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CABINET

STATEMENT ON THE DEFENCE ESTIMATES 1985

Note by the Secretary of State for Defence

I attach the draft of my 1985 Statement on the Defence Estimates, which I propose to present to Parliament on 1 May.

2. The annual Defence White Paper provides an opportunity for the Government to explain and discuss important aspects of our security policy; it is also a document of record of the previous year's defence activities and a vehicle for setting out future plans. In last year's Statement I devoted considerable space to the subject of improving the management of defence; this year I concentrate more closely on some of the main issues of defence policy and strategy. A major theme is Europe, and the steps we are taking to strengthen the European pillar of NATO.

3. The draft takes account of comments made by members of the Defence and Oversea Policy Committee (OD) before and at its meeting on 20 March.

4. Chapter One recalls the history of the last 40 years and of the formation of NATO, and looks forward, in a general way, to our future security prospects; it includes a substantial section on arms control. Chapter Two covers our position in the Alliance, NATO's security posture, and our wider defence interests. Chapter Three discusses the European contribution to NATO and the initiatives that have been taken to improve European defence co-operation. Chapter Four contains the customary description of our forces, their capabilities and equipment. Chapter Five deals with the financial and management aspects of defence, and Chapter Six describes the activities undertaken by the Services on behalf of the civil community last year. Annex A contains a detailed discussion of the East-West balance.

5. It has become customary to include in Statements on the Defence Estimates a number of self-contained "essays" on defence policy or activities. Of the seven essays in this year's Statement two are of major importance: the first, setting out the arguments for choosing Trident D5 to replace Polaris; the second, on the continuing validity of NATO's strategy of flexible response and the unacceptability of alternative strategies.

6. I invite the Cabinet to agree to the publication of my Statement.

M H

Ministry of Defence

25 March 1985

Statement on the Defence Estimates 1985

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Presented to Parliament by the Secretary of State for Defence by Command of Her Majesty 1985

LONDON
HER MAJESTY'S STATIONERY OFFICE

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Contents

The use of italics below denotes material designed either to offer new factual background, or to indicate the Government's thinking on important general issues as a stimulus to debate. These passages are distinguished from the main text by their distinctive setting and typeface.

Page

Annexes

Diagrams

CHAPTER ONE: THE STRATEGIC CONTEXT

Forty Years of Peace

101. Forty years ago the Second World War ended. Like its precursor it had begun in Europe but engulfed the world, leaving some 50 million dead. In its closing phase, in June 1945, representatives of 50 nations signed the United Nations Charter in San Francisco, and the world hoped that it had at last learnt how to keep the peace. But within four years, the nations of Western Europe found themselves faced by a threat that necessitated more specific protection than was afforded by the UN Charter.

102. The sad legacy of the war was that it left Europe divided. The iron curtain that descended over the Continent in the late 1940s was not of the West's making; for at the close of the war there existed in Europe and America a substantial fund of goodwill towards the Soviet Union, an allied power which had suffered great devastation and lost 20 million dead. Yet the Soviet Union did not reciprocate our goodwill, turning down, for example, the generous offer of United States aid under the Marshall Plan and choosing instead to consolidate and extend its power in Eastern Europe. Whereas at the war's end the Western democracies rapidly demobilised, and the United States was intent on withdrawing from Europe, the Soviet Union retained over 6 million men on a wartime footing and determined to establish itself permanently in all the countries over which the Red Army had advanced. Between 1945 and 1948, more than 88 million Eastern Europeans came under Soviet domination, including 18 million in the Eastern half of a divided Germany; the Soviet Union acquired some 180,000 square miles of territory and

presided over the installation of compliant regimes in every East European capital. The Berlin blockade was a clear manifestation of the threat posed to Western Europe. As a result, in 1949 Britain and nine other European countries, together with the United States and Canada, signed the North Atlantic Treaty and laid the foundation for the peace and freedom that we have now enjoyed for more than three and a half decades.

103. The European scene has changed significantly since that time. In Western Europe, democracy and stability - the ultimate foundations of peace - have taken root again and flourished. Our economies, despite their current problems, have grown substantially; and living standards have risen beyond recognition. The great overseas empires of the European powers have ended: a change that tripled the number of states in the world in a few decades. Above all, the rivalries that had bedevilled Western Europe since the advent of the nation state and caused the two world wars have been buried. Instead we have forged a new unity. The countries of Western Europe have drawn together ever more closely, through the network of treaties and groupings established after the war. The Council of Europe, the European Communities and the European Free Trade Association have transformed the political and economic face of Europe. In defence, there has been a degree of international cooperation that is unprecedented in history, with the creation of the North Atlantic Treaty Organisation (NATO) in partnership with our North American allies, and the establishment of the specifically European groupings: the Western European Union, the Independent European Programme Group and the Eurogroup. The Government firmly believes that we must now build on that achievement, going forward together to meet challenges to our security on whatever scale they may arise.

104. In Chapter 3 we describe the steps being taken to strengthen the "European Pillar" of the North Atlantic Alliance: a measure that we believe to be in the interests of NATO as a whole. This is not to diminish or belittle our ties with our North American allies which, for historical and cultural reasons, will always be especially close. Nor is it to suggest that Western Europe could stand alone against today's threat: twice this century America has intervened in wars that began in this continent, and the US interest in, and commitment to, a free Western Europe remain as important as they have ever been. But in this year of commemoration in Europe it is fitting that we should consider with our European allies how we might draw still more closely together, and develop a more cohesive and distinctive European approach within the framework of, and as a contribution to, the North Atlantic Alliance.

The Challenge for NATO

105. The impact of the original Soviet occupation of Eastern Europe has inevitably faded over the years. Despite the reminders of Soviet readiness to use force in East Germany, Hungary, Czechoslovakia and, most recently, Afghanistan, the threat may seem less pressing to those who have no personal memories of the events of the 1940s. And yet it remains. The roots of Soviet policy are complex. The Soviet Union inherited the product of many centuries of Russian expansion; it is a country obsessed with its own security but insensitive to the security concerns of others. These traditions, and the great importance given to military power that goes with them, have been combined with an ideology dedicated to the ultimate victory of communism. The evidence suggests that these ideological goals will be pursued with caution and discretion, but that opportunities will be grasped if the price

is limited and acceptable. Given the present scale of NATO's defences, we have no reason to believe that Soviet leaders have any immediate intention of attacking NATO countries; but we cannot ignore the fact that those same leaders continue to improve the Soviet capability for such an attack. Moreover, the size and reach of the Warsaw Pact's forces make them a potent political weapon. If they were not counter-balanced by an adequate military capability, they could be exploited to bring unwelcome influence to bear on the domestic and foreign policies of other countries.

106. This process has been demonstrated in many parts of the Third World, to which the Soviet Union increasingly turned its attention when it found further westward expansion blocked by the political, military and economic strength of the NATO countries. Even during the period of "detente" in the 1970s, the Soviet Union established a dominant position in South Yemen and Mozambique; undertook proxy interventions in Angola and Ethiopia; helped the Vietnamese communists to overrun and occupy first the south of their country and then Cambodia; and, finally, intervened directly in Afghanistan. The Soviet Union continues to make use of other techniques for extending its influence worldwide, including the development of the Soviet Navy from a coastal to a blue-water force; massive arms exports; and more covert forms of material and political support for groups or governments prepared to help further Soviet aims. NATO has acknowledged that developments beyond the NATO area may threaten our vital interests and that Alliance members need, therefore, increasingly to look to Western security concerns over a wider field than before. The various measures that the United Kingdom takes, both

to counter direct threats and to promote stability in countries outside the NATO area, are discussed in detail in Chapters 2 and 4 and in the essay on page[ ].

107. The balance of forces, both in Europe and worldwide, has changed radically since 1945. In the early years after the war, the Soviet Union and its allies already had far larger conventional forces than the West in Europe; but the United States had first a monopoly and later a marked superiority in nuclear weapons. Since then the Soviet Union has not only maintained its advantage in conventional forces in Europe, but has caught up with the United States in intercontinental strategic nuclear forces and established a clear superiority in both longer- and shorter-range intermediate nuclear forces. It has retained, and continues to develop, a massive chemical warfare capability. And, as noted above, it has acquired a Navy capable of projecting power worldwide. At the same time, the Soviet Union has increasingly matched the West in the technical sophistication of its weapons. Moreover, great attention has been paid to offensive weapons such as tanks and artillery, in which the Warsaw Pact now has an advantage of two and a half to one over NATO; and Soviet military doctrine lays primary emphasis on offensive operations. Annex A considers the current balance of forces between East and West in detail.

108. Since the mid-1970s there has been a decline in the rate of growth of Soviet defence expenditure, coinciding broadly with a similar slowing-down in the Soviet economy as a whole. But the scale of current investment in defence is still extremely high and growing in real terms. Despite the great economic sacrifices involved for the Soviet people in the present level of defence

spending, the evidence indicates that the military will continue to be given a very high priority by the Soviet leadership. Even if there were no increase in Soviet defence expenditure, the present massive allocation to defence would ensure sufficient resources for the procurement of large quantities of new military equipment.

109. That is why there is no room for complacency and why we must constantly be ready to respond to any threat that arises with firmness and resolve and in solidarity with our allies. Only thus will we ensure that today's peace is preserved on a permanent footing. Above all, we must never repeat the mistakes of the 1930s, when we hoped for the best and were unprepared for the worst. The dangers of such a policy were spelt out in the first ever central Statement on Defence, published by the British Government exactly 50 years ago. That Statement contained the following premonitory lines:

> "Our desire to lead the world towards disarmament by our example of unilateral disarmament has not succeeded. We have not contributed thereby to general disarmament, and are approaching a point where we are not possessed of the necessary means of defending ourselves against an aggressor."

A year later, in 1936, Hitler occupied the Rhineland. The final consequence of this lack of preparedness was world war.

The Future

110. We have learnt the lessons of the 1930s and can today take comfort in the measures taken by successive Governments to sustain and improve our defence capability. This Government is determined that the improvements should continue. As we explain in Chapter 5, the United Kingdom's defence expenditure at the end of 1985-86 will in real terms be some 20% higher than in 1978-79, benefitting from an unprecedented period of seven consecutive years of real increases in spending which this Government has brought to fruition. We intend to capitalise on the higher level of resources now devoted to defence by means of increased value for money, improved efficiency, competition in procurement and the transfer of personnel from the support area to the front line. We shall continue to ensure that our forces are so structured and deployed that potential adversaries are in no doubt of the grave risk they would run in resorting to the use or threat of armed force against us.

111. In all this, we must work closely with our allies. Despite differences of emphasis among member nations, the prospects for the Alliance are good. NATO has been through many difficult periods in its history and has emerged from them stronger and more united. One such period was the 1960s, when the strategy of flexible response was being formulated; another was more recently, when the debate on intermediate-range nuclear forces (INF) was at its height. No doubt there will be more debate and more differences of opinion: there always have been and always will be in an Alliance of free nations. For in the words of the present Secretary General of NATO, Lord Carrington, when he was British Foreign Secretary: "We have learnt to sing in harmony, whereas

others - in the East for example - can only sing in unison". We therefore welcome debate: it shows that we are facing, not avoiding, the issues. But we should not mistake legitimate differences of approach for any slackening in our unity of purpose in defending our freedom and democratic ideals.

112. One issue that will be the subject of continuing discussion within the Alliance is the Strategic Defence Initiative (SDI). This US programme is intended to investigate the technical feasibility of defences against ballistic missiles. Research in this area is permitted under existing treaties, and given the Soviet Union's own extensive and long-established research programme it is important that the West should not be left behind in this field. The NATO allies are consulting closely and will continue to do so as the US research programme develops. Further details are given in paragraph 121 and Annex A.

113. Another subject that has recently received much public attention is the continuing validity of NATO strategy. This is discussed in some detail in the essay on page[ ]. As we explain there, we see no convincing case for major changes in NATO's overall strategic concept. We believe that NATO's strategy of flexible response will continue to provide a sound basis for meeting the Alliance's security requirements in the years ahead. Our aim should be not to seek a new strategy, but to find more effective ways of implementing the one we have. A further important issue is Trident, to which an essay is devoted on page[ ]. It is our firm belief that no alternative use of British resources would provide anywhere near such a strengthening of collective Alliance deterrence to aggression. The debate on these subjects will no doubt continue, and we therefore hope that this Statement will con-

tribute to a wider understanding of the issues involved and to a more informed discussion.

Arms Control

114. None could deny that by any objective standard there are too many weapons in the world today. We do not share the gloomy prognostications of those who claim that war is inevitable or that weapons, once possessed, are bound to be used. This would be to deny the validity of the concept of deterrence, which has operated successfully now for more than 35 years. But there is no doubt that the world would benefit from a reduction in the level of armaments on both sides. That is why we attach so much importance to the easing of tension between East and West, and to the achievement of realistic, balanced and verifiable measures of arms control and disarmament. As an earnest of our approach, we set up within the Ministry of Defence on 2 January this year a new Arms Control Unit, to work in conjunction with the Foreign and Commonwealth Office in this field.

115. Britain has played a leading role in the search for greater international security and a reduction in tension. We have been in the forefront of all the multilateral negotiations in the field of arms control and disarmament since the Second World War, and have become a party to most of the treaties concluded. We have followed the step-by-step approach endorsed by the international community at the first United Nations Special Session on Disarmament in 1978. Our search for lower levels of armaments, and indeed for the abolition of certain types of weapon wherever practicable, has been serious and sustained.

116. A brief look at the period since the war shows that this approach has had some notable successes. As Figure 1 shows, agreements reached include Treaties on the Antarctic, a Partial Test Ban, Outer Space, Nuclear Non-Proliferation, and the Sea-bed. We also strongly supported US and Soviet bilateral negotiations on strategic weapons, which led to the SALT I agreement, the Anti-Ballistic Missile Treaty and the SALT II agreement. A prime aim has been to reduce the risk of conflict and to strengthen international security. To this end Britain, France and the United States have each signed agreements with the Soviet Union on "hotlines" and on the prevention of accidental nuclear war. In 1975, 35 countries adopted the Helsinki Final Act on security and cooperation in Europe; in continuation of this process, the Stockholm Conference on Confidence- and Security-Building Measures and Disarmament in Europe (CDE) opened in January 1984.

117. But these agreements were only made possible by the climate of confidence existing at the time. Arms control measures are much more difficult to reach in a climate of mutual suspicion. That is why the British Government has been working actively to establish and foster better relations with the East. 1984 and 1985 saw visits by the Prime Minister and Foreign Secretary to Moscow and by the General Secretary of the Communist Party of the Soviet Union, Mr Gorbachev, then a senior member of the Politburo, to this country as the leader of a parliamentary delegation. The Foreign Secretary visited several countries in Eastern Europe this spring; and Mr Gromyko, the Soviet Foreign Minister, is expected to come to the United Kingdom later this year.

118. Arms control negotiations touch the most vital areas of national security and therefore involve slow and painstaking work. We cannot expect immediate

Figure 1 Major Arms Control and Disarmament Agreements and Talks.

Major Arms Control and Disarmament Agreements

1925	**Geneva Protocol**	Prohibiting the use of poison gas and bacteriological weapons in war
1959	**Antarctic Treaty**	Prohibiting military activities in that region
1963	**Partial Test Ban Treaty**	Banning nuclear explosions in the atmosphere, outer space and underwater
1967	**Outer Space Treaty**	Banning military activities on celestial bodies and the placing of nuclear weapons in outer space
1967	**Treaty of Tlatelolco**	Establishing a nuclear-weapon-free zone in Latin America
1968	**Non Proliferation Treaty**	Inhibiting the spread of nuclear weapons to further countries
1971	**Sea-bed Treaty**	Prohibiting the placing of nuclear weapons on the sea-bed
1972	**SALT I Agreement (US/Soviet)**	Limiting strategic nuclear missiles
1972	**Anti-Ballistic Missile (ABM) Treaty (US/Soviet)**	Severely limiting deployment of anti-ballistic missile systems
1972	**Biological Weapons Convention**	Banning development, production and stockpiling of bacteriological and toxin weapons
1977	**Environmental Modification (ENMOD) Convention**	Banning use of techniques to change the environment for hostile purposes
1979	**SALT II Agreement (US/Soviet)**	Limiting strategic nuclear missiles more comprehensively than SALT I and limiting strategic bombers

Current Arms Control and Disarmament Talks

Date	Title of Talks	Comment
Began in 1973 (in Vienna)	**Mutual and Balanced Force Reductions (MBFR)**	Aims to reach agreement between NATO and Warsaw Pact on conventional force reductions in Central Europe
Geneva	**Conference on Disarmament (CD)**	Permanent 40-nation/multilateral disarmament negotiating forum. Worldwide chemical weapons ban currently the key subject of negotiation
Opened in 1984 (in Stockholm)	**Conference on Confidence- and Security-Building Measures and Disarmament in Europe (CDE)**	35 states negotiating Confidence- and Security-Building Measures
Opened in 1985 (in Geneva)		New US/Soviet talks on nuclear and space arms

results. But the Government sincerely wants progress, and we are doing all that we can to bring it about. In the following paragraphs we look at the history of, and prospects for, the main arms control and disarmament negotiations of recent years.

119. The Strategic Arms Reduction Talks (START) began in June 1982. The United States' objective, which was strongly supported by the NATO allies, was to make deep cuts in both sides' strategic arsenals, and they put forward a number of proposals for doing so, emphasising the flexibility of their position. The Soviet Union put forward more limited proposals and held progress hostage to NATO's not proceeding with its INF deployments. At the end of 1983 the Soviet Union walked out of the negotiations.

120. The origin of the bilateral United States/USSR INF negotiations, which began in 1981, was NATO's decision in 1979 to modernise its longer-range INF forces by the deployment in Europe of ground-launched cruise and Pershing II missiles. This was needed because of the declining effectiveness of existing NATO longer-range INF forces (mainly United States F111 aircraft), and the increasing threat from the large numbers of SS20 missiles being introduced by the Soviet Union. At the same time as the deployment decision, the Alliance stressed its willingness to agree to limits on land-based missiles of this type. The United States, with the full support of the Allies, put forward the "zero option", under which NATO deployments would not begin if the Soviet Union agreed to remove its SS20s; and offered flexibility in a number of respects in response to Soviet concerns. The latter's position was, however, fundamentally inflexible. The underlying Soviet aim was to retain a substantial monopoly in longer-range INF missiles while preventing the West from

deploying equivalent systems: the various offers they put forward would all have had this result. This approach was coupled with a propaganda campaign designed to influence Western public opinion. The Soviet Union walked out of the negotiations once NATO deployments began, despite the fact that the West had negotiated for two years while Soviet deployments of SS20s continued.

121. Another area of increasing importance is space, where we are anxious to prevent an arms race. Experience suggests that progress in arms control can be easier to achieve when the weapons concerned are still at an early stage of development. At their meeting at Camp David on 22 December 1984, the President of the United States and the Prime Minister agreed on four points, which were reaffirmed during their Washington discussions in February:

- the United States' and Western aim is not to achieve superiority, but to maintain balance, taking account of Soviet developments;

- SDI-related deployment would, in view of treaty obligations, have to be a matter for negotiation;

- the overall aim is to enhance, and not to undermine, deterrence; and

- East-West negotiation should aim to achieve security with reduced levels of offensive systems on both sides.

122. Against this background we very much welcomed the agreement in Geneva this January that the United States and Soviet Union would enter into nego-

tiations on a complex of questions concerning both space and nuclear arms. They agreed that the objective of the negotiations would be to work out effective arrangements aimed at preventing an arms race in space and terminating it on earth, at limiting and reducing nuclear arms, and at strengthening strategic stability. The fact that renewed negotiations began on 12 March demonstrates that the firmness shown by the Atlantic Alliance over the last year has borne fruit; for, despite Soviet pressure, we did not make any one-sided concessions to bring the Soviet Union back to the negotiating table. The United States has made clear its commitment to consultation with its allies, and we shall play a full and constructive part.

123. As to conventional arms control, the scene has again been marked by strong Western efforts but slow progress. Soon after the opening in Stockholm of the CDE the United Kingdom, together with its NATO allies, tabled a major set of proposals designed to create greater openness about normal military activities (for example, exercises) and thus reduce the likelihood of an outbreak of hostilities by accident, design or misunderstanding. Progress since then has been slow, but procedures have now been agreed which we hope will enable the Conference to get down to serious and constructive negotiations.

124. At the Mutual and Balanced Force Reduction (MBFR) talks in Vienna, the agreed negotiating goal is 900,000 ground and air forces on each side in an area of Central Europe covered by the two Germanies, Belgium, the Netherlands, Luxembourg, Poland and Czechoslovakia. The existing number from which the Eastern side claims it should start to reduce to this level is disputed by the West as a serious underestimate, and in April 1984 NATO took an initiative

to break the deadlock by proposing a wholly revised format for the exchange of initial manpower data, concentrating on combat and combat support forces. This new initiative built on previous Eastern proposals and was intended as a response to Eastern concerns. It has, however, met only with a negative response from the Warsaw Pact, while an Eastern initiative tabled in February failed to address the real issues. We shall nevertheless continue to work in MBFR for a balanced agreement with satisfactory verification.

125. The United Kingdom's policy on chemical weapons (CW) has been to seek an arms control solution. We abandoned our chemical warfare capability in the late 1950s, and there has been no change of policy since then. The Soviet Union, by contrast, has continued with an extensive research and development programme, increased its CW stockpile, and maintains a formidable capability to wage offensive chemical warfare (see Annex A, paragraph 18). At the Conference on Disarmament (CD) in Geneva in 1984, further progress was made towards a comprehensive, worldwide and verifiable ban on the development, production, stockpiling, transfer and use of CW and the destruction of existing stocks - although this was slower than we would have wished. Several key problems of verification remain to be resolved. The urgency of a ban was underlined by the report of the UN investigation team of 26 March 1984, confirming the use of CW in the Gulf War. As a result the British Government imposed export controls on certain civil chemicals which could be misused to make chemical weapons; other OECD countries followed our lead. The Geneva negotiations were taken an important step further in April 1984, when US Vice President Bush tabled a comprehensive draft treaty. The Soviet Union has yet to state its detailed position on a number of key verification issues, although it

has accepted the principle of on-site inspection of CW stockpile destruction. The United Kingdom has played an active role in this and other negotiations at the CD.

126. Finally, our commitment to the maintenance and strengthening of the international nuclear non-proliferation regime has been demonstrated by the full part we have played in preparations for this year's Review Conference of the Non-Proliferation Treaty, of which the United Kingdom, together with the United States and Soviet Union, is a depository power.

127. The prospects for arms control over the coming year are, as ever, difficult to predict. The agreement between the United States and Soviet Union to open negotiations on nuclear and space arms offers grounds for hope that they will find a way forward on these issues. But resumption of dialogue should not be confused with imminent agreement. In these and other areas major difficulties remain. The need for Western patience and perseverance will be as great as ever. So, too, will be the need for the West to demonstrate its clear determination to avoid unilateral gestures at the expense of our security. Instead we must continue to pursue the path of balanced and verifiable measures of arms control and disarmament. That is the best way to a safer world.

ESSAY

TRIDENT

1. The United Kingdom has possessed nuclear weapons now for over 30 years. We have had a fully operational strategic nuclear capability since the entry into service in 1955 of the V-bomber, succeeded in the 1960s by nuclear-powered submarines armed with the Polaris ballistic missile bought from the United States. This force, now incorporating the Chevaline improvements to the front end of the missiles, will remain an effective deterrent until well into the 1990s. We do not, however, believe that it can be relied upon to provide an effective national strategic nuclear deterrent much beyond the mid-1990s, by which time it will also become increasingly difficult and expensive to maintain. Given the length of time needed to introduce into service a modern strategic nuclear deterrent force, we decided in 1980 to replace Polaris with a force of four nuclear-powered submarines equipped with Trident ballistic missiles. This will ensure the maintenance of an effective deterrent until at least 2020.

2. Deterrence is a matter of perception - not ours, but that of a potential aggressor whose values and attitudes may differ markedly from our own, and whose future actions cannot be predicted with certainty. The key factor is the Soviet perception of the United States' willingness to hazard its own territory and citizens for the sake of its allies. In certain circumstances, the Soviet leadership might doubt this commitment and miscalculate the

consequences of aggressive action against the democracies of Western Europe. Nuclear weapons in the possession of the United Kingdom greatly complicate the calculations of the Soviet leadership in assessing whether they could undertake such action without risking a nuclear conflict. This provides an essential element in the deterrent strategy of the NATO Alliance, and is welcomed as such by our allies, including the United States.

