, which are situated even further from these regions, are excluded.

NORTHERN AND CENTRAL REGIONS - IN PLACE AIR FORCES			
	FIGHTER/BOMBER GROUND/ ATTACK	INTERCEPTOR	RECONNAISSANCE AIRCRAFT
NATO	1,340	445	200
WARSAW PACT	1,580	2,595	415

N.B. Many interceptors can be used in ground attack rôles.

DEFENCE OF NORTHERN AND CENTRAL REGIONS

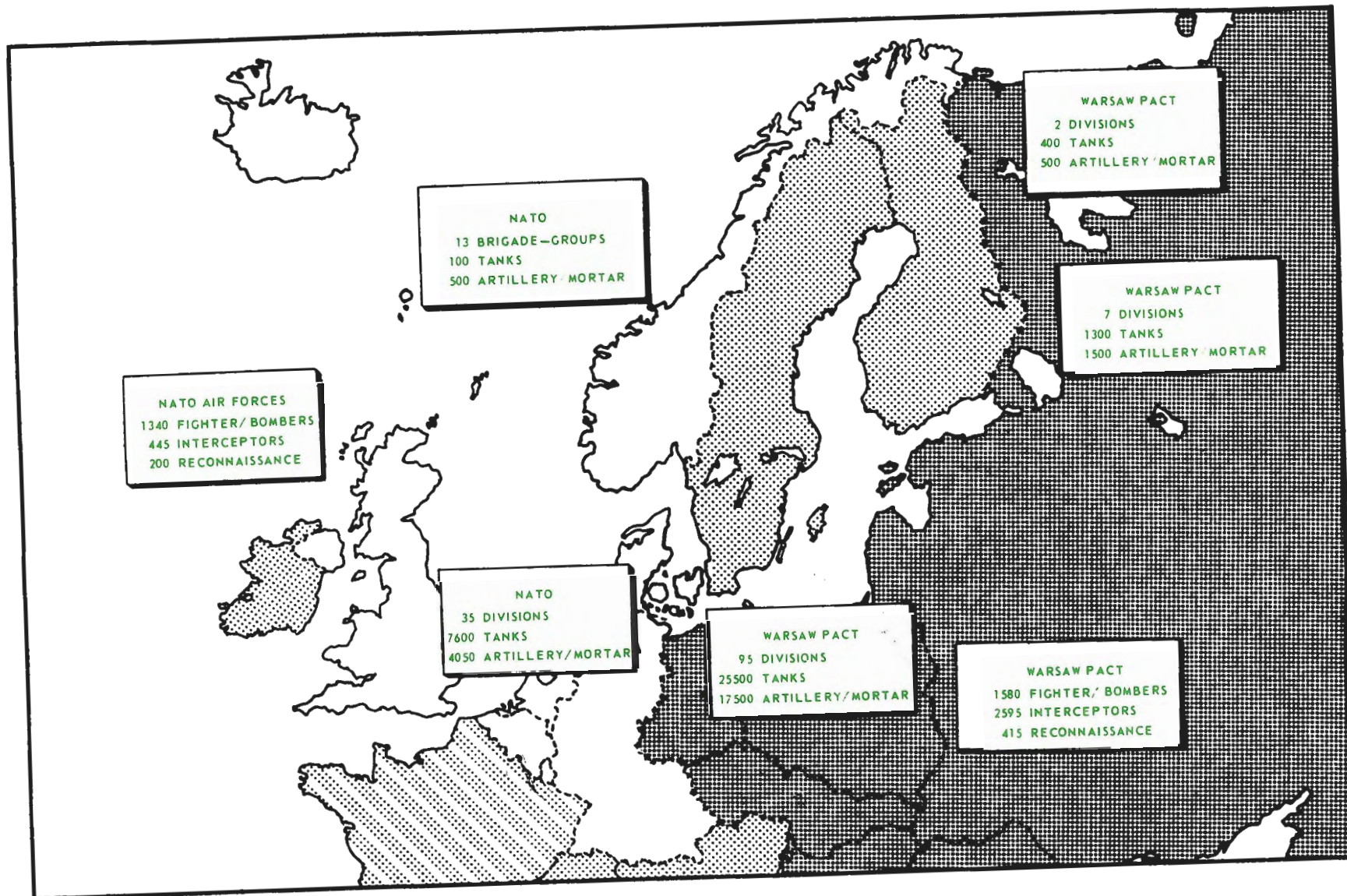


FIGURE 6

Southern Region

Land Forces

41. The Warsaw Pact has 10 Soviet and Hungarian divisions, equipped with over 2,300 tanks and approximately 1,400 artillery pieces which could be employed against North-East Italy. These divisions, located in Hungary, could be reinforced by seven more divisions including 2,000 tanks and 1,300 artillery pieces coming from the Kiev Military District. Warsaw Pact forces additionally include the equivalent of 3 divisions of airborne, air mobile and air assault troops which could be used anywhere within the region. Furthermore, options against the Central Mediterranean could be possible. NATO land forces consist of 8 Italian divisions with 1,250 tanks and 1,550 artillery and mortar pieces. The Italian forces are generally well deployed and improvements are planned to meet the support requirements for their reinforcement.

42. Approximately 33 Soviet, Romanian and Bulgarian divisions are available in the area north of Greece and Turkish Thrace. These forces are largely mechanized and are equipped with a total of 6,900 tanks and 5,300 artillery and mortar pieces. They are on terrain suitable for armoured offensive operations and could be reinforced by amphibious forces and by the Warsaw Pact airborne/air mobile divisions referred to above. NATO's 25 Greek and Turkish divisions in the area are mainly infantry.

Their task is rendered difficult for defensive operations by the narrowness of the area between the borders and the Aegean.

43. There are 19 Soviet divisions which could be committed against Eastern Turkey equipped with about 4,100 tanks and approximately 4,000 artillery pieces. These forces could be reinforced by an airborne or air assault/ mobile division referred to above and by amphibious forces. The Turkish Army retains 8 divisions in North East Turkey. Four more divisions in South East Turkey are for use there protecting its extensive borders, but would be available for defence against the Warsaw Pact.

44. Greece and Turkey together have 3,900 tanks and 4,650 artillery pieces, in comparison with 11,000 tanks and 9,300 artillery pieces opposing them. The geographical separation of the Italian, Greece/Turkish Thrace and Eastern Turkish territories would make reinforcement and resupply among the respective theatres difficult particularly when lines of communication are under attack.

Air Forces

45. As with other regions, the flexibility of air forces renders comparison difficult. In-place forces available to the Warsaw Pact and NATO are approximately as follows:

SOUTHERN REGION - IN PLACE AIR FORCES			
	FIGHTER/BOMBER GROUND ATTACK	INTERCEPTORS	RECONNAISSANCE AIRCRAFT
NATO	610	295	85
WARSAW PACT	340	1,775	185

N.B. Many interceptors can be used in ground attack rôles.

The range of modern Warsaw Pact aircraft is such that they have the potential to operate anywhere in the Mediterranean, endangering the security of sea lines of communication which are of vital importance to the NATO nations in the Southern Flank. The geography of the Mediterranean emphasizes the inter-action between the maritime, land and air

situations. The NATO naval forces and Soviet Mediterranean Squadron would have to face opposing land-based and naval aviation; naval operations would in turn greatly influence land/air operations in the three sub-regions. External air reinforcements from the Alliance could be of crucial importance.