3. To provide an effective deterrent, Britain's strategic nuclear force must be certain of inflicting on the Soviet Union an unacceptable level of damage. It must therefore be capable of posing a credible threat to key aspects of Soviet state power; and of posing such a threat at all times. There must be no possibility that it could be neutralised by pre-emptive attack: either by a "bolt-from-the-blue" in a period of apparently stable and peaceful international relations, or during a period of tension or conventional hostilities. And it must be capable of meeting these requirements throughout its service life, in the face of technical changes and advances in the defensive systems that it would have to penetrate.

4. These are very demanding requirements and cannot be met cheaply or easily. But a force which failed to meet them would provide not security, but the illusion of security. Against this background, the provision of a nuclear deterrent force called for two basic choices to be made: about the launch platform and about the weapon system itself.

5. The launch platform had as far as possible to be invulnerable to pre-emptive attack; in practice, this required the force to be virtually invulnerable to detection. Only submarines meet this criterion effectively:

surface ships, aircraft and ground-launched systems do not, particularly if they constitute the whole of a very small strategic force such as ours, rather than elements of much larger and more diverse forces such as those of the Soviet Union or the United States. There is no realistic prospect that the Soviet Union will be able to destroy our submarines at a time of its own choosing in the foreseeable future.

6. The invulnerability of a submarine force stems not only from the nature of the vessel and the medium in which it operates, but also from the nature of its operations. Some have suggested that a British strategic nuclear deterrent force could be provided not by submarines dedicated solely for this purpose, but by mounting nuclear missiles on hunter-killer submarines already deployed for conventional operations. The deployment patterns and operations undertaken by the two types of submarine are, however, quite different. A submarine cannot be held in reserve for a last-resort strategic strike and simultaneously carry out another role, in which it would aim to seek out and destroy the enemy, thereby putting itself at risk of detection. Either the submarine's effectiveness in its conventional role would be vitiated; or the strategic deterrent would be put at risk and therefore lose credibility.

7. The choice of <u>weapon system</u> lay essentially between a ballistic and a cruise missile. The options were carefully studied. Cruise missiles can usefully provide one element of a varied nuclear deterrent force, but they suffer from a number of disadvantages which are important for a small deterrent force of last resort. They are more vulnerable to Soviet defensive systems which, unlike anti-ballistic missile (ABM) systems, are not cons-

trained by arms control limitations; and because their range is currently considerably less than that of ballistic missiles, submarines carrying them would have far less sea-room in which to hide and would therefore be less difficult to detect and destroy. Moreover, cruise missiles carry only one warhead each. Because of this, and their greater vulnerability to anti-missile defensive systems, a large number of cruise missiles would be needed to provide a deterrent force comparable to that of a much smaller number of multi-warhead ballistic missiles. Such a force would inevitably require more submarines - the single most expensive element of our deterrent. Although an individual cruise missile costs less than a ballistic missile, a cruise missile force would therefore be either less effective or more expensive than one based on ballistic missiles.

8. Of the possible options for providing a ballistic missile, purchase from the United States has the advantage of building on the highly successful collaboration between the two countries on Polaris over two decades, and enables us to take advantage of the very advanced technology developed by the United States, at significantly less cost than if we developed it ourselves. There are, moreover, major operational and financial advantages in buying a missile that will be entering service with the United States Navy in the same timescale: to ensure commonality we have chosen the Trident D5 missile system. This missile is more expensive to buy than the Trident C4, but, because we will enjoy access to United States through-life logistic support, running costs will be much lower. In addition, the D5 offers the best prospects of being able to penetrate Soviet anti-ballistic missile defences in the face of possible improvements during the lifetime of the system.

9. The Trident D5 has a greater range and accuracy than Polaris and is capable of carrying more warheads. This has led to suggestions that we are acquiring a force which is not only greater than is required for deterrence alone but is also capable of mounting a "first strike" against the Soviet Union. This is not so. A first strike would involve a surprise attack intended to destroy the other side's retaliatory capability before it could be launched. Such a concept plays no part in the thinking of NATO, the United States, or the United Kingdom: our policy is solely to deter an attack. A successful first strike could not, in any case, be achieved by either NATO or the Soviet bloc, because it would be impossible to detect and destroy pre-emptively even a major part of the mobile and submarine-launched systems available to both sides. For the United Kingdom acting alone, a successful first strike would be impossible even against just the Soviet silo-based ICBM force, which includes a far greater number of missiles than the number of warheads available to this country. We neither have nor seek to have a first-strike capability; and we could not achieve it even if we wished.

10. The new force will indeed represent an enhancement of capability over Polaris. It will, for example, have greater range and will be able to carry more warheads. But such enhancements are essential given improvements in Soviet defensive capabilities. Since the late 1960s, when our Polaris entered service, the Soviet Union has deployed the only operational ABM system in service anywhere in the world and is currently modernising and improving it. This means that if the Soviet Union is to be denied a sanctuary from nuclear attack within its territory we need the ability to carry more warheads in future to pose the same threat in deterrence terms as in the early days of

Polaris. The increased range of the Trident D5 missiles will give the submarines far more sea-room in which to conceal themselves, thereby enhancing their ability to avoid detection as Soviet anti-submarine warfare techniques improve. Nevertheless, the United Kingdom's deterrent force rests and will continue to rest on the ability to maintain only one submarine on patrol at all times. We have also made clear that we do not intend to deploy more warheads with Trident D5 than would have been deployed with Trident C4. The United Kingdom's deterrent force, when equipped with Trident, will remain the minimum size compatible with cost-effectiveness and credibility.

11. It would have been possible to maintain and re-furbish Trident missiles in this country, as we do with Polaris; but the United States is willing to make its own extensive facilities available, and we have made arrangements to use them. Substantial savings will therefore be obtained both in capital and running costs by avoiding the duplication in this country of facilities which - because of Trident's requirements for less frequent servicing - would have been used much less frequently than those currently used for Polaris processing. This cooperation, which would not have been possible had we not switched from Trident C4 to D5, will provide a satisfactory and economical means of maintaining the missiles of the British strategic deterrent.

12. Trident will undoubtedly cost a lot of money: money that will not therefore be available for other defence purposes. Nevertheless, this needs to be kept in perspective. In the first place, Trident will consume only a small part of the real increase in the defence budget since 1978-79. In the second place, although the capital cost of Trident will inevitably depend on

factors such as inflation and fluctuations in the exchange rate, we estimated when we first decided to buy the system that it would account on average for only about 3% of the overall defence budget and about 6% of the equipment budget during the procurement period of some 18 to 20 years; and that calculation remains essentially unchanged.

13. There is nothing unusual about fitting large equipment purchases into the defence programme: it is a normal part of defence planning and budgetting. Furthermore, while the capital cost of a strategic nuclear deterrent force is considerable, running costs are comparatively small: Polaris, for instance, accounts for less than 2% of the defence budget and employs just over 2,000 of Britain's 335,000 Servicemen. By contrast, the capital cost of conventional forces is only one - and by no means the most demanding - of all the expenses associated with establishing them: the costs of running and manning them are substantial and significant. Impressions that we could sustain much larger conventional forces without a Polaris replacement than with it are, therefore, well wide of the mark.

14. Some have alleged that Trident calls into question our commitment to arms control. This is quite false. We are firmly committed to the pursuit of balanced and verifiable measures of arms control and disarmament. But the vast majority of the world's nuclear weapons are in the hands of the Super-powers: clearly, therefore, these arsenals must be the first priority for reductions. Although Trident will represent a minimum independent deterrent capability for the United Kingdom, we have not said that it would never be relevant to arms control. On the contrary, we have made it clear that if Soviet and United States strategic arsenals were very substantially reduced,

and if no significant improvements had occurred in Soviet defensive capabilities, we should want to review our position and consider how best we could contribute to arms control in the light of the reduced threat.

15. Like Polaris, Trident will be assigned to NATO and targetted in support of the policy and strategic concepts that have been collectively agreed. Our strategic deterrent remains, however, at all times under the independent control of the British Government and could be employed independently of the Alliance should our supreme national interests so dictate. A British strategic nuclear deterrent force provides the ultimate guarantee of our national security and makes a unique contribution to the NATO Alliance. The question at issue is not whether this country should become a nuclear power: it is whether we should give up a major defence capability and role that we already possess. Critics of Trident must show that we would be less, rather than more, vulnerable to attack if we unilaterally abandoned a capability that has been an integral part of the structure of collective Western and European security for over 30 years; or else they must argue persuasively that an alternative system could provide a credible and cost-effective deterrent in the complex and demanding environment of the early decades of the next century. We are convinced that for Britain to abandon its nuclear deterrent would constitute a reckless gamble with the peace and security of future generations; and that the Trident D5 system is the best way of providing a credible deterrent into the 21st century.

CHAPTER TWO: THE WESTERN APPROACH

The United Kingdom in NATO

201. The North Atlantic Alliance, which remains the foundation of our security policy, has been instrumental in maintaining peace and security in the Treaty area for more than 35 years. The key principle enshrined in Article V of the North Atlantic Treaty - that an attack on one member is considered an attack on all - has provided far greater security than any member could have achieved alone.

202. The United Kingdom shares the benefits and obligations of Alliance membership, as endorsed by successive Governments since the Treaty was signed in 1949. We believe that the Soviet Union and its Warsaw Pact allies, their policies and their military capabilities still pose the main threat to the security of the United Kingdom, and our policy is to concentrate our defence effort within the Alliance in the ways that can best contribute to its strength and to our own security.

203. We commit the vast majority of our forces and some 95% of our defence budget directly or indirectly to the Alliance. Britain is the only European nation to contribute to all three elements of NATO's forces: strategic nuclear, theatre nuclear and conventional. Forces are provided for all three major NATO Commands - the Atlantic, Europe and Channel. British forces of all three Services participate in NATO's specialist reinforcement forces, which

have important roles in the defence of the Northern and Southern Flanks and provide a tangible demonstration of the Alliance's cohesion and readiness to give effect, if necessary, to the terms of Article V.

204. Our military contribution is concentrated in four areas, which are discussed in detail in Chapter 4:

- British Nuclear Forces: an independent element of strategic and theatre nuclear forces committed to the Alliance. The introduction of Trident will provide a credible independent strategic nuclear deterrent into the 21st century (see pages [ ]).

- The United Kingdom: our homeland and an essential base for the support of NATO. A forward base for NATO forces operating in the Eastern Atlantic and North Sea; a main base for operations in the Channel; and a support base for both British and American forces stationed on the mainland of Europe, and for those who would reinforce NATO in tension or war.

- The European Mainland, divided into two regions:

  - The Central Region: the Alliance's heartland in Europe. "The forward defence of the Federal Republic is the forward defence of Britain itself" as Cmnd 8288 said. We maintain 55,000 troops and a tactical air force there, in accordance with our Brussels Treaty obligations and as a demonstration of our commitment to the forward defence and reinforcement of Europe. In wartime, the size of BAOR would be nearly trebled.

- The Northern Region: of importance to the integrity of the Alliance and critical for the containment of the Soviet and Northern Baltic fleets. Flexible and mobile amphibious and airborne forces are committed to its defence.

- The Eastern Atlantic and Channel: vital to the forward defence of the United Kingdom base and the Northern Flank, and to the safe passage of the essential reinforcements - equipment, manpower and oil - that would cross the Atlantic and on which the defence of Europe would depend. Britain remains NATO's major European maritime power. Nearly the whole of the Royal Navy and a large number of RAF maritime aircraft are assigned to NATO, and permanent contributions are made to NATO's Standing Naval Force Atlantic and the Standing Naval Force Channel.

205. We remain fully committed to providing a substantial British contribution in all four areas, and there is no likelihood of major changes being made either to the levels or to the capabilities of these forces in the foreseeable future.

Developments in NATO's Defence Posture

206. The past year has seen a growing public debate about NATO's strategy of flexible response and forward defence in the light of changes in the military balance; about the roles of conventional and nuclear weapons in NATO's strategy; about changes to tactics and weapons needed to ensure credible deterrence; and about the potential for improving conventional forces, through the application of new technology. We welcome this debate, for it is vital in a

democratic society that people should clearly understand the issues involved in maintaining defences sufficient to deter aggression. We believe it is appropriate, this year, to address these questions in detail. In the essay on page[ ] we explain the origins of NATO's strategy, examine its continuing validity and analyse some of the alternatives that have been put forward. In the following paragraphs we examine some of the steps the Alliance is taking to ensure that the strategy remains effective in the face of the evolving threat.

207. NATO has a highly developed and effective biennial defence planning process, which involves the Defence Ministers of all countries participating in the integrated military structure. Its purpose is twofold: to encourage nations to develop their individual defence plans in a direction beneficial to the Alliance and to provide the necessary resources to achieve this; and to monitor the progress made by nations in meeting agreed Alliance goals.

208. Every two years, Ministers issue Guidance to the Major NATO Commanders and to nations setting out the political, economic, military and technological factors that could affect the development of NATO forces and their impact on NATO strategy. At this May's meeting of NATO's Defence Planning Committee (DPC), Ministers are due to issue Guidance covering the period up to 1992. On the basis of this Guidance the Major NATO Commanders prepare a set of Force Goals, which constitute the targets at which each nation is expected to aim. Each year member nations provide a response to a NATO Defence Planning Questionnaire, in which they record their progress in implementing Force Goals, together with information on economic, logistic and force level plans.

These are examined and collated into a NATO five-year forward plan for Ministerial consideration. This December Ministers will consider the plan for the years 1986 to 1990.

209. Successful forward planning is central to the maintenance of effective deterrent forces. Moreover, the planning procedures are flexible and subject to constant refinement. Increasing emphasis is being put on long-term planning designed to provide early guidance on Alliance defence needs up to 20 years ahead. The Alliance has agreed, for example, a Long-Term Planning Guideline on the interdiction of Soviet follow-on forces, sometimes referred to as FOFA; this deals with improvements in NATO's long-standing conventional capability for the interdiction of enemy airfields, the disruption of enemy forces approaching the battle area, and the engagement of other high value targets. In addition, NATO military authorities are developing a Conceptual Military Framework, the better to enable priorities to be set for conventional defence improvements, including the sensible application of emerging technology.

210. Ministers also gave an impetus to the development and coordination of NATO's planning process last December when they called for a coherent effort further to improve NATO conventional defences. The work is moving ahead and is addressing, inter alia, the better use of defence resources, the encouragement of current international efforts to coordinate defence procurement, and a clearer definition of priorities for improvements. It builds on the considerable progress made in recent years in improving conventional capabilities, through greater sustainability, improved readiness, better training and additional funding for common infrastructure projects. An initial report will be made to Ministers at the May DPC meeting.

211. Much NATO equipment still has a qualitative advantage over the Warsaw Pact's, although the gap is narrowing. Attention has been focussed, therefore, on whether new or emerging technology might enable the Alliance to increase its conventional capability at affordable cost over the next decade.

212. Emerging technology is not a panacea for all NATO's problems; nor does it offer an alternative strategy. And there is nothing special about it: the sensible application of new technology is something that we seek constantly, as Chapter 4 illustrates. New technology is not cheap; nor is it risk-free. It could be self-defeating were it to lead to the diversion of funds from other critical areas. The rate of introduction of new technology and the balance between the quality and quantity of new equipments have to be carefully weighed. A close watch must be kept on the effect of sophisticated new conventional weaponry on arms control negotiations, and on the possibility that the Warsaw Pact might develop similar systems and effective countermeasures. New technologies can create the potential for new tactics, which have to be developed carefully to ensure that on balance deterrence is strengthened. There must also be an equitable sharing of the technological and industrial opportunities.

213. Bearing all this in mind, NATO has been conducting a systematic examination of the opportunities for exploiting new technology both up to the 1990s and in the longer term. This has covered the application of technology on the Central Front, on the flanks and at sea. During the past twelve months feasibility studies have begun on the NATO Frigate Replacement (NFR 90), and work is shortly expected to start on two other projects: a Long-Range Stand-Off Missile (LRSOM) and a Short-Range Anti-Radiation Missile (SRARM). A

study has also begun into prospects for cooperation in research and development of technologies that have potential long-term military applications.

214. Many commentaries on emerging technology have given prominence to the ways in which it could enhance NATO's ability to attack Soviet follow-on forces in the land battle, as described in the Alliance's Long-Term Planning Guideline (see paragraph 209 above). Given the Soviet ability and tactical intention to bring overwhelming force to bear on a particular axis of attack, it makes sound military sense to check the momentum of their advance, to disrupt the arrival of their reinforcements and to ease the pressure on NATO's own front-line defences. Interdiction of Soviet follow-on forces is, however, only one use for new technology, and Alliance forces facing first echelon Warsaw Pact forces need a comprehensive range of modern weaponry if they are to stop, counter-attack, and eventually defeat Warsaw Pact armoured and mechanised regiments on NATO territory.

215. The Alliance is therefore giving priority to the sustained improvement of its front-line forces, by restructuring them, by applying new technology to battlefield equipments, and by the expansion and better training of reserve forces. Hence, for example, the reorganisation of 1(BR) Corps (see also paragraphs 418 and 419) has resulted in better-balanced front-line forces and stronger reserves. There are three regular armoured divisions, two of which are deployed forward and are better able to cope effectively with a short warning attack. One of the brigades of the third division is undergoing trials in the air-mobile role to improve its capability to deal rapidly with unexpected breakthroughs; these trials are so far proving successful. The major modernisation of weapon systems continues, with the introduction into

1(BR) Corps of Challenger tanks and improved battlefield communications, and, later in the decade, of the Multiple-Launch Rocket System; and of improved command, control and communications systems into RAF Germany. In the Atlantic, new longer-range sonar and other sensors are being regularly deployed to monitor Soviet naval movements. We are increasing the numbers of reserves that would be available on mobilisation, both through the expansion of the Territorial Army, and by using our individual reservists more effectively. Exercise LIONHEART (see page [ ]) demonstrated clearly both our ability to reinforce British Forces Germany in time of tension and the effectiveness of our reserve forces.

Beyond the NATO Area

216. British defence policy also needs to be set in the wider context of our international security objectives. The United Kingdom retains a number of responsibilities outside the NATO area, most notably for the external defence of the remaining dependent territories, ranging from Hong Kong with its 5 million inhabitants to the Pitcairn Islands with 60. To meet these responsibilities we maintain garrisons, with a supporting naval presence, in Hong Kong and the Falkland Islands; and we also have forces in the Commonwealth countries of Belize and Brunei.

217. Exports account for some 30% of Britain's gross domestic product. We therefore have a strong interest in seeing peace and stability maintained in the countries constituting our trading partners; in securing the supplies of oil and strategic minerals that are vital to our and other Western economies; and in keeping open key trade routes. The prosperity and security of the

Western world rest on a complex framework of relationships, not just between the developed, free economies but also with others in less prosperous and stable regions. While no Western country, and certainly not the United Kingdom, can carry alone the burden of sustaining this framework, neither can any Western country dissociate itself from a share of the responsibility for doing so. It is in both our own interest and the interest of the West generally that Britain retains defence facilities in strategic locations such as Cyprus, Ascension Island and Diego Garcia; that we commit naval forces to areas such as the Arabian Sea and the Caribbean; and that we maintain a worldwide programme of military deployments and exercises.

218. The existence of a military presence represents only one side of our activity outside the NATO area. Our aim in the first instance must be to bring diplomatic and economic efforts to bear in areas of potential instability so as to help maintain peace and combat the activities of the Soviet Union and its proxies. But we are also capable of intervening militarily, either alone or in concert with our allies, to defend our own interests or in response to a request for help. Ways in which we are enhancing our capability to undertake such interventions are described in Chapter 4. The direct use of military force must, however, always be regarded as a last resort.

219. Armed forces can also contribute to the preservation of regional stability by the kind of military assistance programmes described in more detail on page [ ]. At relatively low cost, the provision of military assistance - training, the secondment of British personnel on loan, or visits by advisory teams - can help friendly states to develop self-sufficient, disciplined

forces able to maintain national security and contribute to the wider development of their countries.

220. Another important contribution made by our Services is their participation in international peacekeeping forces. Our activities in this sphere were described in some detail in last year's Statement; British forces have a proud record in the difficult and sometimes hazardous business of maintaining peace between opposing communities, in places where violence can break out and spread rapidly as a result of seemingly trivial incidents.

221. There is unlikely to be a major change in the pattern of our out-of-area activities in the near future. NATO commitments will remain our overriding priority; and our ability to act outside the NATO area will be based on ensuring that selected units whose primary roles are within the Alliance can also deploy rapidly at long range in a crisis. Our permanent garrisons will continue to account for the major part of the small portion of our defence budget devoted to out-of-area activities, although some changes can be foreseen. In paragraph 454 we describe, for example, the steps being taken to reduce the size of our garrison in the Falklands; the future of the Belize garrison will depend on progress towards the resolution of the territorial dispute between Belize and Guatemala; and, in the longer term, we shall not retain a garrison in Hong Kong after 1997. Our military assistance programmes are likely to remain in considerable demand. The future requirement for the United Kingdom to contribute to peacekeeping forces is unpredictable; but regional instabilities and tensions in several areas of the world suggest that pressure on the international community to support new peacekeeping initiatives is unlikely to reduce, and we must be prepared to play our part.

Finally, we shall conduct overseas deployments and exercises with the forces of our friends and allies, both to maintain our effective intervention capability and to reaffirm our willingness to help defend Western interests outside the NATO area.

ESSAY

NATO STRATEGY

1. NATO's security policy is based on deterrence and defence. As the Communique issued at the end of the Bonn Summit in 1982 said: "Our purpose is to prevent war and, while safeguarding democracy, to build the foundations of lasting peace. None of our weapons will ever be used except in response to attack... Our purpose is to preserve the security of the North Atlantic area by means of conventional and nuclear forces adequate to deter aggression and intimidation." NATO's strategy is reactive; it threatens no one; it has no concept of pre-emption or of seizing the military initiative in a political crisis. The prime aim is to prevent war. The secondary aim, should aggression occur, is to respond at the right level to make the aggressor quickly cease his attack and withdraw.

2. It is revealing to recall the origins of the strategy of flexible response, which was adopted in December 1967, and in whose formulation the then British Government played a major part. Before its adoption, NATO depended on the concept of massive nuclear retaliation in the face of aggression at any level: the so-called tripwire strategy. But the Soviet acquisition in the 1960s of the ability to strike US territory with nuclear weapons destroyed the credibility of tripwire; the threat that the United States would automatically and immediately launch a strategic nuclear attack

on Russia in response to conventional aggression had irretrievably lost its deterrent force.

3. Some ten years lapsed, however, between the first suggestion that NATO should revise its strategy and the adoption of flexible response. In the course of that process, virtually every issue that has emerged in the current questioning of NATO strategy was addressed in depth by the Alliance: the reliability of the United States nuclear guarantee; the feasibility of achieving a satisfactory conventional balance in Europe; the benefits and risks of retaining the option of first use of nuclear weapons; and the implications for deterrence of stronger conventional defences and of delaying for as long as possible consideration of the use of nuclear weapons.

4. Three key principles underlie NATO's strategy of flexible response:

- a manifest determination to act jointly and to defend the Treaty Area against all forms of aggression, as reflected in Article V of the North Atlantic Treaty;

- a recognisable capability to respond effectively at all levels of aggression, and to escalate, if necessary, to convince the aggressor that he has miscalculated NATO's resolve and should cease his attack and withdraw; and

- a flexibility that prevents the Soviet Union from predicting with confidence NATO's specific response to aggression, and should lead the Warsaw Pact to conclude that any attack on the West, whatever its

nature, place or time, would expose the aggressor to an unacceptable risk.

5. These three principles are built on a combination of political will and military posture. The latter comprises three elements, which must be both visible and credible:

- Conventional forces to deter any Soviet non-nuclear attack, to counter it as far forward as possible, and to allow time for reinforcements to arrive. They must be sufficient in size and equipment, and so trained and deployed, as to ensure that the Soviet leadership can have no illusion of a quick or easy conventional victory.

- Theatre nuclear forces to enhance deterrence by providing a link between conventional and strategic nuclear forces, providing flexibility for options short of a strategic exchange, and deterring use of theatre nuclear forces by the other side. They also enhance the effectiveness of conventional forces by, for example, complicating any plans an aggressor might have for massing forces for an attack.