DEFENCE OF SOUTHERN REGION

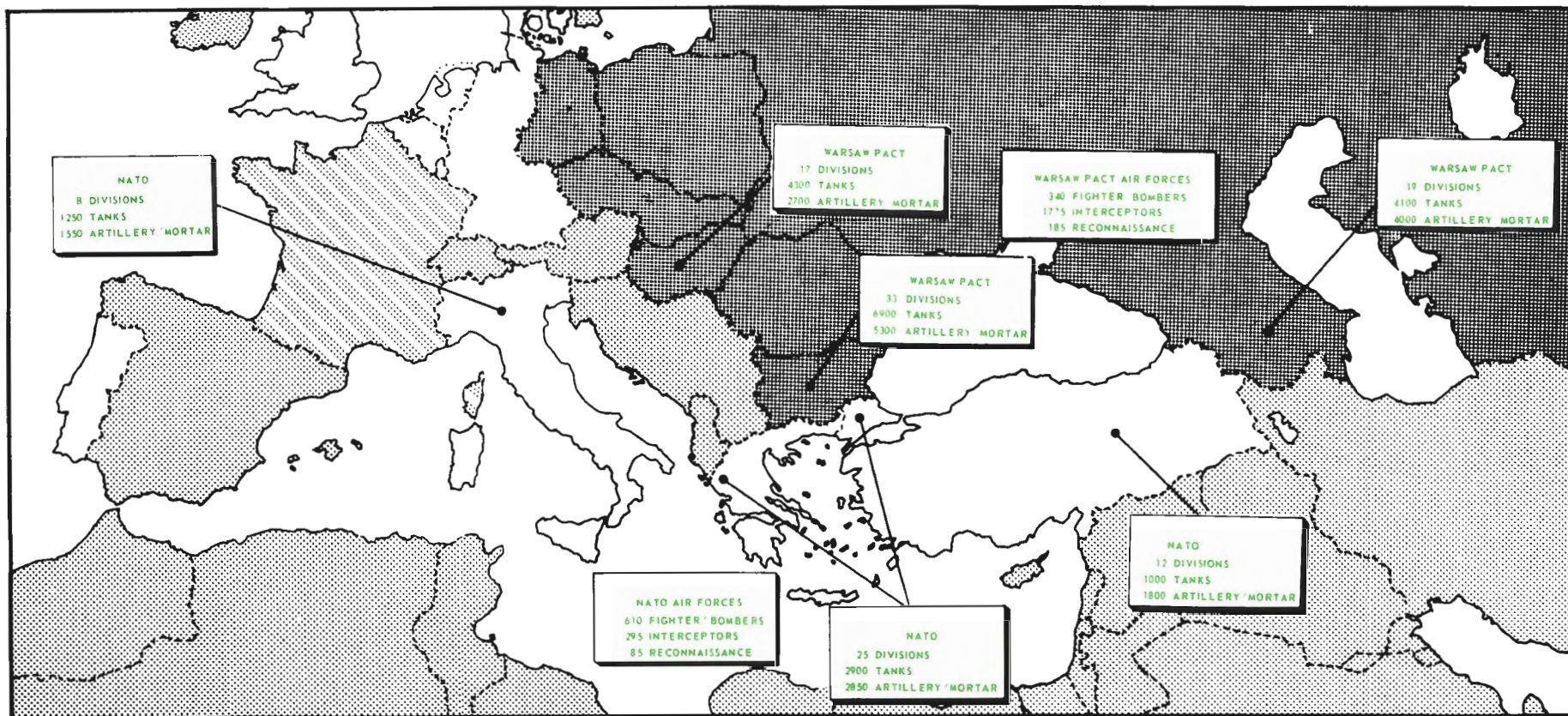


FIGURE 7

NUCLEAR DETERRENCE AND THE NUCLEAR EQUATION

46. As part of NATO's strategy, nuclear forces, in combination with conventional forces, exist to maintain peace through deterring aggression. To deter successfully, NATO's nuclear forces must be viewed by the Warsaw Pact as being credible. They must be, and be seen to be, capable of making an effective response, convincing a potential aggressor that in any attack against NATO the costs would outweigh any conceivable gains.

47. The primary role of nuclear weapons is deterrence. They are not generally direct military counters to each other. Thus, direct parity in every system is not needed. Individual nuclear weapon systems cannot be considered in isolation from other nuclear systems or from conventional forces. However, to avoid miscalculation by a potential adversary and to ensure preservation of stability and peace, there must be a balanced relationship in the overall capabilities between the nuclear forces of NATO and the Warsaw Pact in order that the credibility of NATO's deterrent is not called into question.

Note on Comparison of Nuclear Forces

48. The sections that follow (Strategic Nuclear Forces, Intermediate- and Short-Range Nuclear Forces, and Sea-Based Nuclear Forces) aim to present an assessment of systems that are broadly comparable and, where possible, to identify clearly discernible trends. In the strategic category, the systems compared are those considered to have intercontinental capabilities. In other categories comparisons are affected to a greater extent by qualitative and quantitative differences between forces which result in individual systems often not being directly comparable. The sections that follow list the numbers of aircraft, missile launchers and artillery tubes in each category; several of these operational systems are capable of firing additional missiles and warheads and aircraft are capable of performing more than one mission.

Strategic Nuclear Forces

49. Strategic nuclear forces comprise three elements - Intercontinental Ballistic Missiles (ICBMs),

Submarine-Launched Ballistic Missiles (SLBMs) and bombers. Each of these elements is different with respect to readiness, survivability, flexibility, accuracy and ability to penetrate enemy defences. These elements complement each other and thus the strategic forces must be viewed in their entirety.

50. NATO's strategic nuclear forces are provided primarily by the United States, but also include SLBMs deployed by the United Kingdom. On the Warsaw Pact side, the Soviet Union also maintains similar types of strategic nuclear forces and has over the past decade improved the quality to a significantly greater extent than NATO and has also substantially increased the number of these forces. Figure 8, which compares the main developments in strategic missile systems on both sides, depicts the recent momentum of the Soviet modernization. To ensure that stability is preserved in the future, programmes are now underway in the United States and the United Kingdom to ensure the continued adequacy of this essential part of NATO's overall deterrent.

51. The Soviets surpassed NATO in total destructive power (usually measured in megatons) in their strategic systems in the late 1960s and in the number of strategic nuclear delivery vehicles in 1973 (see Figure 9).

On the other hand, NATO has at present more strategic warheads but this advantage is diminishing (as Figure 10 shows) with the continuing Soviet deployments of multiple warheads, known as Multiple Independently-Targetable Re-entry Vehicles (MIRVs).

52. Today, the Soviets maintain a significantly greater proportion than NATO of their equivalent throw-weight capability (a rough measure of the ability to deliver large warheads) in ICBMs - about 62% compared to 31% for NATO. The Soviets maintain a significantly greater proportion than NATO of their megatonnage

in ICBMs. Moreover, the sustained Soviet modernization of its ICBMs has given rise to particular concern as the newer warheads (especially those of the SS-18 and SS-19) are large and accurate enough to destroy United States ICBM launch sites (silos). Figure 11 shows that the Soviet Union has deployed a sufficient number of these ICBM warheads to have the potential capability to destroy most of the United States' ICBM silos while NATO, by contrast, does not have a corresponding capability against the Soviet Union's ICBM silos because of the relatively limited number of highly accurate warheads on its ICBMs and the hardness of Soviet silos. When considering NATO's strategic forces as a whole, this disparity in relative vulnerability of ICBM silos has to be viewed against the background of the higher survivability of submarines and bombers. NATO's strategic submarines are virtually invulnerable at sea. Also strategic bombers can have relatively high survivability to a surprise attack by maintaining a high state of readiness (although these aircraft must still face heavy Warsaw Pact air defences). In their entirety, the overall survivability and complementary characteristics of NATO's strategic nuclear forces guarantee the Alliance's ability to threaten retaliation, thereby ensuring deterrence.

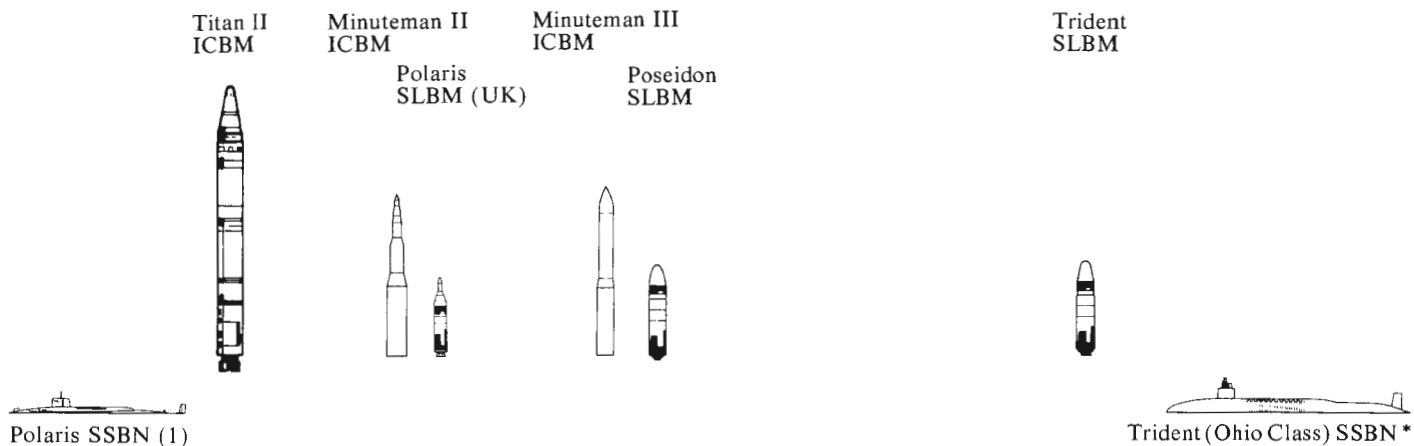
Intermediate- and Short-Range Nuclear Forces (3)

53. Besides their strategic nuclear forces, both NATO and the Warsaw Pact have a variety of other systems, of less than intercontinental range, which are capable of delivering

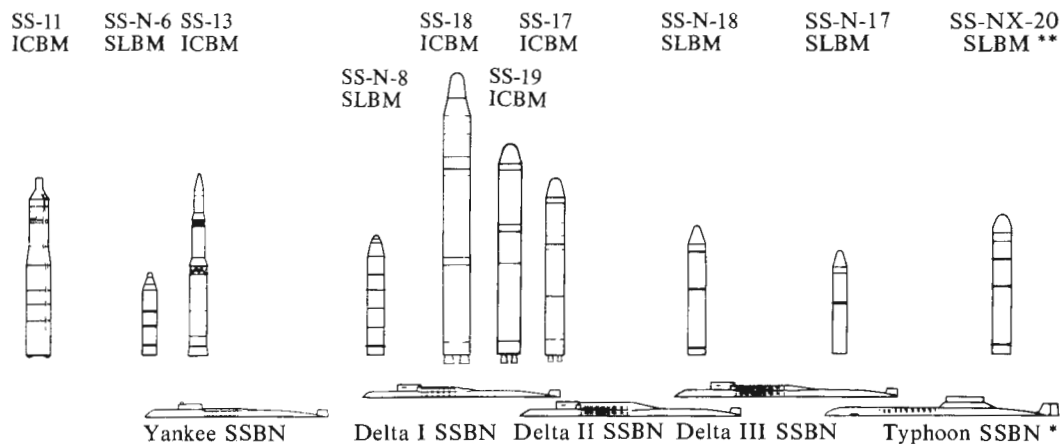
(3) This terminology is consistent with that used in the arms control negotiations currently taking place between the United States and the Soviet Union; these forces were previously covered under the term theatre nuclear forces.