- Strategic nuclear forces to provide the ultimate deterrent. They must be able to inflict unacceptable damage on the Soviet Union even after a Soviet pre-emptive first strike. There is no substitute for the United States strategic guarantee, nor, if it is to remain credible, for linkage with a strong United States conventional and theatre nuclear presence in Europe.

Unless the Alliance maintains this range of forces, there is a risk that the Soviet Union might calculate that it could escalate any conflict to a level at which the Alliance had no credible response. Effective deterrence requires a full range of military options; the elements of the triad are mutually supportive, and all are essential.

6. There are a number of misunderstandings about the nature of flexible response that it is important to correct. First, it does not commit NATO to respond to an attack in a pre-ordained way, conventional or nuclear. The strategy is not, as some have suggested, a rigid construction akin to a ladder, on each rung of which the Alliance would have to step on its way to a final strategic exchange. Nor does it require NATO to match the Warsaw Pact system for system at every level. The strength of flexible response is that it provides NATO commanders and political authorities with a wide range of options, for use as appropriate.

7. Secondly, there is no absolute nuclear threshold in the sense that a nuclear response would automatically follow from a given level of conventional attack. Although NATO's forces are outnumbered by those of the Warsaw Pact, they are well trained and equipped and would not easily succumb to a conventional attack, even on a massive scale. NATO's possession of nuclear weapons does not mean that, if deterrence failed, they would necessarily be used; still less does it mean that NATO strategy is based on the intention of fighting and winning a nuclear war. The Allies need no convincing that there would be no winner in such a war. It does mean, however, that the Soviet Union must reckon with the possibility that NATO would be prepared, if necessary, to use nuclear weapons in self-defence.

8. Thirdly, flexible response is not an offensive strategy; it threatens no one. It does not encompass any concept of a "first strike" - a pre-emptive attack designed to eliminate the nuclear forces of the Warsaw Pact - nor does it imply a commitment to the early use of nuclear weapons. But NATO cannot willingly concede territory in order to buy time; nor can it afford to see an extensive and protracted war, whether conventional or nuclear, fought over its own territory. The Alliance must demonstrate to the Soviet leaders that they could not undertake aggression against NATO territory without putting their own homeland, their forces and those of their Warsaw Pact allies at risk. NATO has long possessed the capability to strike deep into enemy territory if attacked; it would be a serious abdication of responsibility by Alliance Governments were they to renounce this capability. But unless aggression were committed against a member of the Alliance, none of NATO's forces, whether conventional or nuclear, would ever be used. The message for the Warsaw Pact is simple and unambiguous: if you do not attack NATO, you have nothing to fear.

Alternative Strategies

9. Although flexible response has been with us for a long time and has proved successful, some have questioned whether it is still the best strategy for NATO. In the following paragraphs we consider some of the alternatives that have been put forward.

10. Alliance strategy must be credible to ordinary people as well as to governments in the West. Equally, however, it is vital not to address the validity of flexible response solely from a Western perspective. NATO's aim

is to influence Soviet calculations and to ensure that Soviet leaders conclude that, whatever the incentive, the military gamble would not be worth taking. The key question that needs to be asked when addressing alternative strategies is: "Would the Soviet Union consider the risks associated with aggression to be increased or reduced were NATO to change from flexible response?"

11. One of the more radical alternatives proposed is the concept of social defence through passive resistance, civil disobedience or guerilla warfare. But this option would be most unlikely to prove a convincing deterrent. It could only take effect after occupation by the aggressor. It is, therefore, essentially a national policy that would allow the West European nations to be picked off individually. It would provide no defence against, for example, a blockade of the United Kingdom designed to starve the country into submission. Moreover, resistance of this nature depends on the occupying power's being inhibited by the attitudes of its own people and other nations from adopting oppressive measures; there are no grounds for believing that such restraint would be felt by the Soviet Union. Perhaps most important, it is wholly unrealistic to suppose that the countermeasures envisaged in social defence would be viewed by the Soviet Union as any demonstration of the United Kingdom's or NATO's will or capability to resist attack, and it would be irresponsible of the Government to rely on such measures.

12. Natural distaste for nuclear weapons has led to several proposals that aim to make their use less likely. Some suggest that unilateral nuclear disarmament by the United Kingdom would underline our peaceful intentions and prompt others to follow our example. There is no evidence to support

this view. On the contrary, as illustrated in Chapter 1, history shows that by one-sidedly reducing our defence capabilities we increase the risk of war. Disarmament must be equitable and multilateral if it is to enhance rather than decrease our security.

13. Others suggest that the West should abandon particular elements of its nuclear armoury such as battlefield nuclear weapons. But changes such as this can only be made if they do not breach the seamless robe of deterrence by opening up gaps in NATO's capabilities that the Warsaw Pact might feel it could exploit to its advantage: otherwise deterrence is weakened.

14. Nuclear weapon-free zones are believed by some to offer a safer future for Europe. Apart from the dangers of breaking the vital link with the US nuclear forces that provide the ultimate guarantee of NATO security, this idea fails to take into account three significant factors. First, the territory of the zone would remain under threat from long-range weapons located outside it (for example, SS20s sited east of the Urals can threaten most of Western Europe). Secondly, the mobility of modern missile systems means that they could be rapidly redeployed in a period of tension; this would be easier for the Soviet Union than for the West. Thirdly, the Soviet Union could bring its conventional superiority to bear in such zones with less risk of provoking an escalation in the conflict: deterrence against the outbreak of hostilities would be weakened. Geographical re-distributions of nuclear weapons are no substitute for their overall reduction and ultimate elimination through balanced arms control agreements - an aim to which NATO remains fully committed.

15. Much has been made of the Soviet Union's declaration that it will never be the first to use nuclear weapons. The Alliance's own, far more comprehensive, commitment - that none of its weapons will ever be used except in response to attack (see paragraph 1) - is overlooked amid calls for a 'no first use of nuclear weapons' undertaking by NATO. The NATO allies believe that such an undertaking would reduce the risks to be taken into account by the Soviet leadership when contemplating, in a crisis, launching a conventional attack from a position of Warsaw Pact superiority in conventional forces. As a result, the risk of war would be increased. It strengthens deterrence that the Warsaw Pact is not allowed to believe that a limited conventional war could be fought in Europe without involving a risk of nuclear conflict. This does not, of course, mean that the Alliance is committing itself in advance to the use of nuclear weapons in response to attack: it is simply keeping its options open, to increase the uncertainty in the mind of the potential aggressor and hence increase deterrence.

16. Some people argue that intermediate-range nuclear forces and any other short-range deployments are unnecessary for the West and undesirable because they might lead to limited nuclear war, and suggest that we should go back to relying entirely on the United States' strategic nuclear defences. The problem with this argument is that it would imply a return to the old strategy of tripwire, would weaken the United States-Europe link, and would pose all the same difficulties for deterrence that led to the abandonment of the original strategy in the 1960s.

17. A further suggestion made is that it would be possible to counter the Warsaw Pact threat by conventional means alone. But as the present

Secretary General of NATO, Lord Carrington, said of those who want NATO to abandon nuclear weapons:

> "they must explain how we would face up to a Soviet Union which enjoyed a nuclear monopoly. To talk of increasing conventional forces in such circumstances is not enough. First, because the resource costs would be very substantial. And secondly, because no amount of conventional improvement would protect the West from nuclear blackmail. The advocates of non-nuclear defence have to explain why a Soviet Union with a nuclear monopoly would launch a conventional attack against a conventionally well-defended position, when it could threaten a devastating nuclear strike without fear of effective retaliation. And they must explain also what answer they would give if such a threat were made. To say of the Soviet leaders 'Oh, but they wouldn't' is not an answer. It is just wishful thinking."

18. In proposing reliance on new generations of conventional weapons, some give emphasis to the desirability of NATO's forces being seen to be entirely defensive. This suggests that there is a clear-cut distinction between offensive and defensive systems: a distinction that does not, in fact, exist. Moreover, the argument again overlooks the need for Western forces to act as a deterrent. There is little or no historical evidence to show that non-offensive defence alone has ever deterred aggression. Such a strategy would reduce the risk for a potential aggressor by making his territory, in effect, a sanctuary. The enemy may well be willing to take the risk, and pay the potential cost, of losing his military forces in the field if he knows that his own homeland could not be attacked in return. But if he is faced with a

threat of retaliation he is likely to be far more reluctant to embark on aggression.

19. None of the above alternatives therefore passes the test of improving deterrence, for none would be more convincing to a potential aggressor. To the extent that they would simplify Warsaw Pact operational planning or leave NATO forces at risk the alternatives would work to Soviet advantage, weaken deterrence, and make aggression more likely. None can therefore be regarded as more credible or safer than flexible response.

CHAPTER THREE: THE EUROPEAN PILLAR

301. The transatlantic bridge between Europe and North America is crucial to the individual and collective security of the NATO nations. For as the 1974 Ottawa Declaration on Atlantic Relations emphasised: "All members of the Alliance agree that the continued presence of Canadian and substantial US Forces in Europe plays an irreplaceable role in the defence of North America as well as of Europe. Similarly, the substantial forces of the European allies serve to defend Europe and North America as well." This chapter considers that side of the transatlantic bridge of which Britain forms a part: the European pillar.

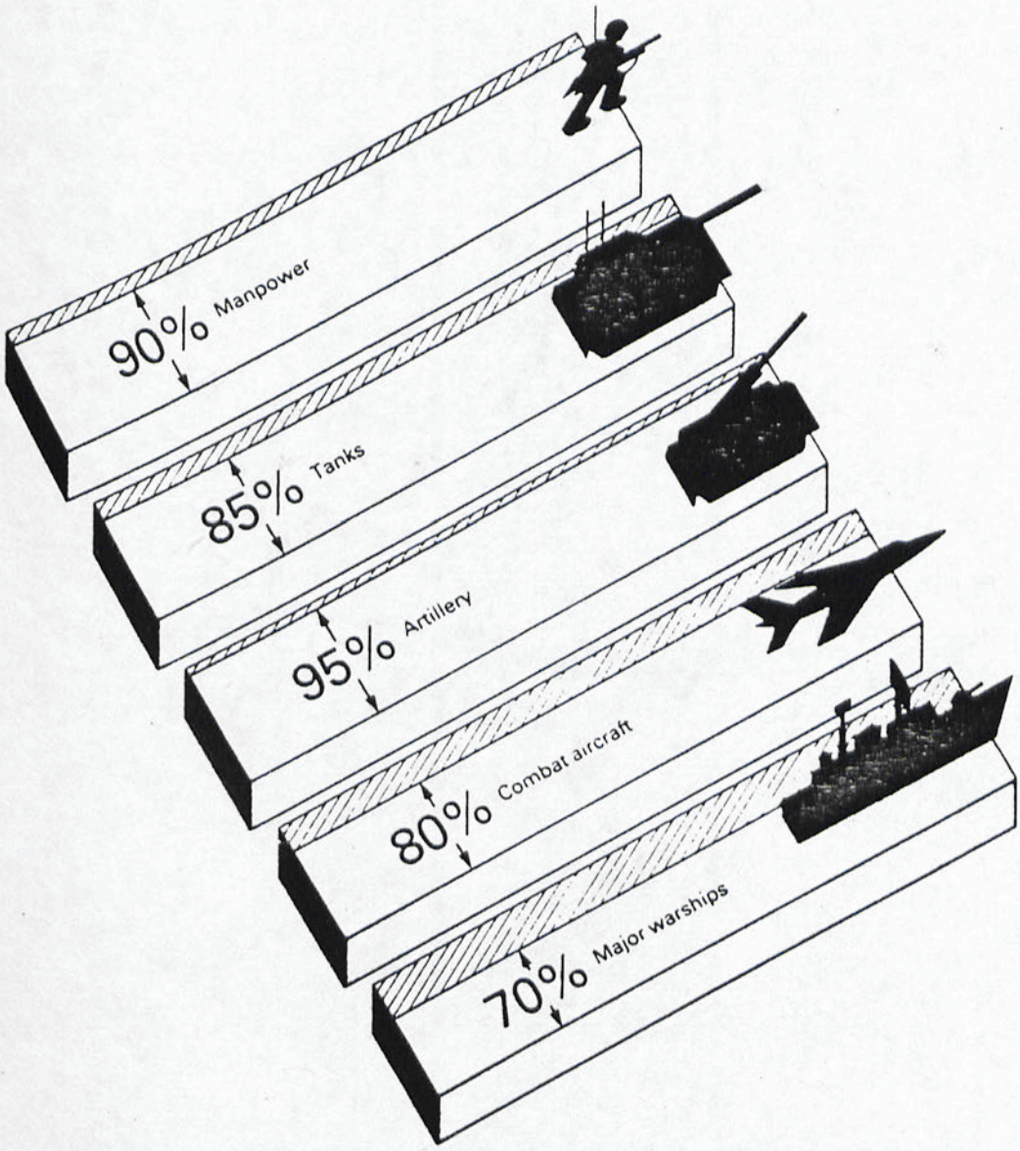
The European Defence Effort

302. During the last year, the debate on the relative contributions of the European and American allies has attracted much interest. As is illustrated below, Europe bears a substantial share of the overall Western defence burden; and in the field of conventional defence in Europe the European allies, rightly, assume by far the greater responsibility. We recognise that there are shortcomings in NATO's defences in some areas; but as we have shown in Chapter 2 and demonstrate further below, these are being tackled in a determined way. Britain has played its part in such efforts during the last year and will do so in the future - this approach is in the interests of every member of the Alliance.

303. Since 1971 the defence expenditure of European NATO countries has been increasing in real terms at an average rate of just over 2% per year. In 1983 it was more than 27% higher, in real terms, than in 1971. But while the amount of money spent on defence is commonly taken as a measure of defence effort, what really matters is the output gained from that expenditure: the tanks, ships, aircraft and trained fighting men for which it pays. United States reinforcements for Europe are, of course, critical to NATO plans; but deterrence must start with the peacetime balance of power. As Figure 2 shows, of ready forces stationed in Europe, the Europeans provide the major part: 90% of the manpower, 85% of the tanks, 95% of the artillery and 80% of the combat aircraft; to these must be added the European contribution of over 70% of the major warships in the Atlantic and European waters (85% of all warships). Moreover, the European allies provide a major part of NATO's military hardware (some 60% of all NATO's combat aircraft and tanks, for example) although Europe's gross domestic product is less than half of the NATO total. The full mobilised strength of the European forces approaches 7 million men, as against 3½ million for the United States. Nor is this a static contribution: improvements and new equipment are being widely introduced by the United Kingdom and other European NATO countries, many of them as a result of collaborative programmes (see paragraphs 312-321 and Chapter 4).

304. The Europeans also contribute most of the funding for NATO's infrastructure projects. Last December, in Brussels, Alliance Defence Ministers approved an infrastructure programme costing 3 billion Infrastructure Accounting Units, currently equivalent to about £6 billion. In cash terms, this was more than double the figure agreed for the previous period, and Europe will

Figure 2 **The European Contribution to NATO**



find some two-thirds of it. The priority given to individual projects depends on advice from NATO military authorities and takes into account competing demands. A good example is the programme to provide hardened aircraft shelters in Europe. The first priority, since the early 1970s, has been to protect front-line aircraft already deployed at European bases. Following the 1971-74 European Defence Improvement Programme, initiated by the Europeans, some 70% of aircraft at NATO bases are now sheltered, and more shelters are planned. Under the latest agreement, special provision will be made for programmes which support tactical air reinforcements, including those for hardened aircraft shelters.

305. Host Nations also provide other support for NATO allies in peacetime and in crisis. Installations and services are provided under a variety of bilateral agreements, which normally specify that the land and existing facilities are provided free. In the United Kingdom and the Federal Republic of Germany alone, the value of this contribution in real estate is worth over $10 billion. Other important agreements cover arrangements for the provision of assistance during the reinforcement of Europe from North America.

306. European Defence Ministers have long recognised the requirement for sufficient war reserve stocks of munitions and fuel to sustain a credible conventional defence. Despite the improvements that have already been made, significant areas of concern remain. NATO Defence Ministers agreed last year to make a special effort to make good critical deficiencies in this field and to improve further NATO's holdings in a selected number of key munitions, without detracting from the strength of front-line forces. As examples of what is already being done in Europe, the Federal Republic of Germany planned

to increase expenditure on ammunition stocks by 13% in real terms between 1981 and 1984 and is planning to sustain this rate of growth until 1987; and the United Kingdom has funds earmarked over the next few years to improve stocks of anti-tank weapons, artillery and naval gun ammunition. Such improvements must, however, go hand in hand with the necessary transport and support facilities that such stocks require, and account needs to be taken of the effects of expected technological advances.

307. The European allies also play a full part in promoting worldwide stability and Western security. The European nations contribute on a national basis to UN peacekeeping forces, such as those in Cyprus and the Lebanon, and at the request of friendly governments have also contributed to peace-keeping forces such as the Multinational Force and Observers patrolling the border between Israel and Egypt in Sinai. Military training assistance to help friendly nations help themselves is another important area: the European NATO countries provide extensive training for foreign Servicemen, and loan Service personnel to a large number of countries, including many in critical areas such as the Gulf and the Caribbean. The United Kingdom's specific contribution in this area is discussed on page [ ]. The Europeans have also given significant political and economic support to developing nations: in 1981 European members of the Alliance contributed over $13 billion in official development aid - about two-thirds of the total from NATO countries.

Strengthening the European Pillar

308. The substantial contribution that Europe already makes to collective security can be further strengthened and made more cohesive by greater co-

operation between the European allies. The United Kingdom attaches great importance to the maintenance and development of bilateral relations with its European allies, and is also playing a leading role in the work of the major multilateral organisations devoted to European defence cooperation. The past year has seen the reinvigoration of these bodies, a process that we and our allies intend to take forward in the coming months.

309. The main multilateral forum within NATO for practical cooperation in this field is the Eurogroup, an informal grouping which includes all European members of the Alliance except France and Iceland. Training, logistics, communications, medicine and long-term operational concepts are some of the areas in which Eurogroup sub-groups are active. The Eurogroup is also doing valuable work to publicise current European defence efforts, particularly in North America. The biannual meetings of Eurogroup Defence Ministers both direct this work and provide an important opportunity for discussing major current issues in the Alliance. The United Kingdom chaired the Eurogroup during 1984.

310. Foreign and Defence Ministers of the Western European Union (WEU) countries (Belgium, France, the Federal Republic of Germany, Italy, Luxembourg, the Netherlands and the United Kingdom) met in Rome in October 1984 to celebrate the 30th anniversary of the modified Brussels Treaty. They stressed the importance they attached to the Treaty's goals of strengthening peace and security, promoting unity, and encouraging cooperation within Europe, and underlined the role that the WEU could play in helping to achieve them. Ministers acknowledged the significance of the WEU in promoting European defence cooperation

by agreeing normally to meet twice-yearly in future; they also decided on a number of measures to reactivate the WEU and reform its institutions. The WEU is unique in having an Assembly specifically empowered by Treaty to discuss matters relating to the defence and security of Europe. It thus provides a forum for European political debate about issues of major concern to us, and makes it easier to achieve a consensus on them. It has an important role in stimulating greater public debate of security issues, and in generating greater public awareness of Alliance policies. It can act as a 'ginger group' giving political impetus to practical work in other groups aimed at improving European defence cooperation, and assists the development of a more unified, and thus stronger, European contribution to the Alliance.

311. In the field of cooperation in the development and procurement of defence equipment, the most significant progress in 1984 has taken place in the Independent European Programme Group (IEPG), which consists of all the European members of the Alliance except Iceland. This is considered in detail in paragraph 317.

Equipment Collaboration

312. It has long been recognised that the Alliance as a whole, and the European members in particular, need to make better use of the resources devoted to research, development and production of defence equipment. Duplication of effort is wasteful, while collaboration enables nations to share the development and other costs of expensive equipment. Collaboration also helps achieve standardisation and interoperability, thereby improving force

capabilities; and the savings in unit costs that cooperation can bring make it possible to buy and deploy a greater number of equipments. Furthermore, this kind of cooperation clearly demonstrates the Alliance's cohesion and its members' preparedness to work effectively with one another.

313. Achieving effective equipment cooperation is not easy when there are widely differing national positions to reconcile. Nations may be operating in different environments, with different tasks and within different force structures. Moreover, programmes for equipment replacement may be out of step; and national industrial, economic and political considerations always need to be borne in mind. International machinery has been set up to encourage cooperation: thus the Conference of National Armament Directors (CNAD) oversees a NATO-wide structure of specialist military armament groups and subgroups, whose task is to promote equipment cooperation by seeking to harmonise operational requirements between member nations; while the IEPG seeks to make better use of specifically European defence procurement resources.

314. Despite the problems, there is a creditable history of successful cooperation between NATO partners, going back some 20 years. The Table [below] lists those projects in which the United Kingdom has been involved. It includes some important European collaborative equipments that have been successfully brought into service: among them Jaguar, the Anglo-French helicopters, FH70 and Tornado. It also includes a number of projects in development or in earlier study phases in which the United Kingdom is involved, although in some cases decisions on our participation in full development and production remain to be taken.

315. The momentum is being maintained. In the past year there has been further production of the Tornado aircraft with our German and Italian partners. We have agreed with France, the Federal Republic of Germany and Italy the basis of work-sharing production arrangements for the Multiple-Launch Rocket System; and with France and the Federal Republic of Germany, together with the United States, we have begun development in the high technology area of terminally-guided warheads for that system. The Anglo-Italian EH101 helicopter is now in full development. We expect soon to make a decision on full development of an advanced Anti-Tank Guided Weapon System (TRIGAT) with our French and German partners; other European nations (Belgium, Greece, Italy, the Netherlands and Spain) have asked to join the programme, and this proposal has been warmly welcomed. Norway has now joined the United Kingdom and Germany in the Advanced Short-Range Air-to-Air Missile programme. A multi-national industrial consortium is conducting feasibility studies for the NATO Frigate Replacement, working to a NATO Staff Target agreed between eight Alliance nations. It is encouraging, too, that Defence Ministers of the United Kingdom, France, Germany, Italy and Spain have agreed a European Staff Target for a European Fighter Aircraft for the 1990s and beyond. Defence industries of the five countries have undertaken feasibility studies in order to examine the basis for collaborative development and production, and the outcome of the studies is now being evaluated.

316. These are commendable achievements, but during recent years the need for more systematic and regular cooperation has become apparent. The growing costs and technological complexity that each new generation of weapon systems needs in order to match the steady improvements in Warsaw Pact equipment capabilities, and the relatively limited scale of national requirements

among the European nations, mean that it is becoming ever more difficult to meet national requirements cost-effectively from purely national programmes.

317. In the past year considerable progress has been made. An increasingly important role has been played by the IEPG, which met at full Defence Minister level for the first time in November 1984. Ministers demonstrated their political commitment to strengthening the European pillar by setting in train a number of potentially far-reaching measures:

- military staffs have been directed to work towards closer harmonisation of operational requirements and timescales, thus allowing common equipment to be developed and procured if there are clear financial and economic advantages in so doing;

- all significant projects are to be referred to Ministers at Staff Target stage so that international collaboration can be fully considered from the outset;

- the rationalisation of research, technological and industrial resources is to be considered. Work is in hand to identify a number of Cooperative Technology Projects, and a study has been commissioned into ways of improving the competitiveness of the European armaments industry;

- Ministers have agreed that nations should exercise greater discipline in not launching their own development projects if an appropriate one already exists elsewhere in Europe; that they should be readier

to adopt equipment already in production; and that they should be more prepared to apply competition in managing European collaborative projects.

318. What does all this mean for the United Kingdom? Given the length of time for defence research, development and production to come to fruition - reflecting the advanced nature of most defence technology - it will be some years before the full benefits of these initiatives become apparent. Nevertheless, if the clear objectives laid down by Defence Ministers are vigorously pursued, the savings available from greater cooperation should enable the United Kingdom to make better use of its financial and industrial resources to meet the equipment needs of the armed forces; and the Services themselves will be able to take advantage of greater commonality with their allies.

319. Although cooperation means relying on equipment and components designed and produced by others, this process works both ways. The strength of the British defence industrial base can be maintained, and even enhanced, in those sectors that respond to the incentive of greater competition by increasing their efficiency. There will be major challenges for Service and procurement staff and for industry, and bold decisions will need to be taken nationally, within Europe, and by the Alliance as a whole. The prize is, however, considerable.

320. The renewed emphasis on European cooperation is placing growing demands on the Procurement Executive (PE) of the Ministry of Defence, and we have accordingly made changes in the PE's top management structure. Formerly the Chief of Defence Procurement held responsibility for international equipment

collaboration as well as for the general management of the defence procurement programme. In March this year the post of Chief of Defence Equipment Collaboration was created to concentrate full-time on the pursuit of collaboration, and to lead the sustained and determined drive that will be needed over a period of years to bring about the substantial increase in cooperation that is envisaged.

321. The European effort described above is not an alternative to transatlantic cooperation: on the contrary, a stronger and more cohesive European industry will contribute to the strength of the Alliance as a whole and enable Europe to cooperate more effectively on level terms with the United States. The United Kingdom therefore intends to press ahead in this field with vigour and determination.

TABLE

UK COLLABORATION

PROJECT	PARTICIPATING COUNTRIES
A. In Service	
Naval Equipment:	
PARIS Sonar	UK/FR/NL
Land Equipment:	
FH70 Howitzer	UK/GE/IT
Scorpion Reconnaissance Vehicle	UK/BE
Aircraft:	
Jaguar	UK/FR
Tornado	UK/GE/IT
Lynx) Gazelle)	UK/FR
Puma)	
Missiles:	
Martel (Air-to-Surface)	UK/FR
Milan (Anti-Tank)	UK/FR/GE
Sidewinder (Air-to-Air)	UK/GE/IT/NO
Other Equipment:	
Midge Drone	UK/CA/GE
B. In Development or earlier Study Phases	
Naval Equipment:	
NATO Frigate Replacement (NFR 90)	UK/US/NL/FR/CA/SP/GE/IT
Sea Gnat Decoy System	UK/DE/US
Land Equipment:	
SP70 Howitzer	UK/GE/IT
Multiple-Launch Rocket System Phase I	UK/FR/GE/IT/US
Multiple-Launch Rocket System Phase III	UK/FR/GE/US

PROJECT	PARTICIPATING COUNTRIES
Aircraft:	
Harrier GR5	UK/US
Naval ASW Helicopter (EH101)	UK/IT
European Fighter Aircraft	UK/FR/GE/IT/SP
Missiles:	
Short-Range Anti-Radar Missile	UK/US/BE/GE/CA/NL/IT
Long-Range Stand-Off Missile	UK/US/GE
Milan Improvements	UK/FR/GE
TRIGAT (Anti-Tank)	UK/FR/GE
ASRAAM (Air-to-Air)	UK/GE/NO
Other Equipment:	
Midge Post-Design Services	UK/FR/GE

Note:

BE = Belgium; CA = Canada; DE = Denmark; FR = France;

GE = Federal Republic of Germany; IT = Italy; NL = Netherlands;

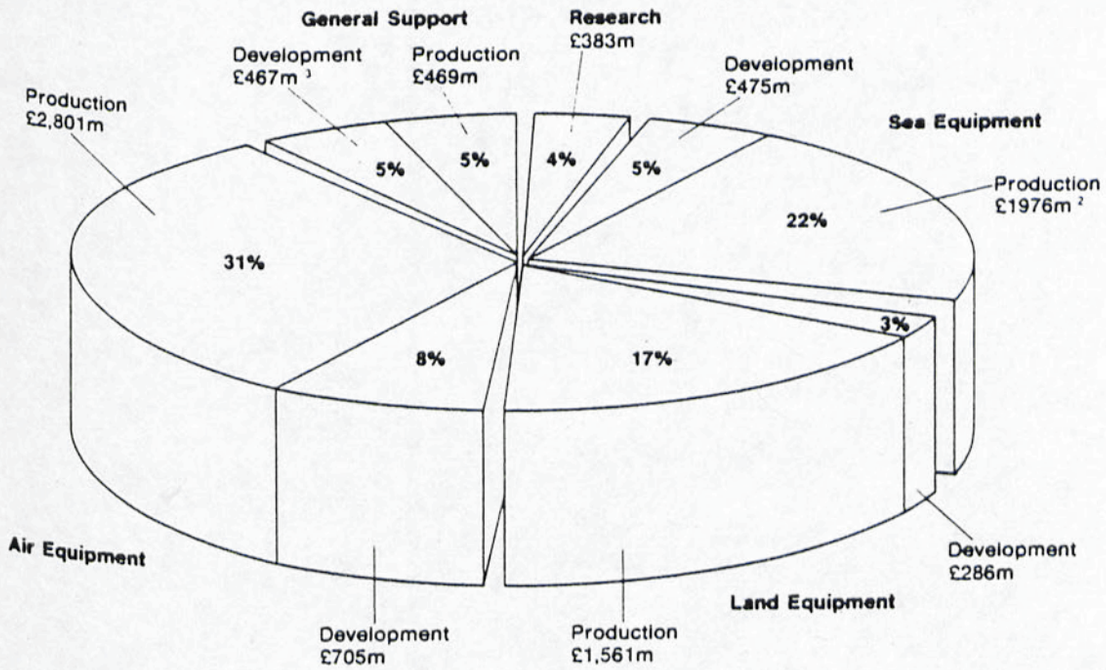
NO = Norway; SP = Spain.

CHAPTER FOUR: FORCES AND EQUIPMENT

401. In earlier chapters we have described the strategic factors governing the shape and direction of the United Kingdom's defence policies, and the roles that the armed forces must perform in order to give effect to those policies. This chapter sets out the capabilities, both structural and material, which enable the Services to discharge their responsibilities to greatest deterrent and defensive effect. This includes not only the structures of the regular forces, but also the reserve forces and the important national asset of the United Kingdom's merchant fleet.

402. This chapter describes in some detail the equipment that is coming into service or being developed for the armed forces. Equipment expenditure and the associated costs of its procurement are expected to amount to some £9,100 million in 1985-86: Figure 3 shows the main divisions of the procurement programme. The Tables below set out examples of unit costs of defence equipment and of the estimated programme costs of major projects that have begun development during the past year.

Figure 3 The Main Divisions of the Procurement Programme 1985-86 [1]



1 Figures relate to expenditure at Estimates Prices and net of Appropriations-in-Aid.

2 Including the cost of equipment for dockyard services.

3 Including the cost of some HQ staff who are responsible for both research and development.

Unit Costs of Defence Equipment

Equipment	Unit Cost (1984-85 prices) (excluding development costs)
Type 23 Frigate*	£110.0 million
Harrier GR5	£14.2 million (estimated)
River Class Minesweeper	£4.5 million
TACAN Navigation Equipment	£32.0 thousand
MILAN Anti-Tank Missile	£7.5 thousand
VHF Radio	£6.0 thousand
Combat High Boot	£20 per pair
Naval Anti-Flash Gear	£7 per outfit

*including weapons and equipment fitted in the ship, but excluding the first outfit of stores and, where appropriate, aircraft.

Estimated Programme Costs of Major Equipments Entering Development in 1984-85

Project	Estimated Total Development and Production Cost (1984-85 prices)
Sonar 2050	£168 million
Blue Vixen Radar	£135 million
SCOT Shipborne Satellite Terminals	£270 million
Harpoon Surface-to-Surface Missile	£189 million
Vertical-Launch Sea Wolf	£296 million
Replacement Small Calibre Gun	£142 million
Weapon Handling and Discharge System for Submarines	£135 million
Phoenix Remotely-Piloted Vehicle	£134 million

NUCLEAR FORCES

403. All our nuclear forces are assigned to NATO, although they remain at all times under the control of the British Government and are capable of being employed independently when supreme national interests are at stake. While they represent only a relatively small proportion of the total nuclear

forces assigned to NATO, they are nonetheless capable of inflicting unacceptable damage on a potential aggressor. By complicating Soviet calculations about the likely Alliance response to any aggression, British nuclear forces make a contribution to deterrence that far outweighs their numerical significance alone.

BRITISH STRATEGIC NUCLEAR FORCES

404. Britain's current strategic nuclear force of four Polaris submarines has provided a continuous independent deterrent since 1969. Measures have been taken in recent years to ensure that this force will be effective well into the 1990s, when it will be replaced by Trident. The programme to fit new motors to the Polaris missiles is continuing; and all operational SSBNs now deploy the improved Polaris A3TK missile system following completion of the Chevaline programme. Chevaline is a sophisticated development designed specifically to penetrate Soviet Anti-Ballistic Missile (ABM) defences. It provides warheads that are hardened against the effects of ABMs, together with penetration aids of high complexity. It is not, however, a multiple independently-targettable re-entry vehicle (MIRV) system and does not involve any increase in the number of warheads associated with the Polaris force.

405. The programme for replacing Polaris with Trident in the mid-1990s is proceeding on schedule. A tender has been received from Vickers Shipbuilding and Engineering Ltd for the construction of the first of the United Kingdom's four Trident class submarines, and we hope to conclude a contract by the end of the year; Vickers will be required to sub-contract work competitively wherever possible. The Trident class submarines will be the largest ever

built in the United Kingdom; each submarine will have a displacement of over 15,000 tonnes, a length of about 150 metres and a maximum diameter of pressure hull of 12.8 metres. Each will contain 16 missile tubes and will be powered by a new pressurised water reactor (PWR2), which will also be used in our next class of nuclear-powered hunter-killer submarines. The longer core-life of PWR2 will allow the period between submarine refits to be considerably lengthened and thus reduce the number required, significantly increasing availability and reducing through-life costs. The reactor's greater quietness will mean that the submarine will be less vulnerable to detection itself and more capable of detecting others. The Trident submarine will be fitted with newly-developed sonar equipment providing a significantly improved defensive capability, and enhancing its ability to remain undetected; the equipment will also have potential for further improvement.

406. Since the decision to opt for the D5 missile in March 1982, the only increase in the estimated cost of the Trident programme has been that attributable to inflation and exchange rate variations. Because of the decision to process our missiles in the United States rather than the United Kingdom, substantial offsetting savings have been made. At average 1984-85 prices and at an exchange rate of $1.38 to the pound (the rate used, by convention, for this year's re-costing of the defence programme), the estimate is just under £9.3 billion, of which we expect about 55% to be spent in this country. The estimated cost would have been more than £700 million higher but for the missile processing decision. Trident is still expected to absorb on average only about 3% of the total defence budget over the period of its procurement, and about 6% of the equipment budget.

407. The total value of the Trident programme to British industry, as was noted last year, will be increased by British firms' obtaining sub-contracts for the D5 weapon system under the industrial participation arrangements made with the United States in 1982. Clearly there are difficulties in breaking into a strategic high technology programme in which United States industry is already firmly established. But where British firms have submitted fully compliant tenders they have achieved a reasonable measure of success. The value of these awards is considerably exceeded by the potential for follow-on orders. The full-scale engineering development phase of the United States programme has been under way now for some time, and we expect that the majority of sub-contractors will have been selected by the end of 1985.

BRITISH THEATRE NUCLEAR FORCES

408. The United Kingdom also contributes a variety of nuclear weapon systems to the Alliance's theatre nuclear forces. Eight squadrons of Tornado GR1, two squadrons of Buccaneer and one squadron of Jaguars are now operational in the strike/attack role in the United Kingdom and the Federal Republic of Germany, although the Jaguars will be withdrawn from the role by the end of 1985 and replaced by a ninth Tornado squadron. The prime role of these aircraft is conventional, but they are also capable of delivering the British free-fall nuclear bomb. Free-fall nuclear bombs can also be delivered by Sea Harriers of the squadrons in service with the Royal Navy's Invincible class of aircraft carriers. Nuclear depth-bombs can be dropped from a variety of shipborne anti-submarine helicopters.

409. In addition to these wholly British weapons, the United Kingdom operates a number of weapon systems for which nuclear warheads are provided by the United States. Arrangements for these weapons - whereby the United States provides and maintains custody of the warhead, while the weapon system is owned and operated by an Alliance country - are widespread in NATO and allow for maximum participation by the European allies in the Alliance's nuclear deterrent posture. For the United Kingdom, one regiment of Lance missiles and five regiments of nuclear-capable artillery are operated by the British Army based in the Federal Republic of Germany, and depth bombs are provided for delivery by RAF Nimrod maritime patrol aircraft.

CONVENTIONAL FORCES

DEFENCE OF THE UNITED KINGDOM

410. The forward defence of the United Kingdom derives in the first place from our forces in Europe and the Eastern Atlantic; but in the last few years we have been devoting substantial and growing resources to the defence of the United Kingdom itself. This reflects our determination to rectify the shortfalls in capability that had built up in previous years. The protection of our homeland must lie at the heart of our defence policy; but the importance of defending the United Kingdom goes beyond even the fundamental need to protect our own country and its people, as paragraph 204 explains. Any Warsaw Pact attack on Western Europe would almost certainly include a substantial air offensive against the United Kingdom as well as conventional missile attacks from submarines, extensive mining, and incursions by specialist

forces; and it is therefore in the interests of the whole Alliance that we should be capable of deterring such an offensive or, if it were launched, of defending ourselves and our territorial waters against attack.

411. The major programme of both qualitative and quantitative improvements to our air defences, first described in detail in the 1983 Statement, is progressing satisfactorily, although it will take several more years to complete. Real benefits are already being realised. The RAF's new air defence aircraft, the Tornado F2, has been accepted into service; the first aircraft were delivered to the operational conversion unit at RAF Coningsby in late 1984, and aircrew training is under way. Seven F2 squadrons will be formed, and the aircraft's excellent range and loiter capability make it ideally suited to operations in the United Kingdom Air Defence Region. Equipped with the Foxhunter airborne intercept radar, the F2 will be able to locate and track multiple targets even in the most difficult environment and against targets using electronic countermeasures; and the introduction of the Joint Tactical Information Distribution System (JTIDS) will provide the communications to ensure the most effective operational use of these aircraft. Two squadrons of Phantoms will remain in service after the introduction of the Tornado, and improvements to the Phantom's weapon system will ensure that it remains a potent air defence aircraft in the late 1980s and 1990s. The Phantom F4J aircraft bought from the United States Navy are now in squadron service, making good the temporary shortfall in air defence aircraft immediately available in the United Kingdom following the deployment of Phantoms for service in the Falkland Islands. The programme to equip 72 Hawk trainer aircraft with Sidewinder missiles provides a valuable enhancement to our capability at relatively low cost. Improvements to the tanker fleet will

greatly increase intercept range and loiter time of RAF shore-based fighter aircraft, thereby further enhancing the air defence of both the home base and the surface fleet.

412. The modernisation of the complex of ground radars and command, control and communications systems for air defence, known as the United Kingdom Air Defence Ground Environment (UKADGE), is progressing. Delivery of the new radars has begun. Better communications are also being developed, including the installation of secure jamming-resistant links. Improvements to our surface-to-air weapon capabilities are also in hand; and the Wing Headquarters, Training Flight and first two squadrons of the Rapier Wing owned by the United States Air Force and operated by the RAF Regiment have now formed. The first of these squadrons is now operational.

413. We had hoped that the Nimrod Airborne Early Warning (AEW) aircraft would have entered service with the RAF by the end of 1984, but because of problems in the development of the Mission System Avionics this has not been possible. We are assessing proposals for further work to complete development, and our best judgement is that an operational Nimrod AEW capability should be achieved in 1987. A Joint Trials Unit has been set up at RAF Waddington, and the first production aircraft has been transferred from British Aerospace at Woodford. The aim of the unit is to prove the Nimrod AEW system in a Service environment using facilities being installed at RAF Waddington, and to work up engineering procedures before the aircraft is introduced into RAF service. The Nimrod force will be the United Kingdom's contribution to the NATO AEW mixed force; the E3-A (AWACS) element of that

force is already in service. In addition, the RAF's AEW Shackletons still make a useful contribution to AEW capability and the air defence of the United Kingdom.

414. Also important to the defence of the United Kingdom is the ground defence of vital installations against the threat of small units of specially-trained sabotage troops. We reported last year that plans in this area had been revised. United States ground defence planning for vital installations in this country is now being integrated with our own. Our aim is to have a complete set of plans for the defence of vital installations in the United Kingdom, both military and civil, ranging from high-priority strategic targets down to lower-priority installations which could be protected by static guard posts manned by members of the new Home Service Force (see paragraph 448).

415. We also announced last year our intention to hold exercises to test various aspects of the revised plans. So far there have been a number of small exercises involving forces from one or two Army Districts, but in September these will be followed by a national exercise called BRAVE DEFENDER to test both mobilisation plans for military home defence and the revised plans for the ground defence of important installations. There would be over 100,000 Servicemen available on mobilisation for military home defence, and some 65,000 regular and reserve personnel from all three Services will take part in BRAVE DEFENDER; United States forces will also participate. The exercise will be the largest to be held in the United Kingdom since the Second World War. Activities will, however, be widely spread across the country, and any disturbance to the public will therefore be kept to a minimum. These activities will take place at a wide variety of installations,

including some civil ports and airports; with the agreement of the landowners, some areas of private land around various installations will also be used. In addition, the movement of mobile reaction forces to reinforce the guards at threatened installations will be practised.

416. The serious mining threat posed by the Soviet Union to naval and merchant shipping movements around the United Kingdom, especially in the approaches to the Clyde, on other essential shipping routes, and in reception ports and naval bases, means that there must be no slackening in our drive to modernise our mine countermeasures (MCM) capability. New ships are coming into service alongside the long-serving Ton class: there are now eight Hunt class MCM vessels operational with the Fleet, and four River class minesweepers have been accepted for the Royal Naval Reserve. Three more Hunts and eight Rivers are under construction; all 11 should be completed and in service by 1987. A tender has been invited for the first of the Single Role Minehunters (SRMH) which will complement the multi-role Hunt class. To tackle the Soviet Union's most modern sea mines the SRMH will be equipped with a new generation of variable-depth minehunting sonar. A contract for its full development and initial production was placed recently with Plessey. We are also actively engaged in a comprehensive programme to modernise our own mines and to develop new types for defensive mining. Last year we invited industry to conduct feasibility studies into an advanced sea mine on a privately funded and competitive basis. We are currently evaluating the results before taking a decision on the next phase of the project.

FORWARD DEFENCE: THE EUROPEAN MAINLAND

The Central Region

417. Because the Warsaw Pact would have the initiative in choosing the timing and concentration of any attack on the European mainland, NATO needs to have both strong and balanced in-place forces to deter and, if necessary, repel any attack at short notice; and the means quickly and effectively to reinforce its defences.

British Army of the Rhine

418. The British Army of the Rhine (BAOR) is so constituted to contribute to that end. BAOR comprises a major combat force, 1(BR)Corps, and the means of supplying the Corps with full logistic back-up. Its peacetime establishment of 55,000, which will increase to 56,000 by the end of the decade, provides a structure on which, after reinforcement, a total force of some 150,000 men could rapidly be built. 1(BR)Corps consists of three armoured and one infantry division, having between them seven armoured, one air-mobile, two regular infantry, and two Territorial Army (TA) infantry brigades, and substantial Corps troops, including a reconnaissance brigade-equivalent and strong artillery assets. In peacetime, the seven armoured brigades and the air-mobile brigade are based in the Federal Republic of Germany. They provide visible evidence of the United Kingdom's commitment to the defence of the Federal Republic, and in this way fulfil their primary purpose of deterrence. Our plans for reinforcement were tested successfully in Exercise LIONHEART last year (see page[ ]).

419. But deterrence itself depends on the credibility of our forces' capability to provide a robust defence against aggression. We are maintaining and enhancing this capability. Paragraph 215 referred to the reorganisation of 1(BR) Corps and the consequent increase in its combat effectiveness. During the remainder of the decade we shall make further improvements by the introduction of new equipment, and in parallel we shall create additional front-line units; this has been made possible by the LEAN LOOK studies described in Chapter 5. There will be 12 armoured regiments (compared with eight in 1980): five equipped with Challenger and the rest with improved Chieftain. There will be a third air defence regiment, to be equipped with a new missile system, to add to the existing regiments which are already being equipped with improved versions of Blowpipe (called Javelin) and Rapier.

420. 1(BR) Corps stands astride an area where a massive armoured threat may be expected. To meet this threat both types of our main battle tanks will undergo progressive improvements. The new thermal imaging sight for Chieftain and Challenger is now in production. As well as becoming an integral component of our new tanks as they are manufactured, the sight will be retrofitted from now on to existing Challenger and Chieftain tanks. In the next few years improvements will also be made to Challenger's and Chieftain's fire control systems; and, for the longer term, development is proceeding on a new 120mm high-pressure gun and new ammunition for both types of tank.

421. We shall also be improving our anti-armour missile capabilities. Milan is now in service throughout 1(BR)Corps, and its issue to all reinforcing infantry battalions, including of course those of the TA, is now complete; Milan is being fitted with a thermal imaging sight and an improved warhead.

A similar sight, together with an improved warhead, has been provided for Swingfire, our long-range anti-tank missile mounted on tracked vehicles; and we have introduced an improved warhead for TOW, the anti-tank missile carried by Lynx helicopters. Research and development work in partnership with France and the Federal Republic of Germany is well under way on our next generation of anti-tank missiles to replace Milan, Swingfire and TOW in the 1990s.

422. The Saxon is coming into service, and MCV 80 is undergoing trials. Both these armoured personnel carriers will enhance the mobility of our infantry. A major improvement to the infantry's personal weapons begins at the end of the year, when the SA80 range of weapons will replace the existing self-loading rifle (SLR), 9mm sub-machine gun, 7.62mm Bren gun, and general purpose machine gun in the light role. The SA80 rifle will be provided with a magnifying sight, and some will also be fitted with a night sight; it will have an automatic fire capability and is lighter than the SLR, enabling the infantryman to carry more ammunition.

423. Two new artillery systems for 1(BR)Corps will be the Multiple-Launch Rocket System, which will replace the present 175 mm M107 gun; and the SP 70 self-propelled gun, which will replace the 105 mm Abbot. We are also planning to improve the target acquisition capability of our artillery through the use of remotely-piloted vehicles, and are investigating ways of improving our surveillance capability. The late 1980s and early 1990s will therefore see significant improvements to 1(BR) Corps' artillery support, in terms of firepower, range, accuracy and survivability.

424. Tracked Rapier is already coming into service in BAOR, thereby increasing the mobility and survivability of our air defence. The Rapier system is itself being improved, and all towed Rapier units now have improved radar and increased immunity to electronic countermeasures.

425. The large-scale investment that we are making in the area of command, control and communications is central to the Army's fighting effectiveness. Ptarmigan, the new secure communications system, is now coming into operational service with 1(BR)Corps together with Wavell, a sophisticated data processing system for brigade commanders and above. BATES, the computer-based artillery targetting system, is planned to come into service towards the end of the decade.

RAF Germany

426. The capabilities of RAF Germany's strike/attack and reconnaissance forces are being improved by the introduction of eight squadrons of Tornado aircraft as replacements for Buccaneers and Jaguars. Five squadrons of Tornado GR1 strike/attack aircraft are now in service in the Federal Republic of Germany; the sixth will form later this year, and the seventh in 1986. The aircraft, equipped with terrain-following radar and advanced avionic and weapon delivery systems, give RAF Germany a major improvement in its day/night all-weather low-level capability. This, coupled with the aircraft's fully-automatic weapon delivery system, constitutes a major improvement in NATO's ability to penetrate the Warsaw Pact's defences and hit targets behind the front line. The reconnaissance squadron, equipped with Tornado GR1 aircraft fitted with advanced infra-red and video-recording equipment, will form later in the

decade. Weapon delivery capability will be enhanced by the introduction of two new weapon systems - JP 233 and the Air-Launched Anti-Radiation Missile (ALARM). Deliveries of the JP 233 cratering and area-denial weapon will begin later this year and will markedly improve the RAF's anti-airfield capability; ALARM, scheduled for delivery in the late 1980s, will provide Tornado with a corridor-clearing capability for offensive low-level missions.

427. Tornado's capability for long-range offensive operations is complemented by two squadrons of Harrier aircraft. These versatile aircraft would be used in close support of Army ground forces and are able to operate from unprepared, dispersed field sites, thus enhancing their survivability from airfield attacks by Warsaw Pact aircraft. In time of tension or war these squadrons would be reinforced by aircraft from the operational training unit in the United Kingdom. In the late 1980s the existing Harrier GR3s will be replaced in Germany by the Harrier GR5, which has a longer range and greater weapon load than the GR3, and, like Tornado, is equipped with a full range of electronic and other countermeasures. For its anti-armour role the Harrier force in Germany is equipped with BL 755; an improved version of this weapon will shortly enter service and will give the Harrier force an enhanced ability to counter the most modern Warsaw Pact armoured vehicles.