STRATEGIC MISSILE FORCES

NATO (US + UK)



Soviet



Year of Introduction	1960's	1970's	1980's
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- * Currently undergoing sea trials
- ** Currently undergoing flight tests

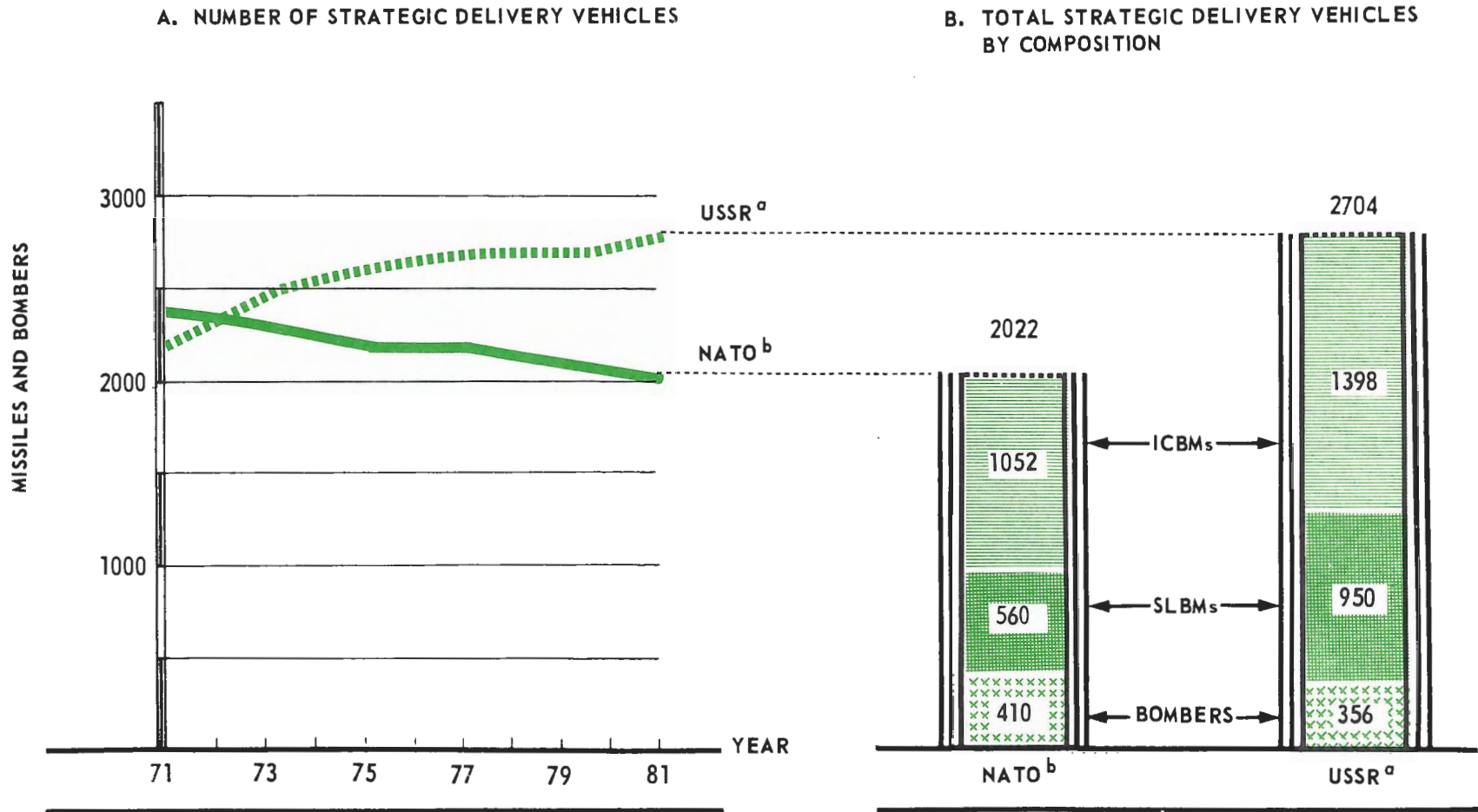
KEY :

- ICBM = Intercontinental Ballistic Missile
- SLBM = Submarine Launched Ballistic Missile
- SSBN = Nuclear Ballistic Missile Submarine

(1) Thirty-one United States Polaris submarines were refitted to carry Poseidon missiles; twelve of these submarines are being further modified to carry the Trident I (C-4) missile.

FIGURE 8

TOTAL STRATEGIC MISSILES AND BOMBERS

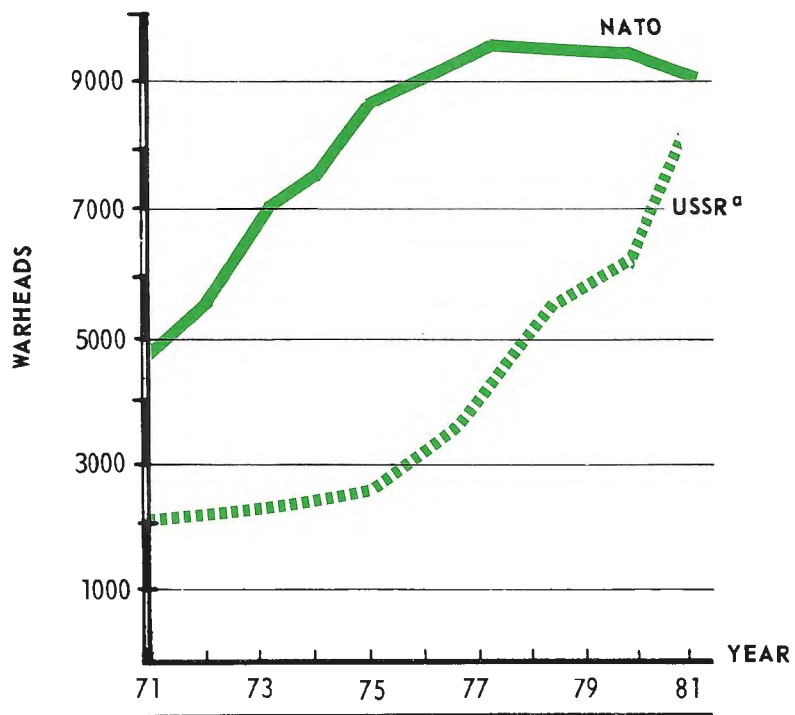


- (a) USSR figures include Soviet strategic missiles and BEAR, BISON, and BACKFIRE bombers; the BACKFIRE bomber has been included in this figure because it has an inherent intercontinental capability although in its maritime and European land-attack rôles it poses a serious threat to NATO Europe.
- (b) NATO figures include United States strategic missiles, 64 British strategic POLARIS SLBMs and United States B-52s and FB-111s. The United States-based FB-111 is included because it has a strategic mission.

FIGURE 9

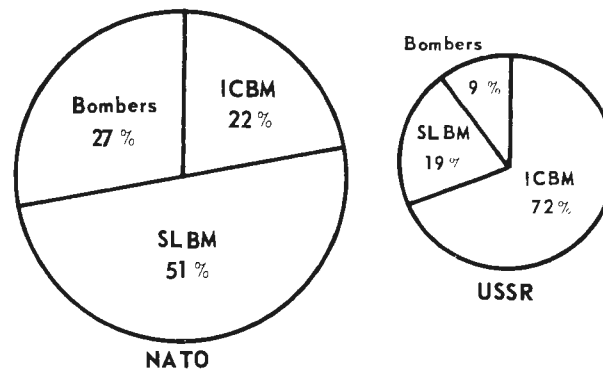
STRATEGIC WARHEADS

A. NUMBER OF WARHEADS 1971-1981

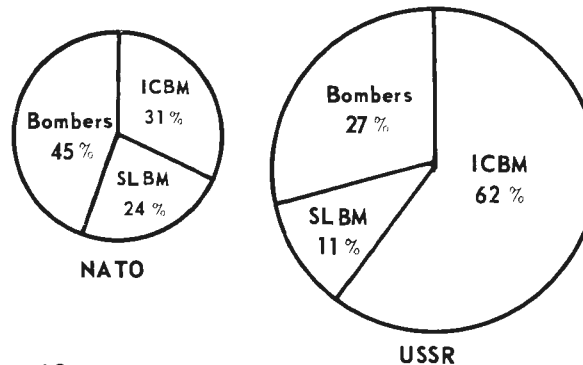


^a - If all USSR missiles were MIRVed to their tested capability the number of Soviet warheads would total some 8500.

B. CURRENT WARHEAD TOTALS



C. CURRENT EQUIVALENT THROWWEIGHT



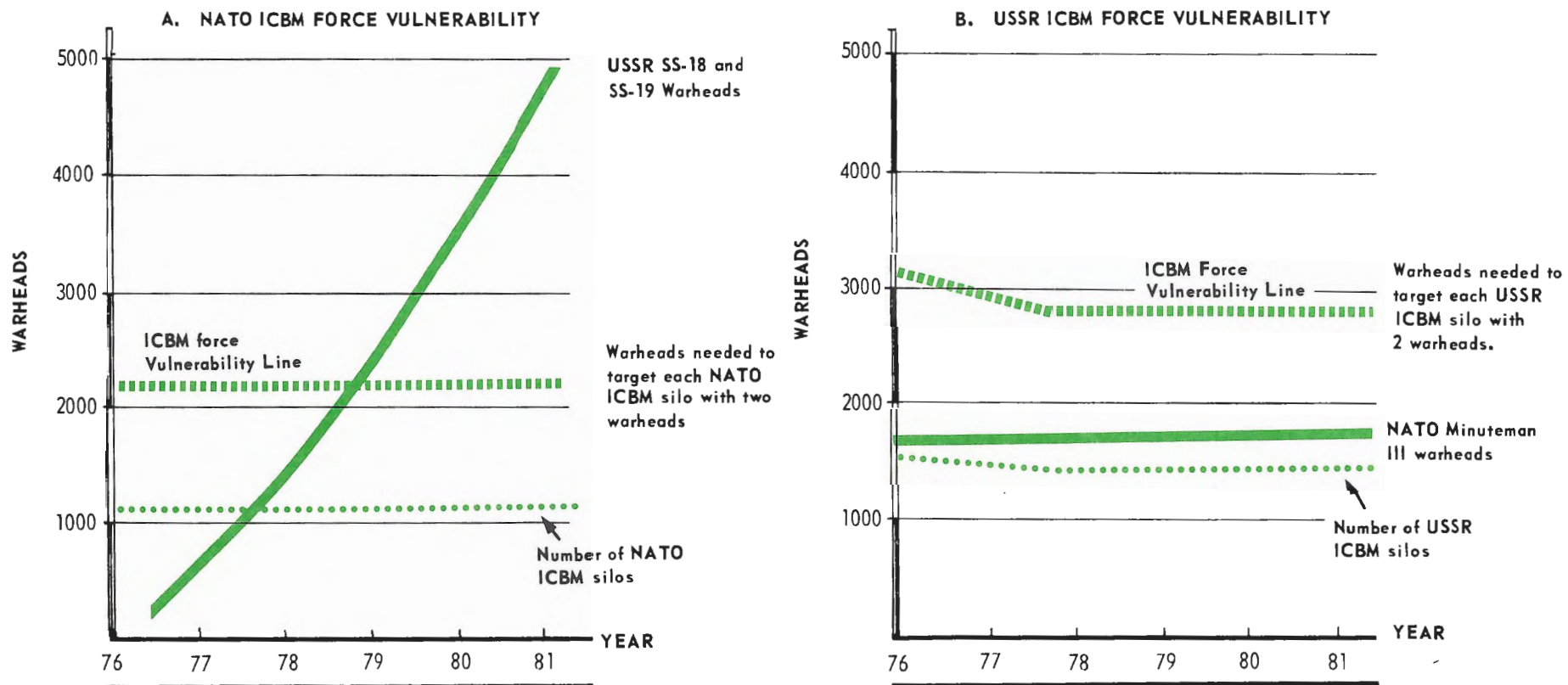
1981 NATO / USSR STRATEGIC FORCES

- Total Active Inventories
- Includes FB-111
- Includes long range aviation and naval air forces BACKFIRE

FIGURE 10

LAND BASED ICBM VULNERABILITY

- 43 -



In order to assure a high probability of destroying a hardened ICBM silo, two high-yield and high-accuracy warheads must be employed. Only the US Minuteman III and the Soviet SS-18 and SS-19 ICBMs carry warheads with the requisite yield and accuracy. As the graph depicts, the US currently has about 1650 warheads deployed on Minuteman IIIs whereas the USSR has over 4800 warheads deployed on SS-18s and SS-19s (assuming maximum tested capability).

FIGURE 11

nuclear weapons. These include Intermediate-Range Nuclear Forces (INF) and Short-Range Nuclear Forces (SNF). INF and SNF systems consist of land-based missiles, tube artillery and aircraft. There are major differences between the forces of NATO and the Warsaw Pact. Overall, the Warsaw Pact has a substantial numerical advantage. This is particularly significant in the case of land-based missiles because these have a better penetration capability than aircraft and aircraft form the greater proportion of NATO's INF.

Intermediate-Range Nuclear Forces

Longer-Range INF Missile Systems

54. The Warsaw Pact has deployed in the Soviet Union a large force of these land-based missiles consisting of the SS-20, SS-4 and SS-5. Despite the substantial Soviet build-up NATO presently has no missiles in this category as Figure 12 shows. The capabilities added to Warsaw Pact forces by the deployment of the mobile SS-20 missile which became operational in 1977 were a particular source of concern that contributed to the NATO 12th December 1979 dual-track decision to deploy PERSHING II and Ground-Launched Cruise Missiles (GLCMs) and to pursue arms control negotiations involving these systems between the United States and the Soviet Union.

55. Figure 13 depicts the global number of land-based missile warheads in this category. While the number of Soviet missile-launchers has remained roughly the same in recent years (because a number of SS-4 and SS-5 missiles have been retired as the SS-20 has been deployed) the number of warheads on launchers has increased considerably during the period (because each SS-20 has three warheads, each of which is independently targetable). The number of SS-20 warheads has doubled since December 1979 (when NATO decided, as part of its dual-track decision, to

deploy 572 PERSHING II and GLCMs) to about 900 currently. These, together with the 300 warheads on the remaining SS-4 and SS-5 missiles make a total of about 1,200 missile warheads. Deployments of SS-20 launchers show an overall rate of one per week. By comparison, NATO's deployment is not scheduled to begin until late 1983 and will not result in an increase in the total number of nuclear warheads in NATO Europe.

56. SS-20 missiles are deployed both in the European Soviet Union and in the Eastern USSR. Significantly, most of those deployed east of the Ural Mountains (i.e. outside Europe) can strike substantial portions of NATO Europe. Even those deployed in the eastern-most locations can reach NATO Europe (see Figure 14). Moreover, SS-20 missiles are readily transportable and could be relocated westward at short notice. NATO's longer-range INF missiles are planned for deployment in Europe. Figure 15 shows that the PERSHING II could strike targets only as far as the western-most military districts of the Soviet Union, but not Moscow and beyond. The GLCM has a longer range than PERSHING II but is not capable of reaching targets as far as the Ural Mountains or further to the East. Furthermore, these systems do not present a threat to Soviet ICBM forces, since most of the silos are extensively hardened or are beyond the reach of NATO's systems (see Figure 16); in addition, the limited numbers planned for deployment and, in the case of cruise missiles their long flight time of several hours, makes them unsuitable for such use.

Shorter-Range INF Missile Systems

57. Warsaw Pact shorter-range INF missile systems such as the Soviet SS-12/22s and SCUD could, especially if deployed forward, attack many of the same targets covered by the SS-20, SS-4 and SS-5. The Warsaw Pact has deployed approximately 650

SS-12/22s and SCUDs compared to NATO's 180 PERSHING 1a's, which would be reduced to 72 upon deployment of PERSHING II. In addition, the Soviet Union has developed the SS-23 Missile, which has a longer range than the SCUD Missile for which it is a follow-on. Thus, the Warsaw Pact has a substantial numerical advantage over the whole range of INF missile systems.

INF Aircraft

58. The ranges of aircraft vary considerably depending on how the aircraft are flown and how much they are carrying. Normally, the majority of INF aircraft carry only one warhead but some types of aircraft, particularly those with longer ranges, can carry a second or third warhead. Their coverage is dependent on the location of suitably equipped bases. The comparisons that follow in this section cover land-based aircraft* located in NATO Europe and, in the case of the Warsaw Pact, opposite NATO Europe. The BACKFIRE bomber has been included in the strategic section because it has an inherent inter-continental capability although in its maritime and European land-attack rôles it poses a serious threat to NATO Europe.

59. Comparisons of longer-range INF aircraft in operational units show that the Warsaw Pact has a considerable numerical advantage. NATO has about 200 F-111s and VULCAN aircraft; the Warsaw Pact has about 400 BADGERS and BLINDERS in its long-range aviation and an additional 250 aircraft of these types in its naval air forces making a total of 650 aircraft. Of these, about 500 are in use as bombers, and about 100 aircraft in long range aviation and about 50 aircraft in the naval air forces are trainers that can be used on combat missions. Both the United States and the Soviet Union maintain

aircraft of these types outside Europe (in the United States and in the Soviet Far East, respectively).