428. Other aircraft in the Federal Republic of Germany consist of two squadrons of air defence Phantoms which, together with Tornados, will amount to 12 squadrons of fast-jet aircraft in the theatre; and two squadrons of support helicopters - one Puma and one Chinook - supplying in-theatre logistic and tactical air transport for 1(BR)Corps and RAF Germany. The delivery later this year of additional Chinooks to replace those lost in the Falklands will

bring the Chinook squadron up to full establishment. In war, both Phantom and helicopter squadrons would be reinforced by their respective UK-based operational training units.

429. RAF aircraft in Germany are supported and protected on the ground by units of the RAF Regiment and the Royal Engineers. RAF Regiment units man the Rapier surface-to-air missile system that defends the RAF's four airfields; provide ground defence for each airfield with four squadrons equipped with light armoured vehicles; and also provide two further squadrons for the defence of Harriers in the field. The airfields are hardened to increase survivability, and a Royal Engineers squadron is allocated to each, for rapid runway repair and the maintenance of essential services in war. Three further Royal Engineers squadrons provide off-base support for the Harrier force.

The Northern Region

430. NATO's Northern Flank is of vital importance to the integrity of the Alliance and to the conduct of maritime operations in the Norwegian Sea and Atlantic, as well as to the defence of the United Kingdom itself. We therefore commit substantial resources to the defence of the region, and the United Kingdom/Netherlands Amphibious Force, to which we contribute all the shipping and 3 Commando Brigade Royal Marines, would be ready early in a time of tension or war to reinforce Norway, the Baltic approaches or the North Atlantic islands. Our reinforcement options encompass amphibious or air-landed operations. The amphibious force is provided with airborne mobility by two Royal Naval helicopter squadrons capable of lifting two company groups

simultaneously. These squadrons are re-equipping with Sea King Mk 4s. We are considering a range of options for providing a future amphibious capability once the existing specialised ships come to the end of their planned life. For rapid deployment to the Northern Region we maintain the UK Mobile Force consisting of 1 Infantry Brigade, and a Logistic Support Group composed largely of TA personnel. The Mobile Force has dedicated RAF Chinook and Puma helicopters as well as Army helicopter support.

431. UK-based Jaguar fighter-bombers are assigned to the Alliance's Northern Command (AFNORTH) as regional reinforcements under SACEUR's Rapid Reinforcement Plan. They maintain a continuous and high state of readiness and would be the first units to reinforce the region in time of tension. One of the squadrons is declared to NATO in the reconnaissance role, providing CINCNORTH with a much-needed increase in his highly specialised and operationally vital reconnaissance assets. UK-based Harriers and Tornados form a major element in SACEUR's Strategic Reserve (Air); in addition, Jaguars are allotted to the Allied Command Europe Mobile Force (AMF), and are available for deployment throughout Western Europe. We contribute about a third of the AMF in the form of an infantry battalion group and force troops, including armoured reconnaissance, artillery and logistic support, and four Puma light support helicopters.

MARITIME TASKS: THE EASTERN ATLANTIC AND CHANNEL

432. The United Kingdom provides some 70% of the ready NATO maritime forces dedicated to the task of safeguarding the reinforcement and resupply routes through the Eastern Atlantic and Channel areas - a huge expanse of sea

stretching from the Straits of Gibraltar to beyond the tip of Northern Norway. Our naval and maritime air forces can exercise sea control over selected areas of the North Atlantic Ocean and Norwegian Sea; our amphibious forces enable us to project power ashore on the Northern Flank. These tasks necessitate a wide range of capabilities in our ships, submarines and aircraft.

433. In a battle for sea control a balanced fleet is essential, and each component has its particular function. In anti-submarine warfare (ASW) the role of nuclear-powered Fleet submarines (SSNs) would be critical: their capability and relative immunity to counter-attack make them extremely potent and cost-effective naval assets. In the past year HMS Turbulent was accepted, and we have ordered one further SSN; there are now 13 in the Fleet and four more are under construction or on order. HMS Tireless will be accepted during the year. The new Type 2400 diesel-electric conventional submarines - the first of which, HMS Upholder, is under construction - will provide a powerful capability against ships and other submarines, both nuclear and conventional, which enter their patrol areas. The Upholder class will carry a weapons and sensor fit similar to an SSN, and will be a considerable advance on the Oberon and Porpoise class boats they will replace.

434. An equally important contribution to our ASW capability is made by surface forces, with their own sensors and weapons and their ability to exercise command and control functions and carry helicopters for detection and attack. The third Invincible class carrier, HMS Ark Royal, will be accepted into the Fleet in the summer and will become operational in early 1986. This will enable us to maintain two modern carriers operational and one in refit or reserve at any given time. HMS Invincible will be refitted

to incorporate important improvements, including some indicated during the Falklands conflict. The future of HMS Hermes remains under discussion.

435. The decision announced last May to maintain up to another eight ships in the operational Fleet rather than place them in the Standby Squadron means that there will be 53 front-line destroyers and frigates in the Fleet this year and none in the Standby Squadron. In the longer term we intend to maintain a force level of about 50 destroyers and frigates. The multi-role Type 22 frigates contain some of the most advanced ASW equipment available, and later Batch II and Batch III vessels incorporate towed arrays to give a long-range, all-round, passive capability. The last two Type 22 frigates (of a class of 14 in all) were ordered this January. The order for the first Type 23 frigate, HMS Norfolk, was announced last October and it has been decided to negotiate an order for the second vessel at Swan Hunter as soon as this can sensibly be done, subject to satisfactory agreement on price and other contract terms; tenders will be invited for the third Type 23 order from all yards capable of carrying out the work. The Type 23 class of frigate will form the backbone of the Royal Navy's ASW surface force in the year 2000. Principal features include the deployment of towed-array sonar to detect low-noise submarines; the EH101 helicopter complete with sophisticated sonics fit, sonobuoys and Sting Ray torpedoes; Harpoon and Sea Wolf missiles; and an advanced command system.

436. To replace the ageing RFA Fleet we shall be procuring the AOR (Auxiliary Oiler Replenishment), a one-stop replenishment vessel that will carry fuel, ammunition and stores and also provide aviation support for the Type 23 frigate. In a departure from our traditional method of procuring naval

vessels, we have invited competitive tenders for the first two vessels and intend that the chosen prime contractor will assume complete responsibility for design and build, including procurement and installation of equipment. Decisions have yet to be taken on the size and timing of orders.

437. Building on the success of the original six-barrelled Sea Wolf Point-Defence Missile System (PDMS) fitted to Batch III Leander class frigates and the Type 22 frigates, we are introducing variants based on the new and more capable lightweight Type 911 tracker radar. The first two Type 911s were delivered to HMS Brave last October, and we plan to fit these trackers, together with improvements to the surveillance radar, to all the Type 22 frigates. The Type 911 can be combined with a new four-barrelled launcher (based on the Sea Cat mounting) to create a lightweight version of Sea Wolf. In 1984 we announced our decision to proceed with funding the development of this launcher project, to complete work begun as a private venture by industry. A vertically-launched version of Sea Wolf is being developed by British Aerospace and will be fitted to Type 23 frigates; this important programme will initially be worth some £250 million to British industry. The combat-proven Sea Dart system is being further improved.

438. As a result of lessons learnt in the Falklands conflict, we are providing additional point defence for major surface units. We announced last year an initial order for a replacement small calibre gun for the long-service Oerlikon and Bofors; this will be a single 30mm cannon fitted to a stabilized mounting. We intend to enhance further the anti-air defences of important surface warships by extending the fit of Close-In Weapon Systems. All three Invincible class carriers are now fitted with the 20 mm Phalanx. As part of

the Spey/Goalkeeper reciprocal purchase package with the Netherlands, announced last year, the Royal Navy's Batch III Type 22 frigates are to be fitted with the HSA Goalkeeper. To help counter the threat posed by sea-skimming missiles, we are improving our electronic warfare capability, and new systems are under development, including the NATO Sea Gnat decoy system in collaboration with the United States and Denmark.

439. To improve the integral air power of the Fleet we have ordered nine more Sea Harriers, which will supplement the existing Carrier Air Groups embarked in the Invincible class carriers. We have also placed a contract with British Aerospace for a mid-life update to maintain the ability of the Sea Harrier to counter the threat until about the end of the century. The aircraft will be fitted with a new radar and will be capable of carrying the Advanced Medium-Range Air-to-Air Missile (AMRAAM). The Sea Harrier update programme will be introduced by the end of the decade.

440. The success of our approach to full competition as a means of achieving value for money was demonstrated last year by the fiercely-contested international competition conducted to meet the Royal Navy's requirement for a second-generation surface-to-surface guided weapon for the Batch III Type 22 frigates and the Type 23 frigates. The McDonnell Douglas Harpoon emerged as the clear winner on operational, technical and cost grounds, and its commonality with the submarine-launched version (Sub Harpoon), already in service with our SSNs, allowed a reduction in the number of missiles, giving further significant cost savings. McDonnell Douglas have committed themselves to an industrial offset programme that will provide opportunities for British industry at least equivalent to those that would have been gained if we had

chosen the surface-launched British Aerospace Sea Eagle, the air-launched version of which is being developed for service with the Royal Navy and Royal Air Force.

441. A comprehensive programme is under way for the procurement of both active and passive sonars for surface ships and submarines. Last August, following a fierce competition, we announced the award of a major contract to Ferranti Computer Systems Ltd to develop the in-board electronic equipment for a new hull-mounted sonar, designated 2050, for the Type 23 frigate. Sonar 2050 will also be retrofitted into selected destroyers and frigates; and, as a result of both improved technology and competition, the equipment will cost less in real terms than its predecessor.

442. Major improvements are being made in all three of the RAF's maritime capabilities in support of the Fleet: strike/attack, air defence, and maritime patrol. In the anti-shipping role the RAF contribute two squadrons of strike/attack Buccaneers, based at RAF Lossiemouth in Scotland. These aircraft are currently armed with television-guided and anti-radar versions of the Anglo-French Martel missile and with laser-guided bombs. Aircraft survivability is enhanced by the use of both active and passive electronic countermeasures and by the use of self-defence missiles. The Buccaneer has been in RAF service for some 15 years, but improvements are in hand to ensure the effectiveness of the force well into the next decade. The Buccaneers will be equipped with the British Aerospace Sea Eagle anti-ship missile, which will enter service this year. This will enhance the Buccaneer's all-weather capability to seek and destroy enemy shipping in areas where friendly surface ships or submarines are not available for offensive action. The

replacement of Phantoms by Tornado F2s, described in paragraph 411, will enhance shore-based air defence.

443. The modernisation of the Nimrod maritime reconnaissance aircraft to Mark 2 standard is due to be completed this year, and further system enhancements are in hand to ensure that the aircraft keeps pace with developments in Soviet submarine design. The aircraft are capable of delivering the new Sting Ray anti-submarine torpedoes and are being modified to carry Harpoon anti-ship missiles. To complement these improvements the Nimrod simulators are being replaced, and new computerised mission support systems are being built to process the mass of information brought back by the aircraft.

444. The command and control of the Fleet and of maritime air activities similarly keep pace with the threat and with technological advances. Command from Northwood is now fully supported by the advanced ADP system OPCON, which is integrated with NATO Commands and provided with secure satellite links to and from commanders and ships at sea. Ship command systems now entering service provide commanders with full presentation of all sensor and weapon information, enabling them to respond rapidly to any threat. The data links that connect these systems are fully interoperable with those of our allies, and the ability of NATO's maritime forces to operate together in integrated task forces is regularly demonstrated. The programme to provide a new military satellite, known as Skynet 4, is well advanced, and will significantly enhance maritime communications. We plan to provide a British payload specialist on board each of the United States shuttle missions which will deploy the two satellites during 1986.

445. The vital part that amphibious forces can play in reinforcement and intervention operations both in and out of area is well understood nationally and within NATO. As noted in paragraph 430, options for the future provision of these capabilities are being studied.

THE RESERVES

446. Our volunteer reserve forces make a crucial and cost-effective contribution to our defence effort, and the measures we are taking to strengthen them reflect their importance. The TA would, on mobilisation, play a vital role in the reinforcement of BAOR and national defence. The first phase of our TA expansion programme is now well advanced. The measures already taken include the formation of three new infantry companies and four Royal Engineers (RE) Airfield Damage Repair (ADR) squadrons, and the conversion of three home defence Yeomanry regiments to the light reconnaissance role. We plan to form a further two ADR squadrons and one RE Explosive Ordnance Disposal squadron by 1 April 1986. We are also improving the TA's equipment: for example, all TA air defence regiments are currently being equipped with Javelin.

447. We announced last year our detailed plans for a second phase of the expansion aimed at increasing the strength of the TA to 86,000 by 1990. Six new TA infantry battalions will begin to form next year, and names have been approved by Her Majesty the Queen. They will be called: 1st Battalion The Yorkshire and Cleveland Volunteers, 8th Battalion The Light Infantry (Volunteers), 3rd Battalion The Devon and Cornwall Rifle Volunteers, 3rd (Volunteer) Battalion The Cheshire Regiment, 5th (Volunteer) Battalion The

Royal Green Jackets and 8th (Volunteer) Battalion The Queen's Fusiliers (City of London).

448. The Home Service Force (HSF), which we aim to expand initially to a strength of about 5,000, has an important part to play in our plans for home defence. It will provide guard forces for lower-priority potential targets in time of tension or war, thus releasing more highly trained units for other tasks. We plan to raise 43 new companies and are already recruiting for most of them. Although the majority are to be hosted by TA units, five will have Regular Army units as hosts. Depending on the success of the initial expansion, we shall consider further expanding the HSF in the longer term.

449. The regular reserves would constitute about 30% of the mobilised strength of the British Army, and we are developing our plans to ensure allocation of specific military roles to all available Regular Army reservists in an emergency. The scheme to give them a week of refresher training, announced in the 1983 Statement, began this spring and is open to those in their third year out of the Army. Regular reservists participated in Exercise LIONHEART in 1984, and will have an important part to play in Exercise BRAVE DEFENDER (see paragraph 415) later this year.

450. As we announced in Parliament on 7 November 1984, following a major review of the manpower needed for the current allocated wartime role of the Royal Naval Reserve (RNR), we intend to increase their planned strength by over 40% in the coming years, from the present 5226 to 7800. The RNR will then provide some 12% of the Royal Navy's wartime manpower and will man about

60% of its wartime MCM forces. Eleven of the new River class of fleet minesweepers will be manned by the RNR; four are already in service. The RNR is also operating a new Coastal Training class of 20-metre patrol craft in the defence of ports and anchorages around the United Kingdom. Numbers in the Communications Branch will be increased, the Medical Branch will be expanded by 50% to man casualty evacuation ferries, and a trial is under way into the formation of a Diving Branch. Recruitment for the expansion of the Royal Marines Reserve (RMR), announced in 1983, is going well. The planned strength will be increased from the present 1047 to 1580, allowing the RMR to provide better support for 3 Commando Brigade RM in war. The support given to the Royal Navy in wartime by the Royal Naval Auxiliary Service (RNXS), who are uniformed civilian volunteers, is also increasing in importance. In the past year, the RNXS has been given the task of manning and running about a third of the vessels needed at key United Kingdom ports and anchorages in wartime, and RNXS numbers will be increasing from the present 2680 to 3242. Recruitment has already begun.

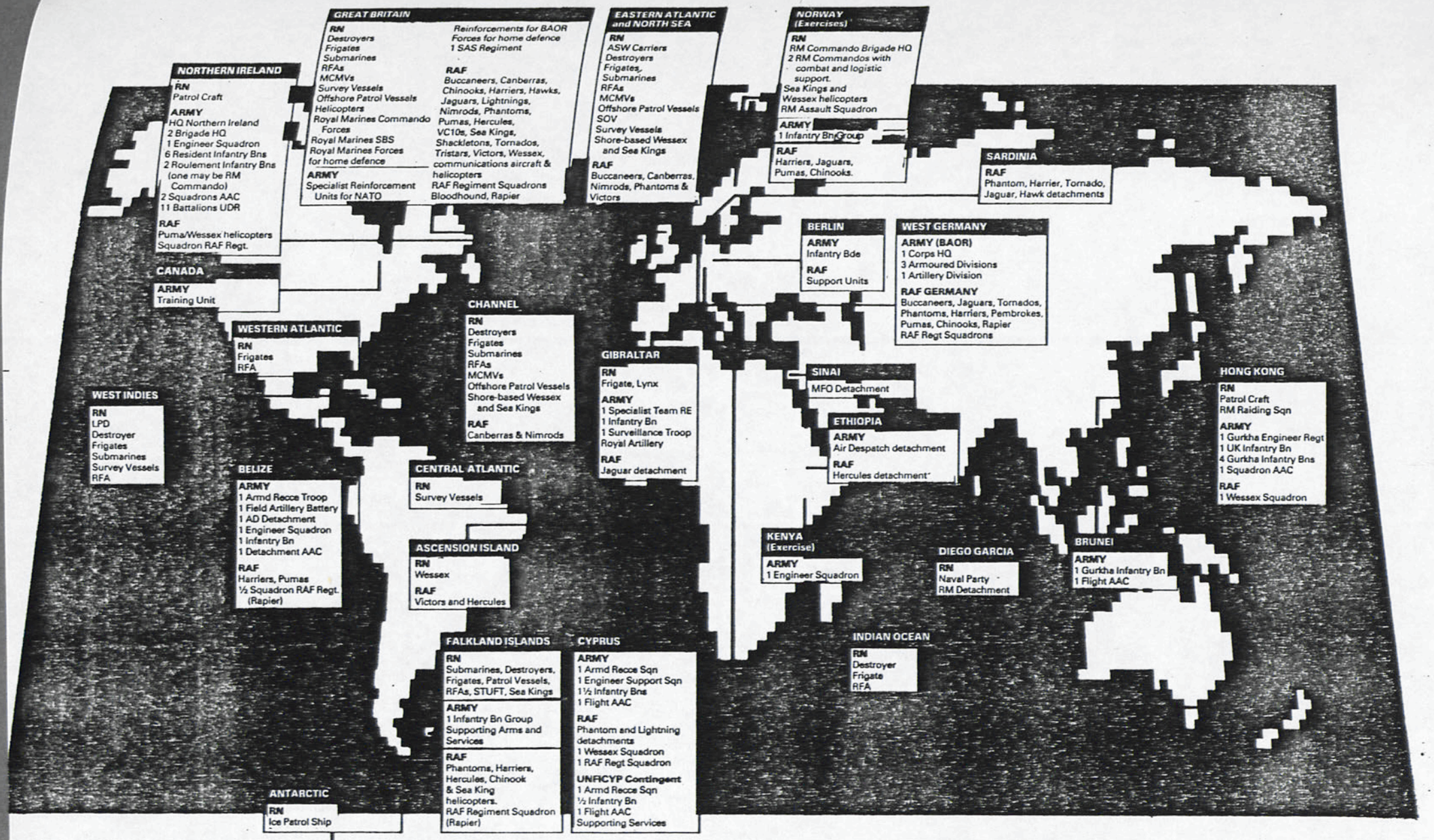
451. The Royal Auxiliary Air Force has expanded considerably in recent years, and the six newly-formed Auxiliary Field squadrons are proving a most effective force. We intend to form an operational helicopter squadron as soon as the resources are available. The Auxiliary Air Movements Squadron and the Auxiliary Aeromedical Evacuation Squadron both took part in Exercise LIONHEART in 1984. Additionally, a new Auxiliary squadron to operate the captured Argentinian Skyguard anti-aircraft system has formed at RAF Waddington.

BEYOND THE NATO AREA

452. We have already described, in Chapter 2, our approach to the interests and commitments we retain in the wider world beyond the NATO area. Despite the retrenchment that has taken place in our overseas military presence in recent decades and the increasing concentration of our defence resources within the NATO area, our out-of-area defence involvement remains substantial. Figure 4 (pages [ ] and [ ]) illustrates the deployment of our armed forces around the world in early 1985. In addition to these deployed units, individual Servicemen were assigned on loan outside the NATO area, helping the armed forces of friendly countries to provide for their own long-term security needs. In the Gulf, an area of particular strategic importance for the United Kingdom and the West as a whole, nearly 400 British Servicemen were working in every littoral state except Iraq and Iran. Such assistance overseas is complemented by the training we provide in the United Kingdom itself; in 1983-84 some 3,700 students from over 70 non-NATO countries attended courses at British defence establishments. More details are given on page [ ].

453. These links with friendly armed forces are reinforced by the contacts established and maintained by our programme of overseas deployments and exercises. During the past year, we have maintained our naval presence in the Arabian Sea. Although our ships are there primarily to assist merchant shipping in the Gulf, they have taken the opportunity to pay a series of successful visits to countries in the region. We have also maintained a guardship in the Caribbean; and whenever possible Royal Navy forces have participated outside the NATO area in exercises with allied and friendly forces. One of these was the Five Power Defence Arrangements Exercise,

Figure 4 Deployment of the Armed Forces, early 1983



AAC	Army Air Corps	LPD	Assault Ship	MFO	Multinational Force and Observers	SBS	Special Boat Squadron
AD	Air Defence	MCMV	Mine Countermeasures Vessel	RFA	Royal Fleet Auxiliary	SOV	Seabed Operations Vessel
Armd	Armoured	Recce	Reconnaissance	HQ	Headquarters	STUFT	Ships Taken Up From Trade
Bde	Brigade	RE	Royal Engineers	SAS	Special Air Service	UDR	Ulster Defence Regiment
Bn	Battalion	Regt	Regiment	SACEUR	Supreme Allied Commander Europe	UNFICYP	United Nations Force in Cyprus

Note: This map does not include 667 loan service personnel deployed worldwide.

which was held in the South China Sea last summer. Meanwhile, the Army conducted exercises in a dozen non-NATO countries; and the RAF maintained its familiarity with operating conditions outside Europe by engaging in a wide range of deployments and proving flights. Details of the main exercises in which British forces have been involved in the past year are at Annex B. British forces have also contributed to international peacekeeping efforts, participating in the United Nations force in Cyprus and in the Multinational Force and Observers in Sinai, as well as providing logistic support for the UN force in South Lebanon.

454. As noted in Chapter 2, our most substantial out-of-area presence consists of the garrisons in the Falkland Islands, Hong Kong, Belize and Brunei. The Falklands force level is maintained at the minimum size necessary to defend the Islands and Dependencies, but it has proved possible to reduce numbers steadily over the past year. The opening of the main runway at the new Mount Pleasant Airport, scheduled for May this year, will greatly improve our rapid reinforcement capability, and once the airport is complete we should be able to reduce still further the level of forces permanently stationed on the Islands. Meanwhile, our forces work closely with the civil administration, and relations between the civil and military communities remain excellent. In Hong Kong, the successful conclusion of negotiations with China on the Territory's future after 1997 has allayed previous uncertainty. But Britain remains fully responsible for Hong Kong's defence and internal security until 1997, and we shall maintain appropriate forces for the discharge of those responsibilities.

455. By undertaking these wide-ranging and diverse defence activities around the world, we make an important contribution to the maintenance of international peace and stability. But we must recognise that, despite our best efforts and those of our friends and allies, deterrence can fail and situations arise in which we have no option but to intervene militarily to defend our legitimate interests. We described in last year's Statement the important steps that we have taken to enhance the capability of British forces to undertake operations in more distant theatres. One key to the effectiveness of military action overseas is the ability to extend the range and endurance of shore-based aircraft; we have therefore paid particular attention to our capacity for air-to-air refuelling. In addition to enhancing our tanker fleet, we are considering a replacement programme for the Victor tanker force. These aircraft, which have been in service since the mid-1960s, will reach the end of their useful lives in the early 1990s; as a first stage in the replacement programme, three Tristar 500s have been bought from Pan American Airlines. The enhancements to 5 Airborne Brigade's capabilities for out-of-area operations, announced in November 1983, are now nearly complete; when the programme to equip a number of Hercules with station-keeping radars is completed in early 1986, a parachute battalion, together with elements of the brigade's headquarters and a full range of supporting arms and services, will be capable of being dropped in a single assault wave. A second parachute battalion group is now trained and equipped to undertake this role.