60. Most of the types of combat aircraft of both NATO and the Warsaw Pact are technically capable of delivering nuclear weapons but not all of these aircraft would be available for nuclear use for a variety of reasons. A substantial portion of these aircraft would be assigned to conventional missions and not all pilots who fly these aircraft are trained to deliver nuclear weapons. Taking these factors into account, it is estimated that overall the Warsaw Pact could employ up to 2,500 INF aircraft in a nuclear rôle. On the NATO side, the number is about 800 (see Figure 18). Thus the Warsaw Pact has a significant numerical advantage over NATO with regard to aircraft available for employment in a nuclear rôle.

Short-Range Nuclear Forces

61. Short-Range Nuclear Forces (SNF) consists of tube artillery and missiles of much shorter maximum range than is the case of INF missiles. Most SNF on both sides are capable of being used to deliver either conventional or nuclear weapons. Figure 19 gives an assessment of NATO and Warsaw Pact SNF systems that could have a nuclear rôle. NATO has an overall numerical advantage in these systems. However, the Warsaw Pact has more land-based short-range missile launchers, with some 650 FROG/SS-21s against about 100 LANCE and HONEST JOHN on the NATO side; the greater range, and consequently the improved target coverage and survivability, of land-based missiles more than compensates for NATO's numerical advantage.

Sea-Based Nuclear Forces

62. The sea-based strategic systems

* Carrier-based aircraft are dealt with under Sea-Based Nuclear Forces in paragraph 62.

of both sides were discussed in paragraphs 49 to 52 and land-based INF aircraft with a primary maritime mission are included in paragraphs 59 and 60. In addition, both NATO and the Warsaw Pact have other sea-based nuclear systems; these are an integral part of naval operations. The nuclear capabilities of these naval forces consist of air defence, anti-ship and anti-submarine warfare systems and are designed to support the general mission of these forces as described in paragraphs 24 to 36. On the NATO side, these include the TERRIER surface-to-air missile, the ASROC and SUBROC anti-submarine

missiles, and air-delivered bombs. The Warsaw Pact has air delivered bombs and SS-N-3, SS-N-7, SS-N-9, and SS-N-12 varieties of anti-ship cruise missiles. There are also, on the NATO side, A-6 and A-7 aircraft aboard United States aircraft carriers which are capable of delivering nuclear weapons against targets ashore; these, however, do not have this as a primary mission and at any one time only a portion would be in range of land targets. Also on the Warsaw Pact side, the Soviet Union has a small number of SS-N-5 non-strategic ballistic missiles on board submarines.

CURRENTLY DEPLOYED LONGER-RANGE INF MISSILE SYSTEMS

NATO

None

**Warsaw
Pact**

(All missiles are located in the USSR with Soviet Forces)




	SS-4	SS-5	SS-20
			
Warheads	1	1	3 MIRV
Range (km)	2,000	4,100	4,400-5,000
Operational Mode	Fixed	Fixed	Mobile
Global Number Deployed*	275	25	300
Year Operational	Late 1950's	Early 1960's	1977
*Excludes refire missiles			

FIGURE 12

LONGER-RANGE INF MISSILE WARHEADS (GLOBAL DEPLOYMENTS)

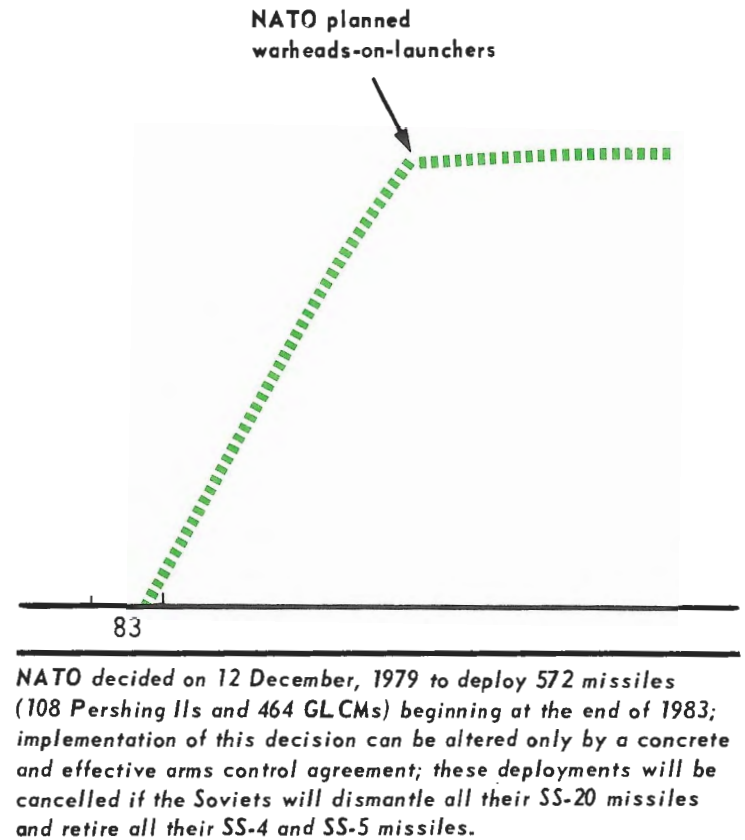
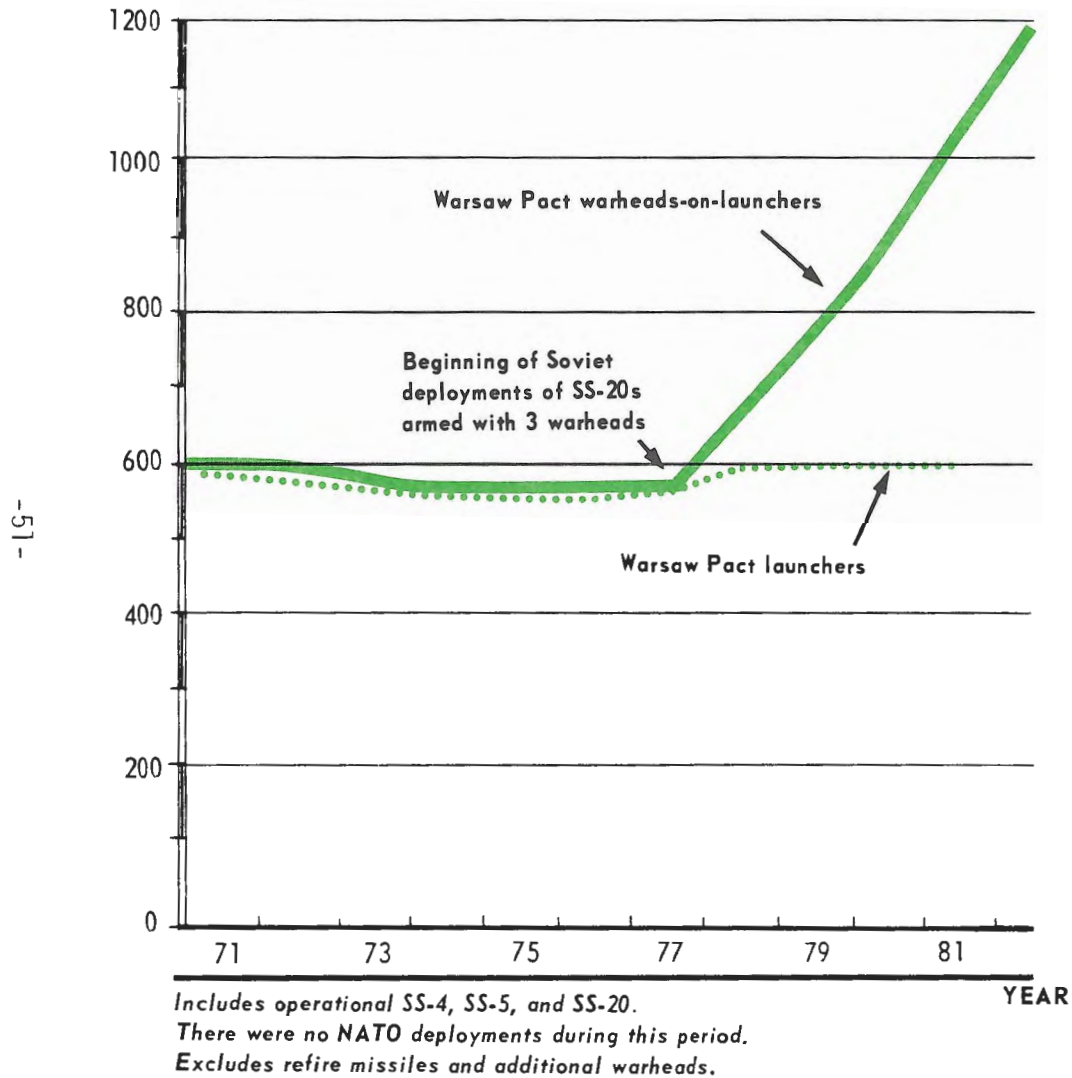


FIGURE 13

COVERAGE OF EUROPE FROM SS-20 BASES EAST OF THE URALS

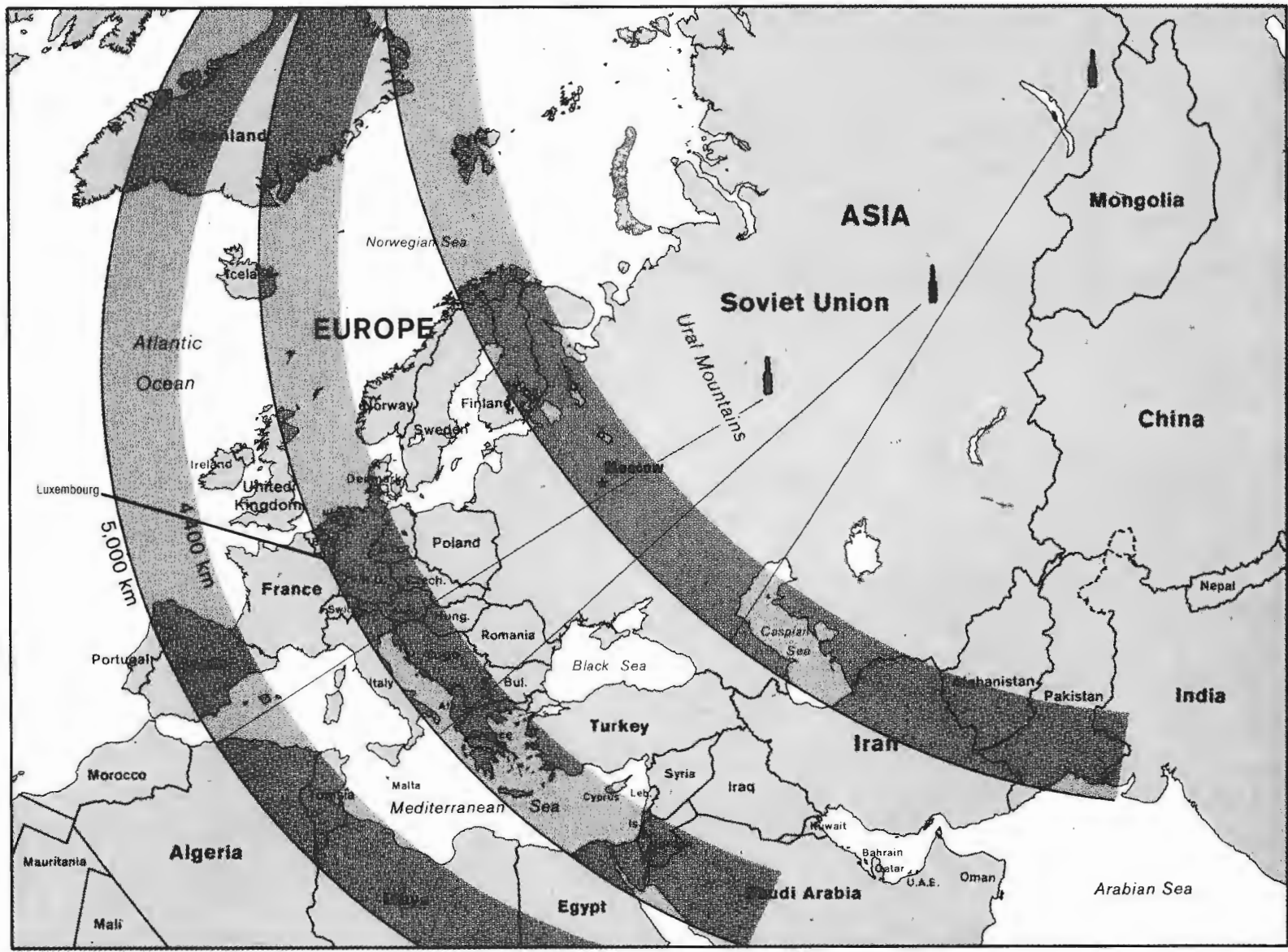


FIGURE 14

NATO GLCM AND PERSHING II COVERAGE



FIGURE 15

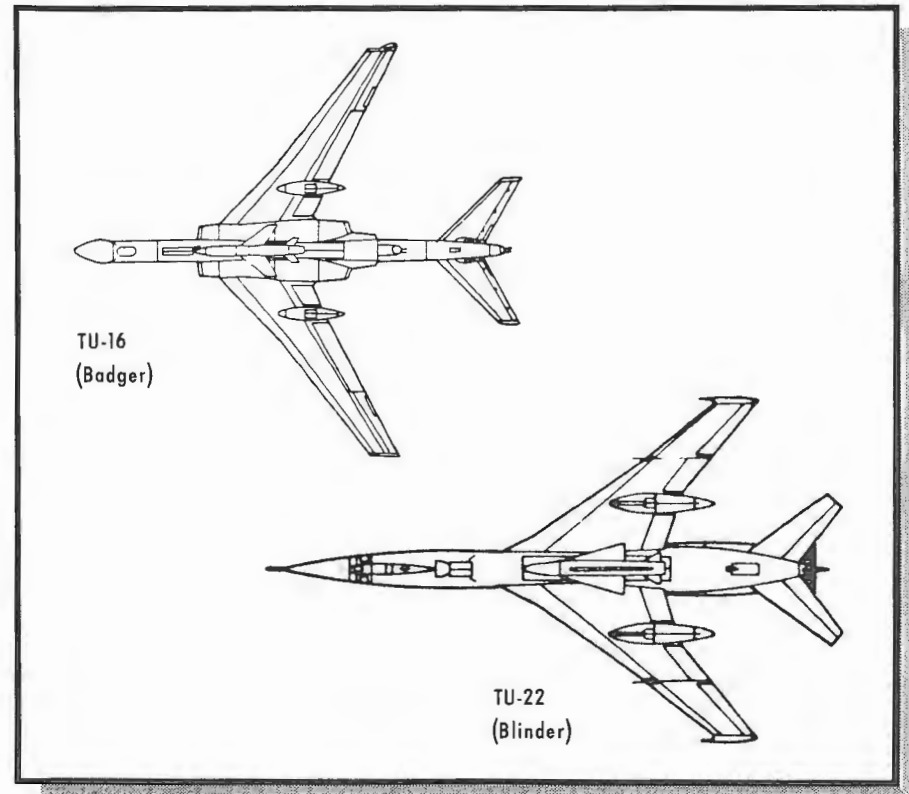
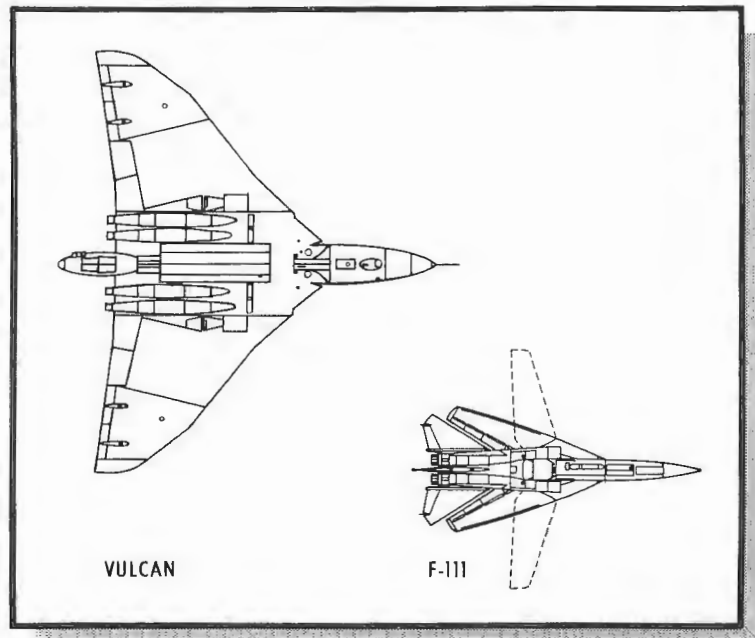
TARGET COVERAGE OF SOVIET SS-20 AND
TARGET COVERAGE OF NATO PERSHING II AND GLCM