456. Our capability to operate wherever in the world may be necessary is thus being steadily enhanced. The two most notable operations undertaken by our armed forces beyond the NATO area in the past year have been mounted for

essentially peaceful purposes. Last August the safety of the important shipping lanes in the Gulf of Suez was put in doubt by the damage caused to merchant ships from a series of underwater explosions. In response to a request for assistance from the Egyptian Government, we joined MCM contingents from the Egyptian, American, Dutch, French and Italian Navies to search for any remaining mines. Our own force of five Ton class MCM vessels and a support ship carried out an exhaustive search of the areas allocated to it, employing highly sophisticated hunting techniques. Although a number of older mines were found by the different contingents one of our vessels, HMS Gavinton, was alone in finding a modern Soviet-made ground mine of a type which might have caused the explosions. This was recovered, disarmed and returned to the United Kingdom for examination. As well as displaying the Royal Navy's skills in the MCM field, the operation was an excellent demonstration of the willingness of nations to join in preserving the freedom of international navigation and trade.

457. The second major operation undertaken by the forces outside the NATO area, our contribution to the international famine relief exercise in Ethiopia, is described in detail in Chapter 6.

MERCHANT SHIPPING

458. The United Kingdom's Merchant Navy is a vital defence resource and as such plays an important role in our planning. We collaborate closely with the Department of Transport in monitoring the availability of the ships needed for military purposes. Today, with the exception of large

deep-sea trawlers for MCM operations, there are sufficient ships in each category to meet our defence needs. The Table [below] illustrates trends in the availability of shipping required for defence purposes.

UK MERCHANT FLEET [1]

PRINCIPAL CATEGORIES REQUIRED FOR DEFENCE PURPOSES

NUMBER OF HULLS AVAILABLE [2]

	1980	1981	1982	1983	1984
Tankers	118	100	95	84	78
Breakbulk/general cargo	310	246	204	163	150
Container ships	74	59	56	55	56
Passenger vessels/ ferries	170	158	145	144	145
Trawlers (1000-1999 GRT)	37	35	23	18	16

Notes

1. Source: Lloyd's Register of Shipping Statistical Tables 1984.

2. Not all ships included are necessarily suitable for defence purposes.

459. The demise of the United Kingdom's distant water fishing fleet has caused a shortfall in the number of trawlers suitable for MCM purposes. Studies are in hand to identify other ways of fulfilling the role.

460. Our NATO obligations, both for the reinforcement of Europe and in support of Royal Navy operations, require the use of merchant ships of a wide variety of types. The recent decline in the overall size of the United Kingdom's merchant fleet has had differing effects upon the various types of vessels needed for defence purposes. It is of concern that, if the decline continues for several more years at the present rate, it could become increasingly difficult for us to discharge at least some of our NATO obligations. The Department of Transport, in conjunction with the Ministry of Defence, has therefore commissioned consultants to undertake a major study into the future trends of availability in those parts of the merchant fleet for which there is a defence need. The study began in December 1984, and its results are expected to be available by the middle of this year. The implications for defence, and any consequential action that may be needed, will then be carefully considered.

Warsaw Pact merchant and fishing fleets

The Warsaw Pact merchant and fishing fleets exist primarily for commercial reasons. The merchant fleets carry Warsaw Pact exports and imports, participate to a limited degree in cross-trading, and deliver military and economic aid to the Third World. Potential military requirements are, however, taken into account in the design and construction of almost all Warsaw Pact vessels, and they are routinely used for military purposes and intelligence gathering. They therefore make a significant additional contribution to the Warsaw Pact's military capability.

The total strengths [1] of the NATO and Warsaw Pact merchant and fishing fleets in 1984 were as follows:

	Number of Ships [2]	Gross Registered Tons
NATO	8279	127,767,538
of which UK [3]	948	15,325,398
Warsaw Pact	5081	31,786,051
of which USSR	4063	23,388,203

Notes:

1. Source: Lloyds Register of Shipping Statistical Tables 1984.
2. Figures cover all ships of 1,000 gross registered tons and over.
3. Includes all UK-registered merchant vessels. Not all ships are suitable for defence purposes.

ESSAY

EXERCISE LIONHEART

1. The United Kingdom undertook Exercise LIONHEART, its largest ever peacetime reinforcement exercise, in September 1984. This essay sets out the main features and aims of the exercise and takes a first look at the results.

2. Our contribution to the defence of the Central Region has long included a commitment to reinforce BAOR rapidly in a time of tension. When reinforced on mobilisation the size of the Army in the Federal Republic of Germany would increase to around 150,000. Such a large-scale reinforcement needs, however, to be practised in order to streamline our plans and highlight the potential difficulties of such a massive logistical undertaking. Exercise CRUSADER in 1980 had proved to be an extremely useful trial of our reinforcement capability; Exercise LIONHEART was undertaken to develop the lessons learnt and to put our plans to the test on a much larger scale.

3. Exercise LIONHEART, which involved in total over 120,000 troops, consisted of two equally important phases. The first phase, FULL FLOW, involved the mobilisation of regular and reserve forces in the United Kingdom and the movement of these forces, together with their vehicles and equipment, across the Channel to their deployment stations on the Continent. The second phase, SPEARPOINT, was the field training exercise of the reinforced 1(BR)

Corps, which took place on the North German Plain once reinforcement had been completed.

4. Some 50,000 regular and reserve soldiers deployed from the United Kingdom to the Federal Republic of Germany during FULL FLOW, including almost 30,000 from the Territorial Army (TA) and, for the first time on an exercise such as this, over 3,000 individual reservists. 27,000 troops moved by air and 23,000, plus 9,000 vehicles, crossed the Channel by sea and moved up the lines of communication through the Low Countries to BAOR. Inevitably some delays were experienced, mainly as a result of weather conditions, but the effect was much the same as might be expected during transition to war, and it was therefore a notable achievement that all the necessary reinforcements were moved to BAOR within the required timescale.

5. Of course there will be useful lessons to learn from FULL FLOW, and these are now being examined in detail. For example, the vulnerability of the lines of communication to air attack and their fragility in the first few days of reinforcement will need further study; and there will be other aspects of our movement plans that will need to be developed. The primary reason for the exercise was, however, to identify potential difficulties by putting our plans to a realistic test, and the overall success of this phase proved a most effective demonstration of the United Kingdom's rapid reinforcement capability.

6. SPEARPOINT, which offered 1(BR) Corps a unique opportunity to exercise with most of its reinforcing units in place, was also very successful. With the 'enemy' force, drawn mainly from the Federal German, United States and

Netherlands Armies, mounting a determined attack on the area defended by the Corps, the exercise provided a realistic examination of the Corps' defensive capabilities and a full test of command initiative at all levels. The Corps came through this rigorous trial with flying colours and will have learnt much from it. In particular it is clear that, following its reorganisation, 1(BR) Corps is now a better-balanced force, with more effective reserves; and the coordination and concentration of various defensive assets, including the excellent cooperation achieved between the Army and the RAF, were especially successful. The professional performance of the TA units was a further demonstration of the invaluable contribution they make to our armed forces. And the reliability and serviceability of major equipments, particularly the new equipment such as Challenger, Saxon, MCV 80 and tracked Rapier - on exercise for the first time - exceeded all expectations.

7. Press coverage of LIONHEART was extensive and complimentary, and the exercise generated considerably more media interest at home and abroad than had CRUSADER in 1980. Special features included following TA units from their drill halls in the United Kingdom through all phases of the exercises. And 25 fully accredited "war correspondents" took part in LIONHEART: this proved to be an extremely valuable exercise in itself.

8. The success of both the planning and the execution of Exercise LIONHEART reflects great credit on all those involved, including the government and people of the Federal Republic of Germany, on whose land the bulk of the exercise took place and whose cooperation and participation were never less than whole-hearted. The exercise also provided yet another example of the superb professionalism of the British armed forces. Some might argue that

the cost of the exercise, estimated at over £30 million, could have been better spent elsewhere. But in addition to the invaluable military benefits we have gained through LIONHEART, we have also demonstrated not only our commitment to the defence of Europe but also our ability, in practice, to fulfil that commitment. Through this clear message to the Warsaw Pact that the United Kingdom and the NATO Alliance have the will and the means to resist aggression, LIONHEART has contributed to deterrence and the preservation of peace in Europe.

ESSAY

MILITARY ASSISTANCE OVERSEAS

1. In Chapter 2 we describe the various ways in which our military forces promote British defence and foreign policy interests outside the NATO area. One important component that has attracted comparatively little attention is our military assistance programme. Although the Government does not operate a military aid budget to provide free or heavily subsidised defence equipment to friendly overseas countries, we have a long-established tradition of providing both military training and advice to many states, particularly in areas of the world where we have traditional ties. Much of this assistance is made available on repayment, but in many cases it is subsidised by the British Government.

2. The scale of our military assistance effort has been growing steadily in recent years. In total we have well over 1,000 Servicemen either on loan to overseas countries or undertaking the training of foreign and Commonwealth students, from over 70 non-NATO countries, at Service establishments in the United Kingdom. Service personnel are currently on loan to some 30 countries or territories overseas; and expert teams pay numerous short-term advisory visits.

3. The nature and type of assistance varies widely. For British loan Service personnel - who are all volunteers - the numbers involved range from

nearly 200 from all three Services in the case of Oman, to single individuals in a few countries. Sometimes the personnel are integrated in the armed forces of the country concerned - in Belize, Brunei and Oman, for example, we provide the Commander of the armed forces as well as a number of the key operational and command appointments. More typically, however, we provide self-contained advisory teams, which concentrate on the development of one or more aspects of military organisation or training. Again, these teams vary considerably in size and in the scope of their activities. One particularly ambitious and successful example is the British Military Advisory and Training Team in Zimbabwe, which originally numbered well over 100 and is at present about 50 strong. Since independence this team has been helping to build up an efficient, disciplined and unified national army by bringing together the separately organised armed groupings that had been involved in years of bitter internal conflict. The British team's success is illustrated by the fact that it has been asked by the Zimbabwe Government to take on several new training tasks, and is now the only foreign military training team remaining in the country. A similar effort is being undertaken by a smaller British team in Uganda, another African country trying to rebuild itself after a crippling civil war. Inevitably the problems facing countries in such circumstances are great, and the process of steadily raising standards of training and organisation slow. But the British Servicemen concerned can be proud of the contribution they are making towards the establishment of self-sufficient, well-disciplined forces capable of playing a positive role in their countries' security.

4. Numerous smaller British Service teams have been making notable contributions to the enhancement of stability in many parts of the world. During the last year, an Army team of four has been helping to establish the new Gambian Army: the passing-out parade for the first intake of recruits took place in November 1984. A tri-Service team of three officers has established the first Staff College in Bangladesh with such success that they have been asked to stay for a further two years. A team of seven Royal Navy personnel has been in Barbados for the last four years providing expertise in setting up the Barbados Coastguard - the leader of the team becoming the Regional Coastguard Coordinator. Two hydrographers are on loan to the Fiji Government to help with a survey of Fijian coastal waters. We also provide personnel in support of sales of British defence equipment: Service teams are, for example, currently assisting with the introduction of Rapier missiles in Qatar, Hawk aircraft in the United Arab Emirates, and Type 81 frigates for Indonesia. In addition to personnel on long-term loan we send many advisory teams for periods ranging from a few days to several months, usually in response to requests for help in tackling specific problems. Recent examples include visits by RAF teams to Singapore and Kenya to advise on the operation of air defence systems, and by a Royal Marines training team to run important training courses in Barbados for personnel from all six countries participating in the Eastern Caribbean Regional Security System.

5. The training provided to overseas students in the United Kingdom covers an equally wide spectrum of subjects, and ranges from the prestigious high-level courses at the Royal College of Defence Studies and the Staff Colleges, at which there is always a very great demand for places; to courses involving highly technical skills such as advanced engineering and electronics; and to

others teaching some of the more fundamental skills, such as the International Midshipman's Course at Dartmouth and basic flying training courses. To ensure that foreign students are able to gain the maximum benefit from their training here, special English language courses are also arranged at the Defence School of Languages in Beaconsfield. Places on our training courses are generally provided on an opportunity basis intended to make full use of any spare capacity beyond that required for our own students. Military training, particularly when it involves advanced equipment and intensive instruction by highly qualified specialists, is an expensive business. But the quality of the training provided by our establishments is such that the places available for overseas students on many courses are heavily over-subscribed.

6. Our military assistance programme thus involves British Service personnel in a wide range of activities covering a large number of countries. But there are several important common features. The most important is that all our programmes aim to help our friends and allies outside NATO to develop the capability of their forces, both to maintain their own security and to contribute to regional stability. Ultimately the aim is to develop the skills of the forces concerned to the point where they become self-supporting. This is illustrated by the fact that we have felt able to reduce the size of three of our largest loan Service teams, those in Brunei, Kuwait and Zimbabwe. A second common feature is the relatively low cost to the United Kingdom of our military assistance programme: for example, some 80% of the cost of our loan service assistance is met by the countries we are helping. Finally, quite apart from the benefits gained by the United Kingdom from strengthening peace and stability in areas of the world where we have direct interests,

the assistance provided by our Service personnel is very much appreciated - indeed there is often a greater demand than we can meet - and thus makes an important contribution to fostering good relations with the governments of the countries concerned.

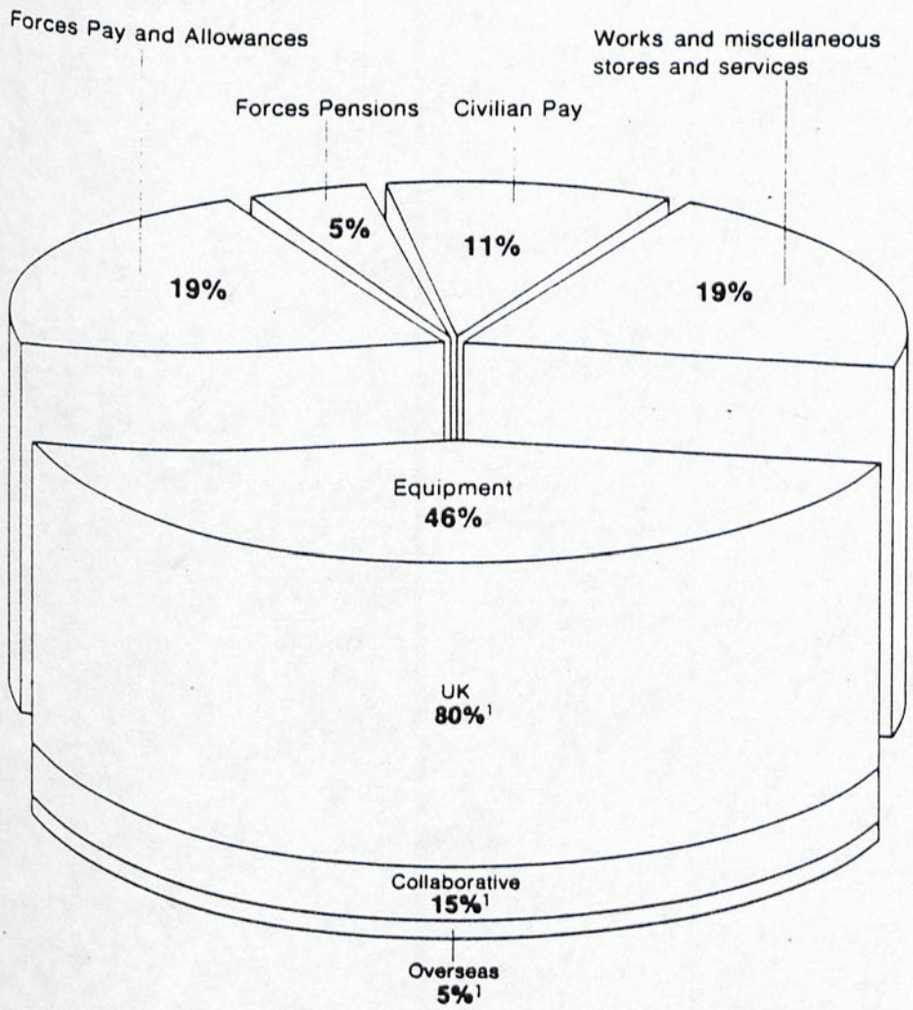
CHAPTER FIVE: THE MANAGEMENT OF DEFENCE

THE DEFENCE BUDGET

501. The defence budget for 1985-86 will be £18,060 million. This represents a cash increase over 1984-85 of more than £1 billion and will provide for annual real growth in the region of 3%. 1985-86 will be the seventh successive year of real growth in the defence budget. Figure 5 breaks down the budget by main categories of expenditure, while Figure 6 analyses defence resources by major programmes. The United Kingdom spends more on defence in absolute terms and per capita than any other ally, except the United States. This is illustrated in Figure 7.

502. The defence budget in 1985-86 will be about one fifth higher in real terms than in 1978-79, excluding Falklands expenditure. This completes the increase in defence spending which we implemented to correct deficiencies and to enable the programme, as set out in Cmnd 8288 and subsequently adjusted, to be sustained. From this increased level of provision, the task is to consolidate and to use the additional resources to best advantage, by further improving the management of defence and by increasing efficiency in the front line. Expenditure plans for 1986-87 and 1987-88, published in Cmnd 9428, reflect a fall in Falklands expenditure. The provision in these years will be kept under review in the context of the Government's expenditure plans, taking account of our military commitments and all other relevant factors.

Figure 5 The Divisions of the Defence Budget by Principal Headings 1985-86



Note
(1) Percentages of equipment expenditure based on the last five years.

Figure 6 An Analysis of Defence Resources (1985-86) by Major Programmes

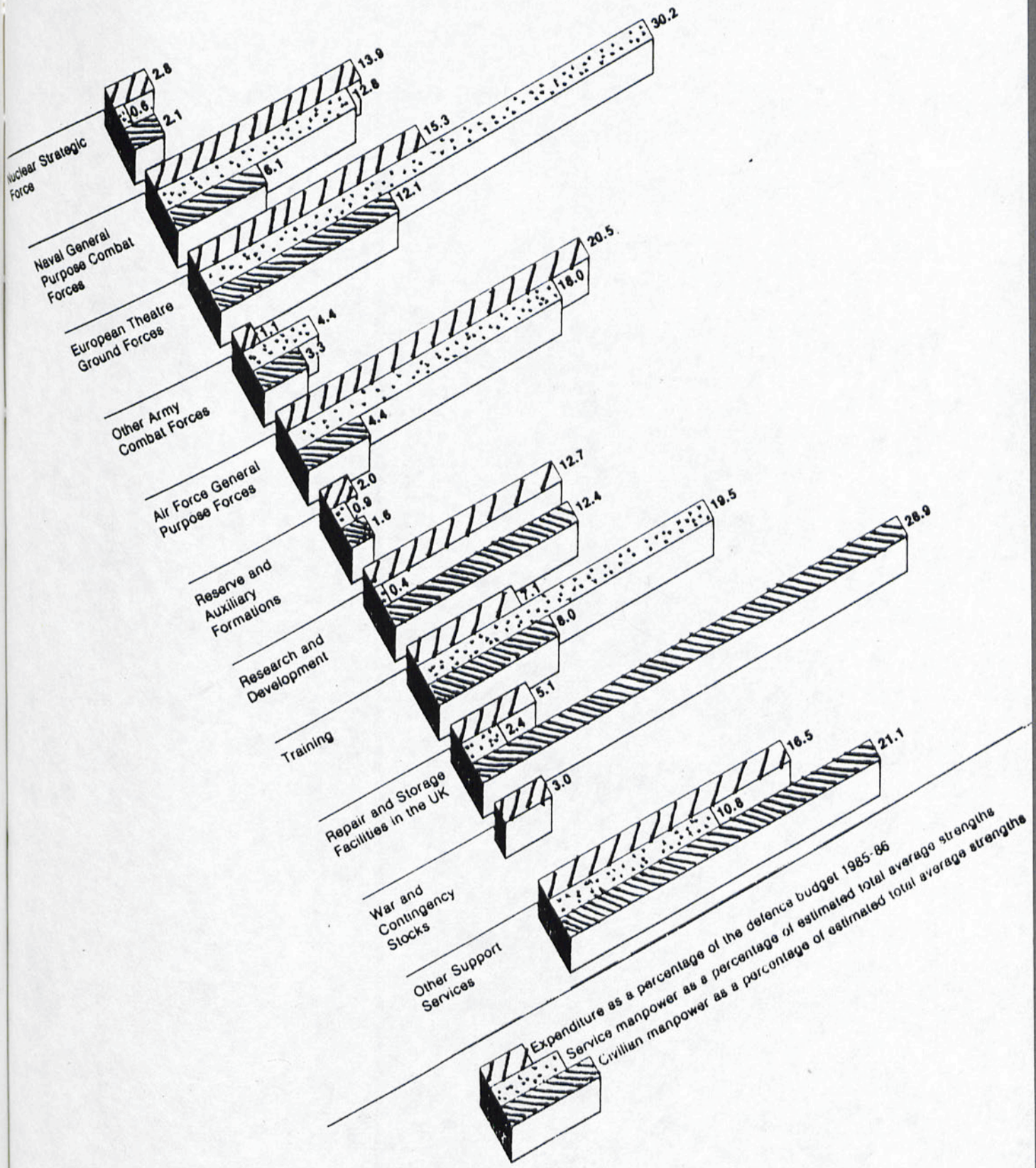
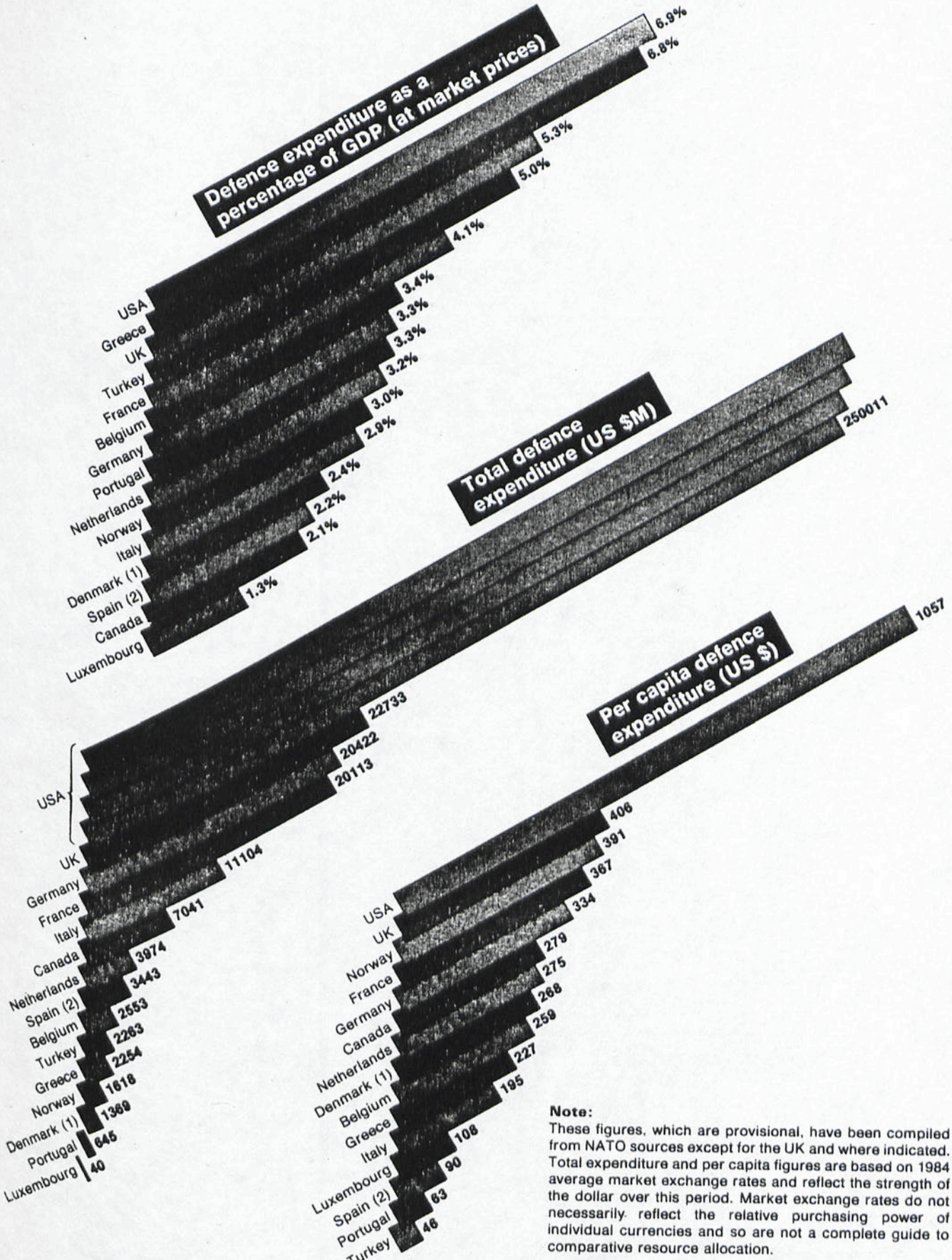


Figure 7 A Comparison of Defence Expenditure: NATO Countries 1984



Note:
These figures, which are provisional, have been compiled from NATO sources except for the UK and where indicated. Total expenditure and per capita figures are based on 1984 average market exchange rates and reflect the strength of the dollar over this period. Market exchange rates do not necessarily reflect the relative purchasing power of individual currencies and so are not a complete guide to comparative resource allocation.