FIGURE 16

WARSAW PACT

NATO



YEAR
OPERATIONAL 1955

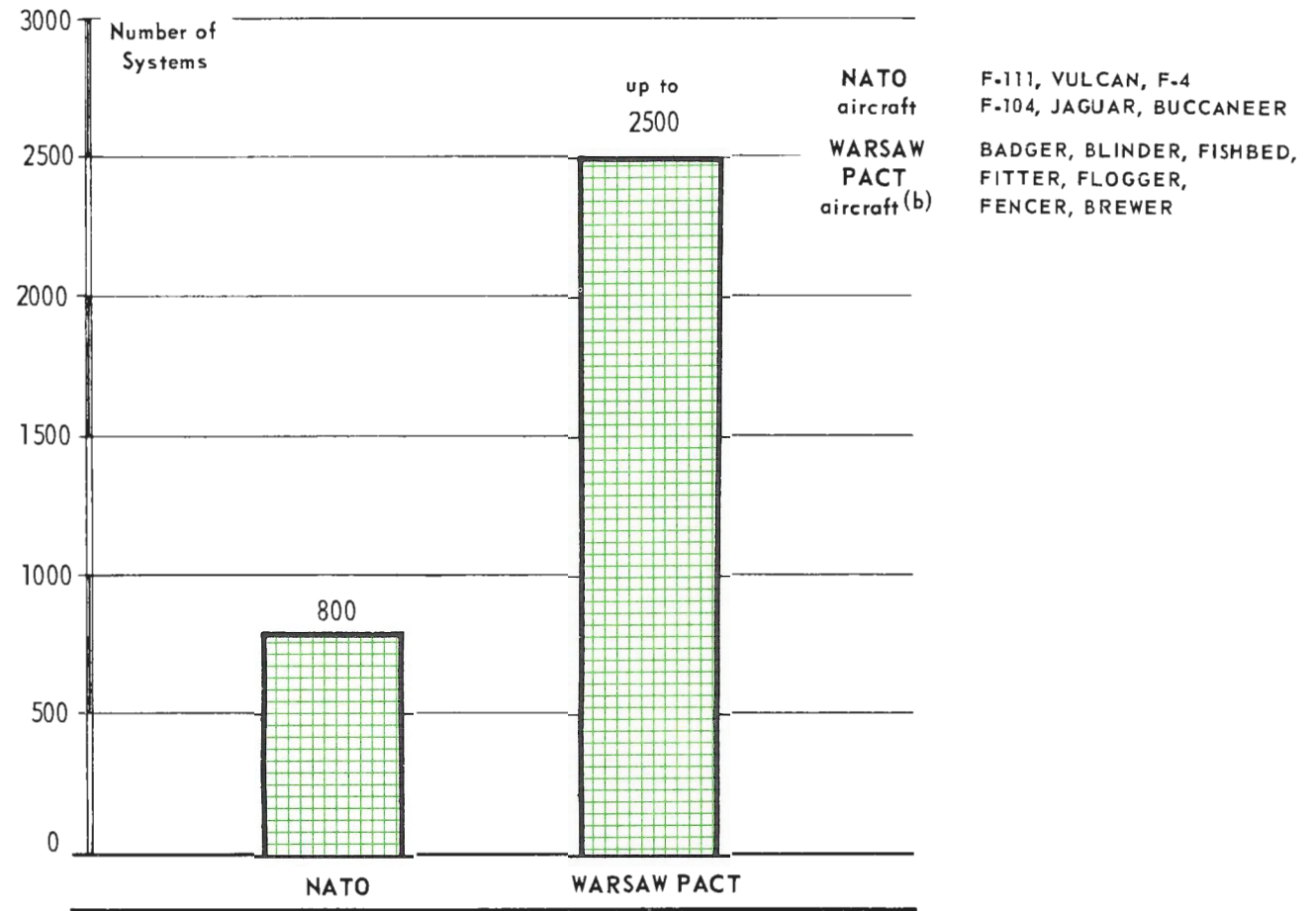
1967

1954

1962

FIGURE 17

LAND-BASED INF AIRCRAFT IN 1981 (a)

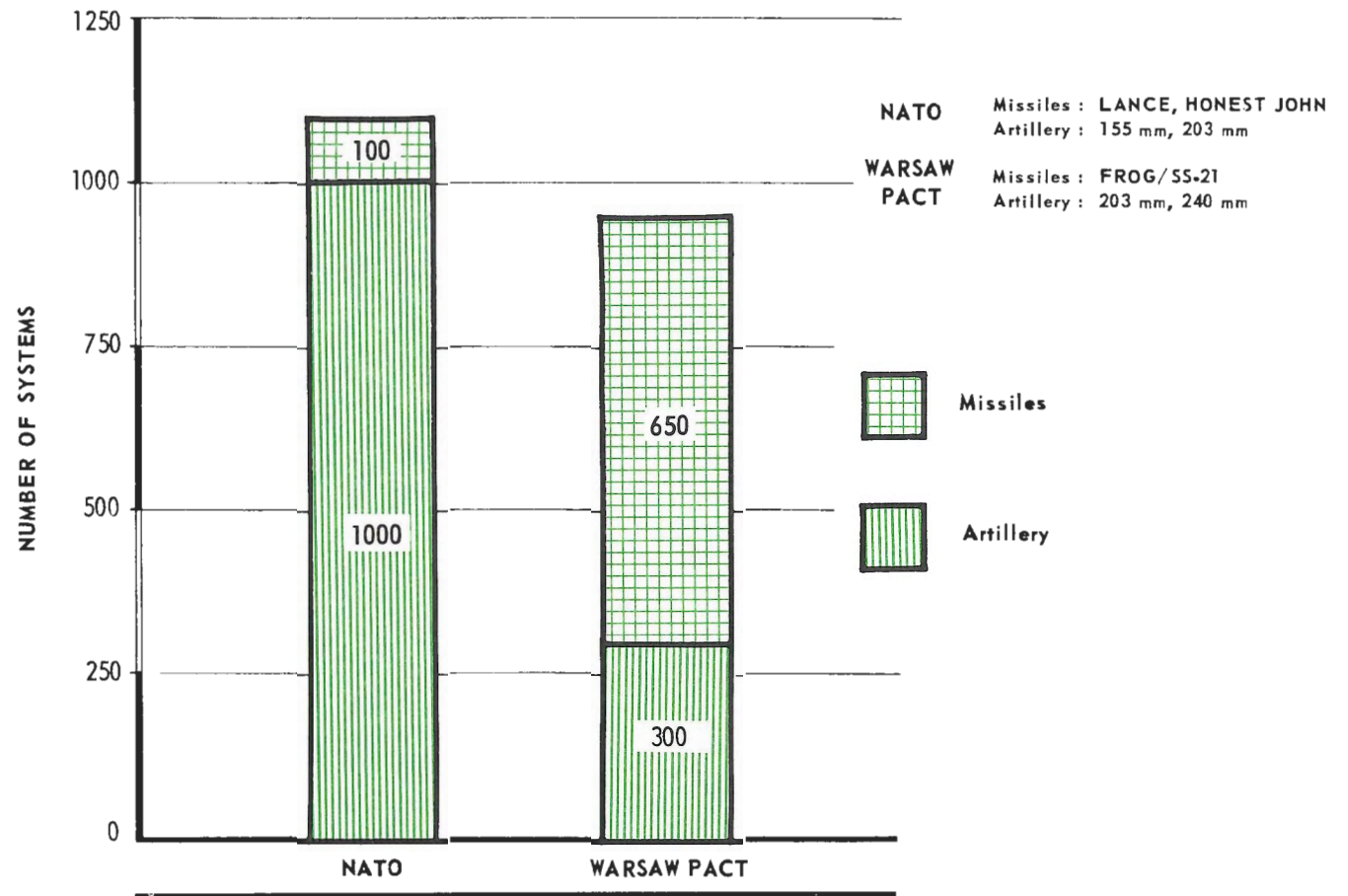


(a) Numbers include land-based maritime aircraft.

(b) The BACKFIRE bomber has been included in the strategic section because it has an inherent inter-continental capability although in its maritime and European land-attack rôles it poses a serious threat to NATO Europe.

FIGURE 18

NUMBER OF SHORT-RANGE NUCLEAR FORCES (SNF) AT END OF 1981 (a)



(a) For NATO the data reflect forces deployed in NATO Europe; for the Warsaw Pact, forces facing NATO Europe.

FIGURE 19

COMPARISON OF NATO AND WARSAW PACT ECONOMIC POTENTIAL (1979)

63. A comparison of military capabilities would be incomplete without a look at the underlying economic factors. Economic strength is the ultimate foundation on which military power is based. But economic strength does not automatically translate into military power. The proportion of the economic potential which actually is used for military purposes and the way in which this is done provides an indication of the priority given to defence as against other claimants on economic resources. The most common overall measure is gross national product (GNP) which measures essentially a country's total economic output of goods and services in a given year. A key indicator of national priorities is the share of GNP allocated to the military in the NATO and Warsaw Pact countries.

64. In NATO countries, governments have to justify their expenditures before parliaments and detailed defence budgets are subject to public debate and scrutiny. The Warsaw Pact countries in general only disclose a single budget entry under the heading of defence. These figures are very much open to question, particularly in the case of the Soviet Union, which accounts for the bulk of military spending in the Warsaw Pact countries. The Soviet Union claims that its defence spending is just over 17 billion roubles and has declined slightly since 1972. In view of the scale of the Soviet effort and the observed increases and improvements in virtually all areas of Soviet military power, no independent expert or body accepts these figures.

65. Using the agreed NATO definition of defence expenditure NATO experts estimate that actual Soviet military spending in current prices is about five times their published figure and that in 1980 it had

increased to about 12-14% of Soviet GNP. So far NATO experts have not estimated the real military expenditure of the non-Soviet Warsaw Pact in the same detail. But, preliminary studies suggest that the published defence budgets of the other non-Soviet Warsaw Pact states exclude appreciable amounts of military cost. According to independent academic analysis⁽⁴⁾ since 1973 overall Warsaw Pact military expenditures have stood at about 11% of the countries' combined GNP. NATO member countries as a group, on the other hand, have spent less than 5% of their GNP on defence.