(1) Figures for Danish defence expenditure in 1984 were not available at time of printing. The figures quoted are those for 1983.

(2) The figures for Spain are compiled from national sources.

503. With the ending in 1985-86 of the commitment to plan for annual real growth in the region of 3%, there have been suggestions that it will not be possible to sustain the improvements in our defence capabilities. This takes no account of the continuing impact of the substantial real increase in defence spending between 1978-79 and 1985-86; nor of the significant improvements in efficiency which have ensured, and will continue to ensure, that more output is bought for a given cash input. It will certainly be necessary to plan flexibly to match the forward programme to the available cash and to make appropriate provision for contingencies. But the forward programme should not be seen as a rigid plan stretching ten years ahead, establishing commitments in detail to exact equipment numbers with specified in-service dates. It is in practice continually being adjusted for a range of reasons, including technological and industrial constraints and opportunities, as well as budgetary limitations. The annual re-costing of forward defence plans, related to assumptions endorsed for costing purposes only, permits necessary adjustments to be made progressively in the light of reappraised requirements or other new developments. It also provides a basic framework within which Ministers can authorise expenditure commitments, with confidence that these can be discharged within the future resources expected to be available for defence. Programme adjustment is a continuing process, in which the strict control of forward commitment helps to maintain flexibility. Managed in this way, the increases in the defence budget since 1978-79 provide the resources to sustain the defence roles identified in Cmnd 8288 in the most cost-effective manner.

504. Complementing the increased resources being made available to defence are our constant efforts to maximise their output through greater efficiency

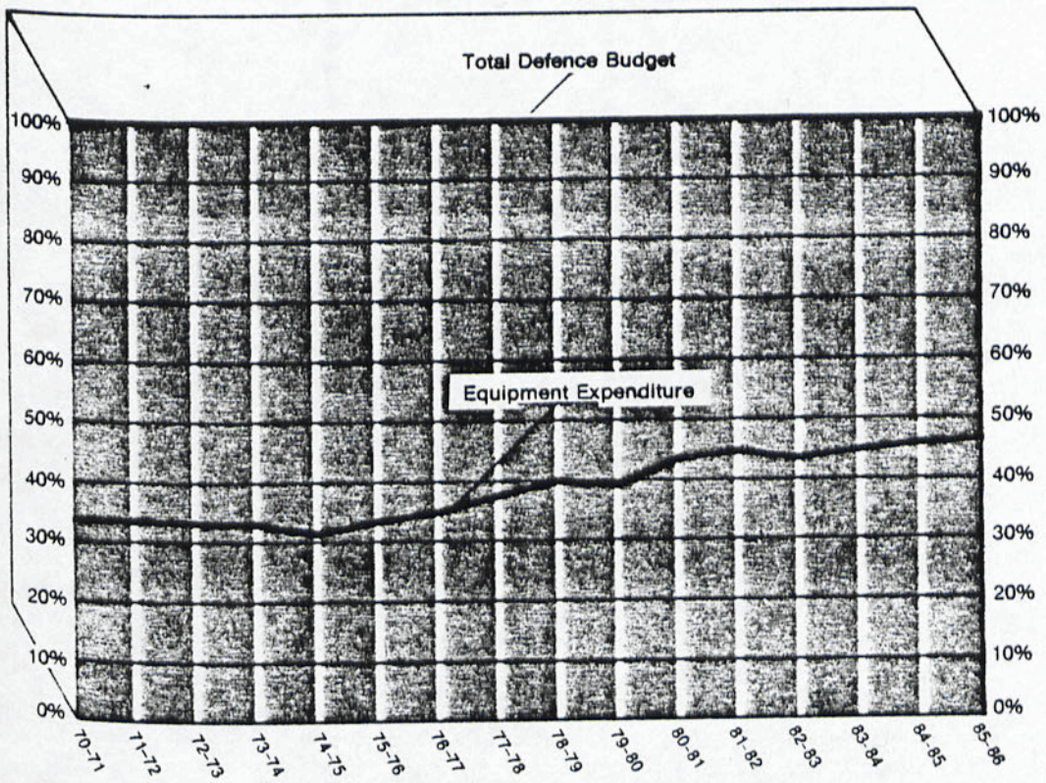
and value for money. As Figure 8 shows, the proportion of the defence budget spent on equipment has risen from 40% in 1978-79 to 46% in 1985-86. Extended use of competition in the placing of defence contracts should compound the effect of these steady increases, and the renewed emphasis we are giving to collaboration with our European allies (see Chapter 3) holds out the prospect of worthwhile economies in equipment procurement. In recent years we have spent about 15% of our equipment budget collaboratively (see Figure 5). Similarly, the measures we are taking to transfer personnel from the support areas to the front line will contribute to the more effective use of available resources. These developments are described in greater detail later in this chapter.

THE EFFICIENCY PROGRAMME

505. As we explained in last year's Statement, MINIS (The Management Information System for Ministers and top management) is at the heart of our programme for improving efficiency. MINIS has now been in progress for two years in the Ministry of Defence, and its coverage has been extended to include the headquarters of front-line Commands; the result is that the total number of MINIS senior officers (those responsible for efficiency across individual management areas) has risen from 156 last year to 190 this year.

506. We have also extended the coverage of Staff Responsibility Budgets (SRBs), which were introduced for civilians on 1 April 1984, to military personnel in the support areas from 1 April 1985; and we are introducing Executive Responsibility Budgets (ERBs) into a large number of support management areas over the next three years. ERBs will involve some 300 units and

Figure 8 Equipment Expenditure from 1970-71 to 1985-86



NOTE Figures are based on outturn information for 1970-71 to 1983-84 and on supply estimates in the case of 1984-85 and 1985-86.

establishments in the United Kingdom with annual operating costs of over £3 billion. The activities covered include supply and repair, medical services, the individual training of Service personnel, and research and development. Both SRBs and ERBs, operated within the framework of MINIS, will increasingly become the vehicles for securing yearly improvements in value for money, principally by enhancing the accountability of individual managers, and by relating the resources that their activities consume to the output that they produce.

507. The first round of MINIS in 1983-84 showed the need for a restructuring of the higher organisation for defence. The principles of this reorganisation were set out in last year's Statement and, subsequently, in The Central Organisation for Defence (Cmnd 9315). The new structure came into effect, as planned, on 2 January 1985 and has now been operating successfully for several months. It is designed to provide, on the one hand, for stronger central control of defence policy, operations and resources (including manpower) and, on the other, for decentralisation to the Services and the Procurement Executive (PE) of day-to-day management.

508. The centralised PE structure, established in 1972, remains basically sound, although a review recently undertaken within the Ministry, in which industry has been involved, has confirmed that some improvements should be sought in the way procurement is conducted, so as to obtain best value for money. Ministers will be involved earlier in equipment decisions and in project strategy, particularly with an eye to increasing international collaboration. As the threat we face becomes more sophisticated, and as a consequence the real cost of equipment continues to rise, it will be more important

than ever for the United Kingdom to collaborate with its allies to develop and produce equipment. This has led to the creation of the new post of Chief of Defence Equipment Collaboration, discussed in Chapter 3, which has been filled by the former Chief of Defence Procurement, Mr David Perry. Mr Peter Levene, the former chairman of United Scientific Holdings plc, has been appointed to succeed him as Chief of Defence Procurement.

Competition

509. Competition in the supply of goods and services to the armed forces lies at the heart of our procurement policy. The initiatives for competition launched at the end of 1983 have been progressively put into effect over the past year, and it remains our firm objective to secure competitive proposals both for main contracts and for sub-contracts wherever it is practicable and reasonable to do so. Our competition policy also has substantial benefits for the international competitiveness of British industry.

510. When account is taken of competitive sub-contract purchases under non-competitive main contracts, over 60% of new contracts are priced following competition or by other reference to market forces. A full analysis of contracts placed is given in Table 2.11 in Volume 2. The introduction of competition into areas where previously it did not always apply has produced worthwhile savings. But, of course, the policy must be a long-term one in view of the complexity of much of the equipment we purchase.

511. There have been some notable successes both in achieving greater value for money and in introducing new companies to the field, as the following examples show:

- the competitions in the maintenance area foreshadowed in last year's Statement have been successfully held; as a result, contracts have been placed for the refits of HM Submarine Otter and the Leander class frigate HMS Euryalus. A comparative exercise currently in hand will enable us to compare the performance of commercial yards on this type of work with that of the Royal Dockyards. Competition between commercial yards has become the accepted norm for the procurement of major warships, apart from vessels such as nuclear-powered submarines, which can only be designed and built at certain yards;

- the introduction of competition into the supply of sea-borne radars has led to our extending the potential sources of supply and achieving better performance at lower cost to the Royal Navy. Equipment forming part of the Sea Wolf missile system has also been put to competition. These items were won by firms other than the design firms for the original equipment and at a considerable saving to the Ministry over the prices quoted by the previous suppliers;

- following a competition for the supply of vehicle-borne satellite communications terminals for the Army, an additional source of supply was identified. The new source was able to offer satisfactory equipment at a lower price than the only company previously thought able to meet the requirement;

- the latest requirement for the supply of night vision goggles for the Army was placed competitively. In this case the order was won by the design firm but at a price considerably below that which it had previously quoted;

- following competition for production of a simulator for main battle tanks, the order was split between two companies, with a considerable overall saving to the Army.

- we have held a major and successful competition for the production of a new basic trainer aircraft for the RAF. Following the receipt of best and final offers from all four industrial partnerships in the competition, we have chosen the Tucano proposed by Short Brothers, in association with Embraer of Brazil, which was the cheapest by a clear margin. Subject to the completion of contractual negotiations, we intend to order 130 aircraft. The cost is approximately £60 million, or 35% less than that originally envisaged in the Ministry of Defence's forward costing process.

512. Further measures to improve the effectiveness of competition are being introduced. Major contracts and invitations to tender now contain a condition requiring the main contractor to report the extent to which his sub-contracting plans involve the use of competition: for example, in the case of the first-of-class Type 23 frigate, some 76% by value of sub-contracts and supplies will be purchased by competition. Wherever practicable we are extending the number of contractors invited to tender for our requirements. Project management and contracts staff have been instructed to circulate staff targets and requirements as widely as is sensible and practicable. Staff are also consulting the relevant Trade Associations on how to widen the choice of firms for inclusion in tendering lists. Wherever appropriate, bidders' conferences are being arranged for main contractors, and in turn we encourage main contractors to use the same practice for their potential sub-contractors. At the production stage, contractors are encouraged to display to potential sub-contractors the equipment components for which tenders are being sought.

513. We are paying more attention to the smaller suppliers, whose qualities of enterprise and willingness to innovate are playing a vital part in helping

us to obtain the best long-term value for money. Our competition policy is creating extra opportunities in which small firms can share. This applies particularly at the sub-contract level - the most fruitful area for small suppliers, and in which prime contractors are encouraged to use competition as widely as possible. Over 40,000 copies of our highly successful booklet Selling to the MOD have been distributed to the smaller firms for which it was designed, and there has been an encouraging increase in enquiries since its publication. Of particular assistance to small firms has been the increase from £5,000 to £10,000 of the threshold below which many types of contract can be awarded without firms being made subject to the approval and quality assurance procedures required for larger orders.

514. An integral part of the drive to increase competition is the principle of contracting out support services to the private sector wherever this can be done without operational detriment or disadvantage to the taxpayer. During the last few years over 95% of all accommodation cleaning and laundry has been contracted out. Other services such as catering, labouring and store-keeping are being examined. Technical functions are also being contracted out, including aircraft servicing, air traffic control and the production of technical publications. We have decided to use civilian driving schools for the training of the majority of RAF tradesmen drivers; and we have invited competitive tenders for the supply of support services at the Proof and Experimental Establishment, Shoeburyness, as the first stage of a programme to contract out a large part of the day-to-day support activities at all the Proof and Experimental Establishments.

515. In addition to contracting out individual functions, we are paying increasing attention to the scope for putting out to contract discrete management units. The physical aspects of the defence accommodation stores task at RAF Quedgeley, and the air publications and forms warehousing at Woolwich, were contracted out in 1984; and a number of other proposals, including the day-to-day operation of the PE Stores Depot at Aston Down, are being examined. As a rule, contracts are let and renewed on a competitive basis to ensure that the Ministry is able to secure the best possible service at the lowest possible price.

Rationalisation of Support

516. The object of our efficiency programme is not just to save money. A central feature is our drive to get a higher proportion of Servicemen into the front line: to switch resources from the "tail" to the "teeth". We have therefore been conducting a major overhaul of support activities in all three Services, with the joint aims of strengthening the front line and achieving for the taxpayer better value for money.

517. The Royal Navy has moved both manpower and other resources from support areas to the front line. It is committed to the aim, announced last year, of a 25% reduction between 1981 and 1988 in the uniformed manpower devoted to shore support, and by 1 April 1985 numbers had already fallen by 12.5%. By the early 1990s total naval manpower is planned to reduce by 11,000 from the 1981 figure; some 6,400 savings have already been decided upon, and studies are in hand to identify the remainder. Many other ways of using manpower more efficiently are being examined, including increasing the length of time

in post, putting certain tasks out to contract, reducing the provision made to cover for sickness and leave, and investing in automation and mechanisation: for instance, the modernisation of the Naval Shore Telegraph Network is expected to produce a significant reduction in communications personnel.

518. Every effort is made to ensure that ships, submarines and aircraft are operated, maintained and updated in the most effective possible manner, and that the most economic balance is struck between sea, shore training and support. We have been considering the arrangements under which the Royal Dockyards at Devonport and Rosyth should be managed in the future to enable them to meet the Royal Navy's needs in the most cost-effective manner. No decisions involving major change will be taken until a period of consultation has been completed.

519. A "good housekeeping" approach is pursued in all support areas. The size and composition of Fleet Maintenance Groups, for example, are reappraised regularly to ensure that they are economical in naval manpower but provide adequate support for vessels that increasingly have smaller ships' companies. A firm of management consultants has conducted a study into methods of support for naval aircraft to ensure maximum cost-effectiveness, and we are considering their recommendations. In addition, rationalisation of stores handling will make it possible to close the Royal Naval Store Depots at Deptford later this year; and at Woolston in 1986.

520. There is a constant search for possible reductions in the length of training courses and for the achievement of better standards within available resources. Training is being rationalised and concentrated in a number of

key establishments, where possible on a tri-Service basis, and the total number of shore establishments is being steadily reduced - HMS Pembroke and HMS Fisgard closed in 1984, and we plan to close HMS Caledonia by the end of 1985. Further studies are under way into the most cost-effective disposition of training activities and accommodation in the Portsmouth area. In all this we constantly aim, of course, to maintain satisfactory standards of training and support, and to ensure that a naval career remains attractive to people of the high quality we need.

521. In last year's Statement we announced a series of studies to effect a redeployment of manpower from the training and support areas in the Army to the front line. The studies, collectively entitled "Exercise LEAN LOOK", are now complete, and have identified some 4,000 posts in the "tail" which could be redeployed. The main ways of achieving these savings are:

- contracting out administrative transport, such as staff cars, vans and coaches - which support peacetime, rather than wartime needs - and the reduction of associated posts;

- extending contract catering at static units in the United Kingdom;

- putting to contract certain administrative functions in Royal Army Ordnance Corps central depots;

- opening certain posts to female Service personnel and to civilians.

These measures, taken with additional rationalisation of functions, and the employment in some areas of new labour-saving equipment, will be implemented within the remainder of the decade; care has been taken to avoid reducing the support provided by the units and establishments affected below the level required for the Army's front line.

522. The manpower released will be employed in a number of ways, including the creation of two new major units in BAOR (a twelfth armoured regiment and a new air defence regiment); in manning and maintaining the new equipments coming into service, such as MCV 80, Saxon, the Multiple-Launch Rocket System, Wavell and Ptarmigan; and in increasing the size of some infantry battalions with a home defence role. In this way, Exercise LEAN LOOK will have effected a major increase in the Army's front line.

523. Last year we reported that, in parallel with Exercise LEAN LOOK, the Army's chain of command would be studied with a view to creating a simpler and more efficient structure. The results of the review, entitled SHARP SWORD, have demonstrated that the Army Command, as it has evolved over the years, is not only well structured to provide clear control for the purpose of conducting military operations, but also incorporates an effective framework for the development of specialist skills and doctrines, which underpin the professionalism of our combat forces.

524. We have nevertheless identified some scope for clarifying command, policy and management responsibilities. The chain of operational command will be essentially unaffected; but command responsibilities in London

District will be rationalised by the creation of a Brigade Headquarters to command the regular and Territorial Army battalions in that district.

525. The main change will involve the position of the Arms Directors, whose functions in the policy area are to provide special-to-arm advice and, in the management and executive areas, to be the focus for the Regimental system and to supervise professional standards and training activities. The Arms Directors will now report to the Commander Training Establishments, re-titled "Commander Training and Arms Directors", not only as before in respect of their training responsibilities, but also for their specialist contributions to the policy work of the General and Defence Staffs. He in turn will report to the Chief of the General Staff for policy work, and (as now) to Commander-in-Chief United Kingdom Land Forces.

526. The review has also identified scope for simplifying the higher management structure in the personnel and logistics areas, in which there will now be fewer senior officers reporting direct to the Adjutant General and to the Quartermaster General.

527. In the Royal Air Force, good progress has been made in achieving economies in the support area. Measures taken to increase competition are referred to in paragraphs 514 and 515. In addition, a contract has been let to a private company for the engineering and supply support of aircraft at the Basic Flying Training School, Linton-on-Ouse; and the contract for the second-line servicing of Chipmunks and Bulldogs at RAF Shawbury has been expanded. These measures will release over 400 men for duties more directly in support of the front line, and other measures are under study. Our general aim is

to manage the increase in the RAF front line, and the introduction of new aircraft, without increasing manpower.

Rationalisation of Defence Medical Services

528. Sir Henry Yellowlees, formerly Chief Medical Officer in the Department of Health and Social Security, has completed the study into the Defence Medical Services referred to in last year's Statement. The major recommendation of the first part of his report was that all the policy aspects of the defence medical services should be centralised in a single headquarters organisation within the Ministry of Defence, rather than being the responsibility of three Service Directors-General. This recommendation was accepted by the Government, although we remain firmly committed to the continuance of three separate uniformed medical corps. The new organisation came into effect on 2 January this year and is headed by a Surgeon-General with support from certain functional Directorates. A number of the recommendations in the second part of the Yellowlees Report, which deals with the most cost-effective use of the medical resources available to the Ministry, have been implemented, and the rest are under study.

Rationalisation of Quality Assurance

529. In 1984, following a management audit report, a single Directorate General of Defence Quality Assurance (QA) was formed from the existing Defence Quality Assurance Board Executive, the Aeronautical, Electrical and Materials Quality Assurance Directorates, the Naval Ship Production Overseers and most of the Quality Assurance Directorate (Ordnance). Its task remains that of

ensuring that defence equipment purchased for the Services is fit for the job. The new directors have functional responsibilities, and include a director to handle the interface with industry. The change will produce more consistency in QA policy and procedures and better use of QA manpower and facilities; it will also increase the involvement of QA staff at the earliest points in the procurement cycle, especially for major equipments. In addition, more of industry will be encouraged to take greater responsibility for the quality and reliability of its products, in keeping with the already widely established policy that main contractors are generally required to comply with relevant defence standards in the 05-20 series and are fully responsible for the quality of the work of sub-contractors. This policy also accepts that the main contractor may discharge his responsibilities for selecting a capable sub-contractor if the latter is registered as complying with BS 5750, the national standard for quality management systems.

CIVILIAN MANPOWER

530. Since 1979, the Ministry of Defence has reduced its United Kingdom based civilian numbers by more than 73,000 and its numbers of locally-engaged civilians overseas by some 5,000. The further reductions in civilian manpower planned up to 1 April 1988 are on course; indeed, in accordance with the aim of increasing the rate of rundown, larger reductions than originally forecast are foreseen, and the target of 174,700 for 1 April 1986 has been achieved a year early. The UK-based manpower target for 1 April 1988 is now 169,000. By that time, the Ministry of Defence will have shed almost one-third of such staff since 1979: the reduction of 79,000 during that period will

represent about 56% of the reduction to be achieved in the Civil Service as a whole.

531. The further reductions up to 1988 will be achieved by dropping, curtailing or contracting out functions, privatisation, and general improvements to efficiency. All possible avenues for significantly improving the new targets are being explored and exploited.

DEFENCE SALES

532. The United Kingdom's defence industries have traditionally been strong, able and competitive. But with the rising real cost of defence equipment, both our ability to provide the Services with the weapon systems they require and the continued strength of our defence industries depend more than ever on a vigorous but responsible overseas sales policy. The Government therefore supports British firms in their efforts to sell defence equipment overseas, whenever this is compatible with wider political, strategic and security interests, since the unit costs of equipment we purchase ourselves are driven down both by competition and by the longer production runs required for overseas sales.

533. 1984 was a somewhat less successful year for British defence exports than 1983 had been. Nevertheless, the United Kingdom's share of the world market, at just over 6%, leaves us as the free world's third largest defence exporter. During the past year, major contracts have included substantial orders for the Sherpa aircraft, further orders of Hawk, fast patrol craft, marine gas turbine engines and avionics. We estimate that receipts from

defence sales in 1985-86 will be about £2.5 billion. This is a significant contribution to Britain's total exports and sustains some 130,000 jobs.

534. The Defence Sales Organisation again arranged the British Army Equipment Exhibition at Aldershot in 1984: one of the biggest exhibitions of its type in the world. Later in the year the Farnborough Air Show, sponsored by the Society of British Aerospace Companies, was a major success and included a substantial amount of British defence equipment. Preparations are now well under way for the next Royal Navy Equipment Exhibition to be held at HMS Excellent, Portsmouth, in September 1985. These exhibitions provide a very attractive shop window for the entire range of modern defence equipment produced by British manufacturers.

DEFENCE RESEARCH

535. Some £383 million (of which £229 million is intramural) - about 2.1% of the defence budget - is expected to be spent on defence research in 1985-86. Virtually all subsequent design, development and production of defence equipment is carried out in industry with support, as necessary, from the Research Establishments. As recommended in the 1980 Strathcona Report, we are seeking further opportunities to devolve the residue of design and development work to industry and to concentrate the resources of our establishments on longer-term innovative research and selective support to concepts and projects.

536. As announced in last year's Statement, the Research Establishments have been reorganised into seven management units. During 1984 the headquarters

organisation was also altered to create a tauter and more efficient management structure, in keeping with the large degree of delegation of executive authority to the establishments. Further information on the size and shape of the defence research effort and of collaboration with industry in this field is contained in the essay on page [ ].

537. As part of the Government's policy of improving the strength of the science base in this country, we have been considering ways in which closer collaboration with academic institutions in the area of strategic research could be promoted. Two schemes in particular are planned. The first is a cooperative grant scheme, between the Ministry of Defence, the Research Councils, and the universities, to support research projects that are both of relevance to defence and of high scientific merit. The second is intended to encourage greater collaboration in the provision and operation of research facilities.

ROYAL ORDNANCE FACTORIES

538. In preparation for their future operation as a Companies Act company, we took a number of major initiatives to strengthen the management and capabilities of the Royal Ordnance Factories (ROFs). We reorganised the management into a head office and four product-based divisions in March 1984. We also gave the ROFs responsibility for the former PE establishments at Westcott and Waltham Abbey (South Site) which, together with the associated agency factory at Summerfield, consolidated the United Kingdom rocket motor capability under a single management.

539. Once the Ordnance Factories and Military Services Act 1984 had received Royal Assent on 31 October 1984, we were able to use the powers it conferred to complete the transformation and vest the assets, rights and liabilities associated with the ROFs in a new company, known as Royal Ordnance plc, on 2 January 1985. The company, whose shares are for the time being wholly owned by the Secretary of State, now operates on a fully commercial basis in the same way as any other company. 18,967 staff have been transferred outside the Civil Service. We intend to press ahead with the introduction of private capital into Royal Ordnance plc as soon as possible, but the method and timing have not yet been decided.