66. While the officially announced Soviet budget declined during the past decade, it is estimated that the real trend of Soviet military costs has been one of fairly steady growth at an average of 4% per year in real terms during the same period. This rate of increase is over twice that of the NATO countries. Owing to such problems as the lack of reliable information on true non-Soviet Warsaw Pact defence spending, widely differing pricing systems and the absence of valid exchange rates between Warsaw Pact and NATO countries, conclusive comparisons of total NATO and Warsaw Pact defence spending - expressed in a common currency, whether in dollars or roubles - are not available.

67. As for future trends, notwithstanding increasing economic and financial constraints the standing Allied commitment to the 3% formula guidance for real increases in

(4) Thad Alton et al published in "East European Economic Assessment Part 2" - A Compendium of Papers submitted to the Joint Economic Committee, Congress of the United States, 10th July 1981, paragraphs 409-433.

defence spending has been reaffirmed. The Warsaw Pact countries do not announce their long-term military spending plans. However, NATO studies based on a detailed analysis of Soviet military programmes show that the USSR's military expenditure

is likely to rise at or above 4% a year in real terms until at least the mid-1980s. Moreover, Soviet leaders have repeatedly stressed that they will make available whatever resources are required for defence.

MILITARY PRODUCTION AND TECHNOLOGY CAPABILITIES

Production

68. Comparisons of production capabilities are not easy to make, because it is difficult to find like items for comparison. The Soviet Union dominates armaments production in the Warsaw Pact and possesses a military industrial base which is by far the world's largest in terms of physical size and numbers of facilities. Soviet production far outweighs that of the other Warsaw Pact countries and largely accounts for the fact that in contrast to NATO a high proportion of Warsaw Pact materiel is considerably standardized. Soviet arms production in contrast with Soviet consumer-oriented industries is also characterized by a high level of quality and effectiveness.

69. There is no centralized procurement in NATO. Several of its members possess advanced armaments industries, which both compete and cooperate in producing equipment to meet NATO needs. These armaments industries are able to draw heavily on the more advanced civilian technologies of the West to improve their products. The relative fragmentation of production facilities as between sovereign nations means that standardization is harder for NATO to achieve. This also results in small production runs with higher unit costs.

70. The Soviets have recently embarked on a new and very ambitious programme of procurement which is

remarkable in that it embraces all aspects of military capability. They are engaged in continuing expansion of their industrial capabilities to further these aims. Such expansion has long been a feature of the USSR's armaments industries.

71. Construction at the Severodvinsk Naval Ship Yard on the White Sea is a striking example of the growth of Soviet production facilities over time. In the past decade, floor space has been increased by approximately 75% to facilitate the production of seven classes of submarine. This is the largest of five Soviet yards which together in the period 1979-1980 produced 23 submarines. By way of comparison, United States production in the same period was two submarines.

72. The Soviets produced 3,000 Main Battle Tanks in 1980, with one plant alone constructing 2,500 of this total. Again, by way of comparison, the United States produced 740 Main Battle Tanks in the same period. In the aerospace industry, even though there has been significant expansion of existing plants in recent years, including several new large final assembly buildings, further expansion is in hand and the Soviets have revealed that they are constructing a wholly new large aircraft plant at Ulanovsk, west of the Urals. The production capability provided by such plants enables the Soviet Union to produce a wide variety of armaments in greater quantities than any other nation.

73. NATO countries are also modernizing their armed forces, and new generations of weapon systems, such as the multi-role F-16 fighter aircraft, are being introduced in order to maintain NATO's posture of deterrence in both the conventional and nuclear fields. The production of this equipment generally takes place in advanced and efficient plants, but these have not grown significantly over the years. Production runs are smaller, and the output of military equipment does not exhibit the degree of continuity witnessed in the Warsaw Pact.

Technology

74. Technology is an important gauge of industrial and military strength. However, the differences in the level of military technology between NATO and the Warsaw Pact cannot be usefully summarized in general terms since the picture varies from one technology or weapon system to another. Any discussion of technology differences is inevitably selective. Nevertheless, a comparison of trends shows that the Soviet Union, the technological leader of the Warsaw Pact, is making significant progress in areas where NATO has previously been leading.

Moreover, whenever it considers it to be to its advantage, the Soviet Union does not hesitate to take advantage of the open character of Western technology and to make every effort to copy those technologies in which it believes itself to be seriously lagging behind the West.

75. NATO countries are strong in most areas of advanced technology. However, the Soviet Union is determined to improve its technology base, and this is illustrated by its educational priorities. Approximately 80% of Soviet doctorate level degrees in the 1980-81 academic year were in scientific and technical fields. The United States in the same period granted a similar number of doctorates, but only about 40% were in technical fields.

76. In a military context what is important in this sphere is the level of technology that is actually embodied in equipments in the field. The Soviets have adopted a policy of swiftly incorporating advances in technology into their weapon systems in an evolutionary fashion. The situation today in applied military technology is that the Soviets have caught up with NATO in some areas and, indeed, overtaken it in a few.

EXPLANATORY NOTES FOR DATA IN THIS PUBLICATION

Sources

1. Sources of data for NATO forces have been taken from national annual reports to NATO Headquarters. These reports do not necessarily reflect all the forces of each nation, but only those forces allocated to NATO. For example, some nations reserve a proportion of their forces for national purposes in areas outside Europe. Accordingly, figures in this publication have been supplemented with additional information, which has permitted the overall global context to be set out. Similarly, whereas Warsaw Pact data for the European area is from generally agreed Western intelligence sources, additional information has been obtained to show the Soviet Union's global strength in the Far and Middle East and other locations where Warsaw Pact forces are known to be. Details are in paragraphs 10 and 11.

Conventional Forces Counted

2. In general, the forces counted are those at present in place in Europe (assuming mobilization, since some units on both sides have only a cadre strength in peacetime). In other words, to ensure fairness of treatment and except where specifically stated both United States and Canadian trans-Atlantic reinforcements have been excluded on the one hand, while the Soviet Strategic Reserves from the Moscow, Ural and Volga Military Districts have been excluded on the other. The forces set out below and used for the comparisons in this publication come from the European continent, from the North Cape in the north to Gibraltar in the south, and Iceland and the British Isles in the west to the Ural Mountains in the east (less the three Soviet military districts mentioned above).

(a) For NATO

(i) The Northern and Central Regions

The indigenous ground and air forces of Norway, Denmark, the United Kingdom (including those in the UK), the Netherlands, Belgium, Luxembourg and the Federal Republic of Germany, plus the forces of the United States and Canada stationed in those countries.

(ii) The Southern Region

The ground and air forces of Portugal, Italy, Greece and Turkey (split into three geographically distinct sub-regions).

(b) For the Warsaw Pact

The indigenous ground and air forces of the German Democratic Republic, Poland, Czechoslovakia, plus all Soviet forces stationed in those countries and in the Leningrad, Baltic, Byelorussian and Carpathian Military Districts (MDs) and Archangel, Minsk and Leningrad Air Defence Districts (ADDs) of the Soviet Union are considered in the Northern and Central Regional balance. The Southern Region includes the Hungarian, Bulgarian, Romanian and Soviet forces stationed in those countries together with Soviet forces from the Kiev, Odessa, North and Trans-Caucasus MDs, and Kiev, Baku and Sverdlovsk ADDs. Excluded are Soviet forces in the Moscow, Volga

and Ural MDs (considered as the Soviet Strategic Reserves), and Moscow Air Defence District together with all else to the East of the Ural Mountains.

(c) Naval Forces

Because naval forces frequently move from one sea area to another and must return to port for replenishment and refits, it is difficult to be precise on the relative strength of the NATO and Warsaw Pact fleets in European waters at any one time. For NATO, the greater part of the European navies has been taken to be permanently within European waters (though here again not all NATO nations assign all their naval assets to NATO). The United States has the 2nd and 6th Fleets committed to the support of NATO in the Atlantic and Mediterranean respectively; but parts of the 6th Fleet are currently detached out of the NATO area into the Indian Ocean. The non-Soviet Warsaw Pact navies generally remain in European waters, but the Soviet Union occasionally prac-

tices deployments outside the NATO area from its Northern, Baltic and Black Sea Fleets. On balance, the nearest correlation used in this publication has been to subtract the Pacific Fleet from each of the United States and Soviet total naval forces, and count all of the remaining NATO and Warsaw Pact navies - and this is what has been done in paragraphs 24 to 31.

(d) French forces

Although France is a member of the North Atlantic Alliance it does not participate in its integrated military structure. No account of French forces has therefore been taken.

Nuclear Forces

3. In the section on Nuclear Deterrence and the Nuclear Equation (paragraphs 46-62) the rationale for the data given is explained in the text. Equivalent throw-weight (used in figure 10 and paragraph 52) is a technical term which refers to the carrying capacity of missiles or bombers. In assessing equivalent throw-weight, different parameters are applied to different systems.

NATO AND WARSAW PACT COUNTRIES IN EUROPE
AND SOVIET MILITARY DISTRICTS



FIGURE 20

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