ESSAY

DEFENCE RESEARCH

1. The Government looks primarily to industry (including the new Royal Ordnance plc) to design, develop and produce the weapons needed by our armed forces. In 1985-86 the Ministry of Defence expects to spend about £1933 million on design and development and a further £6806 million on production, nearly all of which will be spent with industry.

2. But it is necessary also to maintain a broadly-based research capability in order to advise the Services on the potential and limitations for new weapon systems of emerging technologies and to provide scientific and technical support to project managers during the feasibility and development phases of procurement. Much of the research task is done by industry, universities and research associations; but the Ministry maintains a number of its own Research Establishments, which give particular emphasis to longer-term, innovative research where industry cannot be expected to stand alone, which provide unique capital facilities, and which make an important contribution to international cooperation on defence equipment.

3. There are seven establishments occupying some 20 major sites and a number of minor ones. The main locations of the establishments, together with their primary activities, are as follows:

Royal Aircraft Establishment (RAE)	
Farnborough and Bedford	Research covering all aerospace activities including airframes, engines, weapons and systems. Facilities include airfields, ranges and wind tunnels.
Royal Armament Research and Development Establishment (RARDE)	
Fort Halstead and Chertsey	Land systems research, including guns and their ammunition, combat and logistic vehicles, engineering and bridging equipment.
Admiralty Research Establishment (ARE)	
Portsdown, Portland and Teddington	Sea systems research, including marine technology, weapons and sensors for above and below surface warfare.

Chemical Defence Establishment (CDE)	
Porton Down	Research into defence against the threat of chemical and microbiological attack, including physical protection and medical treatment.
Royal Signals and Radar Establishment (RSRE)	
Malvern	Radar communications, night vision and other research both applied and fundamental in electronics.
Atomic Weapons Research Establishment (AWRE)	
Aldermaston	Research, development and some production aspects of atomic weapons.
Aeroplane and Armament Experimental Establishment (A&AEE)	
Boscombe Down	Aeroplane and armament testing, particularly trials for aircraft clearance, equipment evaluation and aerial delivery.

4. Our establishments employ some 23,000 staff, over half of whom are non-industrials, the majority of these being scientists and engineers. This compares with an intramural workforce of 34,000 in 1971. The significant reduction has been achieved in a number of ways, including the transfer of design and development work to industry and the contracting-out of support tasks, such as the operation of ranges and the provision of equipment servicing. This is a continuing process, by which the Research Establishments are both contributing to the Government's policy of reducing the size of the Civil Service and at the same time involving industry more closely in defence technologies and programmes.

5. The defence research programme is not planned and managed in isolation from other relevant skills and facilities. To avoid unnecessary duplication of effort our scientists exchange research findings with their counterparts in a number of other countries under Information Exchange Programmes, in which care is taken to ensure a fair balance so that British industry does not lose the benefits of research undertaken in this country. We are also increasingly seeking to involve industry in the planning of our research programme, in the promotion of civil applications, and in the transfer to the civil sector of technologies generated at our Research Establishments. And the Research Establishments already carry out some work with a principal civil aim. Wherever possible, within resource limitations, the establishments make available their staff and facilities to other Government Departments and industry on a repayment basis. For example, the Department of Trade and Industry currently spends almost £25 million a year on intramural programmes at the Research Establishments.

6. As examples of these trends:

- we have invited seven industrialists to participate in an advisory role in our Headquarters Management Board for the research programme, and we hope in due course to extend similar arrangements to our major Research Establishments;

- we have assisted in the setting up of Defence Technology Enterprises Ltd, a private company whose object is to help identify potentially marketable ideas and technologies generated in the establishments and to promote their exploitation by the civil sector;

- we are examining the practicability of establishing a partnership with industry in the field of marine technology, the basic concept of which involves initially the operation of Ministry of Defence facilities by an industrial partner, both for defence purposes and on a private venture basis, and the progressive transfer by the Ministry of expertise in certain areas of marine technology; and

- we are participating in setting up a British national space centre to which both Government and industry will contribute. The detailed arrangements have still to be developed, but it is likely that the technology centre will be located at the Royal Aircraft Establishment, Farnborough, where there is already a successful joint space technology programme with the Department of Trade and Industry.

CHAPTER SIX: THE SERVICES AND THE COMMUNITY

601. It is tempting to see the men and women of the armed forces as a uniformed elite, separated from their fellow citizens by their vocation and by the seriousness of the tasks of deterrence and defence which they are called on to perform. But this is to forget that they are both drawn from, and remain members of, the wider community. They bring to the armed forces the talents and abilities which they have learnt in schools and universities; and when their time in the Services is over they bring back to the civil community the skills, disciplines and loyalty that have characterised their Service careers.

602. In many parts of the country - for example, the naval bases, the garrison towns, the traditional recruiting areas for Army regiments - the Service man or woman as a citizen is a familiar part of everyday life. But in other areas, the only contact some may have with the armed forces is through the news media, on ceremonial occasions, or when natural disasters force them to call on the Services for assistance. This chapter gives details of the main work performed by the Services on behalf of the civil community during the past year, whether in helping with non-military projects, in responding to emergencies, or in assisting the civil authorities to maintain law and order in Northern Ireland.

Military Aid to the Civil Community

603. Every year the Services put their specialist skills to work on non-military projects for the benefit of local communities. The range of activ-

ities is wide but does not change greatly from year to year; the essential requirements are simply that the tasks should have training benefit for the personnel involved and should be of social value. In 1984, for example, Royal Naval units gave swimming instruction at a number of schools. And during the summer the Army provided a number of administrative staff to run a 12-week working camp for over 300 young people taking part in a Prince's Trust project: under the guidance of military experts, the young people carried out several construction and restoration tasks for the National Trust development of the pre-Roman archaeological site at Badbury Rings, in Dorset. A similar, smaller-scale project is planned for 1985. The Army has also taken part in such diverse activities as building footbridges, making footpaths, and assisting the police in searching for missing children.

604. Service assistance was also provided to alleviate distress caused by natural disasters or major accidents. During the extremely dry weather in early May last year, over 450 Army and RAF personnel helped local fire brigades and the Forestry Commission to fight forest fires in Wales; and in the heavy snowfalls that covered the country in the New Year, Servicemen gave assistance in many ways, including the provision of vehicles and drivers for the "meals on wheels" service.

605. Outside the United Kingdom, the task that attracted most public attention during 1984-85 was the Service assistance in famine relief operations in Ethiopia, codenamed Operation BUSHELL. Within a week of being called upon last autumn, a detachment of two RAF Hercules aircraft with 60 RAF and five Army personnel was established in Addis Ababa - the first foreign detachment

to set up operations. The aircraft were to provide help in moving the large amount of relief aid arriving in the country to the areas of greatest immediate need. In this operation the British team flew several sorties a day, seven days a week, air-lifting relief cargo (including food, medical supplies, tents, blankets and other items such as trucks and spare parts) from Addis Ababa or the port of Assab to famine-stricken areas in the north and north west of the country. The operation required extensive use of rough landing strips in formidable terrain located over 7,000 feet above sea level; this represented a demanding test of crew skills and aircraft durability. Nevertheless the detachment succeeded in air-landing 14.5 million lb of cargo during the first three months. At the start of the fourth month, and before the onset of the wet season, one of the two Hercules began air-dropping relief supplies, flying up to three sorties daily. The RAF aircrews, supplemented by 12 Army air despatch personnel, faced a daunting challenge in air-dropping supplies from 50 feet on mountainous dropping zones located up to 9,000 feet above sea level. In the first two weeks alone, this method of delivery enabled the detachment to provide 1 million lb of relief supplies for particularly remote and inaccessible communities. Throughout the operation the British detachment was supported by a weekly Hercules resupply flight from the United Kingdom carrying aircraft spares, replacement crews and other equipment, as well as additional relief supplies when space permitted. The speed and efficiency of the British team's contribution has won widespread praise from relief organisations and the Ethiopian Government.

Northern Ireland

606. The task of assisting the Royal Ulster Constabulary (RUC) to enforce the rule of law in Northern Ireland makes unique demands on our armed forces. It is now over 15 years since the Army were first used in the Province in the counter-terrorist role, and during that time the courage, restraint and skill that they have shown, day in and day out, have won widespread admiration.

607. Every year sees further progress on the road back to normality. The RUC are now firmly in charge of operations against terrorist crime, and as they grow in strength and capability so the support they require from the Army lessens. But the time when the RUC can operate without any military support is still some way off, and until it is reached the Army will still be needed. During the last year Army units have been involved in some notable successes involving the capture of terrorists and the recovery of guns and explosives. Following an ambush by terrorists near Forkhill on 19 May 1984, in which one member of a military foot patrol was wounded, one suspect was arrested and two guns and some ammunition recovered. Subsequently two more suspects were arrested in connection with the incident, one by members of the security forces of the Irish Republic. One of the most notable finds of explosives in 1984 occurred when a joint RUC/military search team located a bomb factory and recovered 66 bags of home-made explosives and other bomb-making equipment.

608. The price has been high: 527 soldiers lost their lives between 1969 and the end of 1984, and even during last year there were 19 dead and 86 injured. Ten of the dead and 22 of the injured were soldiers from the Ulster Defence Regiment (UDR), who play an invaluable part in the overall support

to the RUC. Two of the worst incidents resulting in loss of life of members of the armed forces during 1984 were the booby-trap bomb which exploded beneath the van of off-duty soldiers participating in an international fishing competition at Enniskillen on 18 May, and a land-mine explosion near Castlederg on 14 July. The former killed two soldiers instantly and very seriously injured two others; one subsequently died from his injuries. The latter killed two UDR soldiers, one a woman corporal, and seriously injured another. Army Explosive Ordnance Disposal (EOD) experts responded to 702 calls for assistance during 1984 and successfully neutralised 2774 kg of explosive. Service in Northern Ireland has again been recognised with a number of gallantry awards, including a George Medal, 20 Queen's Gallantry Medals and a Bar to a Queen's Gallantry Medal.

Bomb Disposal

609. The various skills in bomb disposal and in searching for explosive devices that the Army has developed in Northern Ireland are available for use in Great Britain if required. Army, Royal Navy and RAF EOD teams in Great Britain have responded during the last year to over 750 calls for assistance in dealing with unexploded weapons from the Second World War and earlier. The most notable was in Sheffield in February when the Royal Engineers were called upon to dispose of a Second World War 1,000 kg Hermann bomb discovered on a building site. The sappers spent 46 hours at the site working in freezing temperatures to make the bomb safe, while residents from the surrounding houses were evacuated, and Sheffield United's home football match had to be postponed. Damage was limited to a few broken windows when the fuze was blown at the end of the operation. In the light of the

Hoddinott Report on the bombing at the Grand Hotel, Brighton, in October 1984, arrangements have been made for representatives of British police forces to be instructed by the Army in appropriate procedures.

610. No further mine clearance has been undertaken in the Falklands during the course of the year, but steady progress is being made in the search for an effective and safe method of detection of the FMk1 plastic anti-personnel mine, and experimental trials have begun. It is still too early to assess the results.

Protection of Offshore Resources

611. Comprehensive surveillance of the United Kingdom's fisheries and offshore oil and gas fields is undertaken by the Royal Navy's Fishery Protection Squadron and by RAF Nimrods. The aircraft keep in close touch with the fishery protection vessels and direct them towards any vessels suspected of illegal fishing. The air/sea patrols also seek and report oil spillages and slicks, keep a close watch for infringements of safety zones around offshore installations, and police the 200-mile Exclusive Economic Zone around the United Kingdom.

612. Deterrence of terrorist activity and response to incidents are particularly important when it comes to the United Kingdom's offshore oil and gas industry. Random visits by surface units provide an element of uncertainty for terrorists, and Comacchio Group Royal Marines, together with offshore patrol vessels, Nimrods and other military units, are tasked with maintaining

a rapid response force capable of dealing with incidents on offshore installations. During 1984 a number of combined exercises were carried out to practise aspects of the protection of such installations; further exercises are planned for 1985. Details of expenditure on offshore tasks included in the defence budget and a statement of fishery protection boardings and convictions are to be found in Tables 7.4 and 7.5 of Volume 2.

Search and Rescue

613. Helicopters of the Royal Navy and Royal Air Force, RAF Nimrod maritime patrol aircraft and RAF mountain rescue teams operate a permanent standby service for search and rescue missions. Aircraft of the two Services were called out on 1272 occasions in 1984, and 1052 people were rescued or assisted. Of these missions approximately 93% were reactions to incidents involving civilians. Rescues often involve cooperation between different aircraft and even different countries. For example, in August the MV Kormoran reported an injured seaman, 300 nautical miles south-west of Ireland. A Sea King helicopter from RAF Brawdy responded and flew to the scene, refuelling in Cork and at an offshore installation en route. In making this rescue the helicopter, which was assisted by a Nimrod from RAF Kinloss, flew nearly 900 nautical miles, and was airborne for about nine hours. On Christmas Eve, Wessex helicopters from the Royal Naval Air Station, Lee-on-Solent, rescued ten men from the tug Implacable which sank in heavy seas off the Isle of Wight. Crews from RAF Leconfield won two awards for rescue this year. In January a Wessex rescued the crew from the MV Navina, in trouble off the Humber, and the crew were subsequently awarded the Silk Cut Award for Rescue, 1984; in May another Leconfield Wessex rescued the crew of an overturned

fishing vessel off Flamborough Head, for which the crew were awarded the "Edward and Maisie Lewis" award by the Shipwrecked Fishermen and Marines Royal Benevolent Society.

Meteorology

614. The Meteorological Office, whose headquarters are at Bracknell, provides a detailed operational service for the armed forces and the Procurement Executive. It is also the United Kingdom's national meteorological service and has a wide range of civil responsibilities. On the domestic front, the Meteorological Office supplies weather forecasts and warnings free to the public through the news media. It also provides reports and forecasts in greater detail, for an appropriate fee, to specialist users including civil aviation (for which the Office provides one of the two World Area Forecast Centres), shipping, the offshore oil industry, manufacturing industries, agriculture, commerce, the public utilities, and local authorities.

615. We are well advanced in the implementation of the 1983 Resource Control Review, which was designed to improve efficiency and value for money. Savings of about £200,000 per annum have been made in the use of domestic resources. A principal recommendation of the review was that commercial services should be developed in the longer term, and to this end a Marketing Branch has been formed and consultants employed. Joint ventures with the private sector are being considered, particularly for overseas markets where the Office's global forecasting ability can be exploited.

616. On the research side, considerable effort is devoted to improving not only forecasting techniques but also our understanding of natural and man-made factors, such as increasing carbon dioxide, which may influence the earth's climate. The meteorological aspects of atmospheric pollution are being studied, and scientific evidence was provided for the recent House of Commons Environment Committee enquiry into acid rain. Last year saw the end of the research phase of the weather radar project and its adoption as an operational tool. Jointly funded by the Ministry of Defence and the Water Authorities, weather radars are valuable aids to short-term forecasting, as well as providing much better data for water resource management, drainage and flood warnings. Five radars now cover parts of England and Wales, and we hope to extend the coverage to the whole of the United Kingdom and surrounding waters in due course, through further joint ventures and cooperation with other European nations.

Hydrography

617. In the past year a number of hydrographic surveys have been completed, both overseas and around the United Kingdom. While much of the work has been carried out by the Royal Navy's Surveying Flotilla, use has again been made of a chartered vessel with a Royal Navy surveying party embarked, and of specially contracted commercial surveying companies.

618. The three craft of the Inshore Survey Squadron were paid off in March 1985 after spending 26 years monitoring changes of depth in the unstable areas of the southern North Sea. Their work is now being carried out by a chartered commercial vessel with another small Royal Navy surveying party

embarked. An order was placed in May 1984 for a new coastal survey vessel, to be known as HMS Roebuck, which is scheduled to enter service in 1986.

619. During the winter months, when the weather was less suitable for survey work in United Kingdom waters, HM Ships Fawn and Fox sailed to the Caribbean to progress surveys begun there in the late 1970s. HMS Herald spent the southern winter months surveying in the Falkland Islands.

The Defence Estate

620. We try to ensure that the defence estate is no larger than necessary to support the armed forces, and where possible we take steps to reduce our holdings of land that is not absolutely essential for this purpose. Rationalisation of support activities offers particularly good opportunities for reducing the size of the defence estate. In the past five years the total reduction has been 7637 hectares: 1538 hectares were disposed of in the year ending 30 September 1984, and at that date a further 2400 hectares were in the process of disposal. Further details of the defence estate are given in Tables 6.15 and 6.16 of Volume 2.

621. Notwithstanding our policy of releasing land wherever possible, there are some essential Service requirements that current land holdings are unable to satisfy. Two examples are the training needs of the expanding Territorial Army; and the need to be able to fire weapons with longer ranges. We therefore intend to acquire additional land for training where possible, usually by extending existing training areas when suitable land is offered for sale.

622. For a number of years we have sought to manage the defence estate in such a way as to promote as far as possible the conservation of the natural and archaeological features of the land. An essay on the conservation of the defence estate appears on page [ ].

Defence and Public Relations

623. The activities of the Services and their interaction with the wider community are an important way of keeping defence matters in the public eye. But there are also people specially dedicated to this task: the public relations staff, who work at the Ministry of Defence, in Service Commands at home and overseas, and in ships and units. Their role is to carry out a coordinated programme of publicity activities to inform the public about defence policy and the activities of the armed forces worldwide. They seek to promote and enhance public awareness of the Services as defenders of the country and its interests, as efficient and cost-effective users of taxpayers' money, as good employers, and as contributors to the well-being of the civil communities of which they form a part. They do this not only by means of the press, television and radio but also through close contact with the communities which the armed forces serve.

624. In addition to these activities the Royal Navy and RAF Presentation Teams, both of which have been in existence for a number of years, perform a valuable role in explaining their Services' activities. These teams gave a total of over 500 presentations to schools and other organisations in 1984-85. A number of exhibitions have also been held illustrating various aspects of defence. One of the most noteworthy was the exhibition marking the 35th

anniversary of the formation of NATO and the British contribution to the Alliance; this exhibition was seen by over 200,000 people throughout the United Kingdom.

625. Following the lessons learnt during the Falklands conflict and the success of last year's trial war-correspondents exercise, members of the media were again invited to participate as exercise war correspondents during Exercise LIONHEART, the major Army reinforcement exercise, which took place in the Federal Republic of Germany last autumn (see page[ ]). In addition, 700 other journalists from about a dozen countries attended the exercise, making it one of the most publicised military events of the last 12 months. On a smaller scale, the Royal Navy accredited journalists attending a joint maritime exercise in the North West Approaches in November. Useful lessons on the accreditation of journalists and their administration during military operations were learnt. These are being considered as part of the Government's response to the Report of the Study Group on Censorship (Cmnd 9112).

ESSAY

DEFENCE AND YOUTH

Civilian Apprentices

1. The Ministry of Defence invests more than £50 million each year in young people, mostly in the training and education of apprentices. At the end of 1984 we had in training 4,800 engineering apprentices (including 700 in Royal Ordnance Factories who were transferred to the new Royal Ordnance plc at its formation on 2 January 1985) and were the largest single employer and trainer in the engineering and shipbuilding industries. We employ about 24,000 craftsmen and a further 19,000 technicians and technician engineers who fill professional and technology officer grades - junior and middle managers who supervise the craftsmen and perform many other linked duties appropriate to the demands of modern technology.

2. For many years we recruited more apprentices than we strictly needed in order to contribute to the country's need for skilled manpower, thus using much of the spare capacity for training which existed in many defence establishments. Recently, however, pressure on numbers and on expenditure has meant that we have not been able to offer as many training places as before. In addition, several establishments have closed or been severely reduced in size, and this has further lowered the total numbers recruited each year.

Nevertheless we recruited 1,110 apprentices in 1984 (excluding those transferred to Royal Ordnance plc).

3. The apprenticeship system has served the Ministry well over many years, in both peace and war. For the foreseeable future it will continue to be the prime source of our craftsmen and technical officers. We will go on training young people to the high standards necessary to provide the craftsmen and engineers we need and will ensure that the training is in step with changes in technology. We are planning to move over the next few years from the traditional "time-serving" principle for apprenticeships, involving a fixed term of years, to a system of training to "standards", for which there will be a flexible period of training. Rates of pay of apprentices will be matched to the achievement of each phase of training, instead of to age. The new system will be introduced in stages, beginning with trials in about one-third of the establishments in the 1985 entry.

4. We intend that the number of apprentices recruited should be adequate to provide for the normal wastage of craftsmen and technical officers. Emphasis will be placed on ensuring that we attract more people who have the ability to complete technician training.

Civilian Youth Training Scheme

5. Because of its long history of providing apprenticeships, the Ministry of Defence has a wealth of experience in training young people. The most up-to-date equipment and techniques are available and we can offer 16- and 17-year old school leavers a choice of training in a variety of skills.

Industrial schemes are now operating in many defence establishments. These are providing training in "broad skills" of engineering, motor transport maintenance, storekeeping, catering, photography, marine craft, dental hygiene and so on. One of the larger schemes has begun at the Royal Aircraft Establishment, Aberporth, offering places for up to 60 trainees, including 40 with hostel accommodation provided for youngsters from remote areas of Wales.

6. A target of 750 places for the Ministry of Defence has been set for this summer; of approximately 550 places available in January this year, 350 had been filled. All schemes provide high quality training and are linked with an appropriate complementary academic course in City and Guilds or B/TEC. In addition to the schemes in the United Kingdom, there is another catering for the dependants of personnel serving with British Forces Germany. Over 500 trainee places are available, scattered throughout the British sector, of which about 425 are filled on a regular basis. We plan to set up a training complex in the Federal Republic to provide improvements to the "off the job" training courses for young people who have no access to local colleges, as they would have in a similar scheme in this country.

Armed Services Youth Training Scheme

7. The Services have been playing their part in improving the opportunities for young unemployed people by providing places in the Armed Services Youth Training Scheme (ASYTS). A wide range of skills and trades are available, including driving, clerical, storekeeping, vehicle mechanics and telecommunications. In addition, the Services offer excellent opportunities for sport

and other activities. No academic qualifications are required for any of the courses, although trainees must meet the minimum entry standards for the trade of their choice and fulfil the criteria for civil YTS courses. Many of those who have entered the scheme have done very well and some have reached quite impressive standards. 55% of those leaving the scheme have transferred to regular engagements with the Services.

Cadet Forces

8. We have concentrated above on the training facilities that the Ministry of Defence provides for school leavers. There is, however, another area in which we have forged strong links with young people: the Service Cadet Forces. These forces form one of the country's largest youth movements, and membership now stands at about 140,000 boys and girls aged between 12 and 18 years. The purpose of the Cadet Forces is to develop in its members qualities of good citizenship and the spirit of service to the country; they are not recruiting organisations, although many cadets take up Service careers and find their cadet training and background a great help. Members take part in a wide variety of adventurous and challenging activities, from sailing to gliding to rock-climbing, which help develop the powers of leadership and character that are so valuable to both the civilian and Service communities. A range of modern equipment is provided for these activities: for instance, 100 modern, fully-instrumented 'Viking' gliders are being purchased for the Air Training Corps to replace existing wooden gliders and to enable this highly cost-effective means of attracting high-calibre recruits to continue.

ESSAY

THE CONSERVATION ARMY

1. The 245,000 hectares of land (including foreshore) held by the Ministry of Defence are required for military purposes, such as training, trials or accommodation. The land is, however, usually capable of multiple use, and conservation has equal priority with agriculture in shaping the character and quality of the defence estate.

2. This estate, acquired over many years, contains an astonishing and often unique variety and quality of scenery, vegetation, wildlife and archaeological remains. The richness and unspoiled nature of so much of the defence estate owes much to the nature of Service use, excluding or restricting public access, and the lack of cultivation or other development. Farming on the defence estate is generally not intensive, and the use of herbicides and pesticides is relatively limited.

3. To preserve this heritage for the future requires an active and positive conservation programme. The Ministry's programme is now in its eleventh year and covers two-thirds of the defence estate. Coordinated and encouraged from headquarters, the field work is done by 4,000 dedicated and enthusiastic conservation volunteers, both Servicemen and civilians, who give up their time to study, improve and protect the countryside in the Ministry's care.

4. The conservation programme at any site begins with the creation of a volunteer group, with assistance from the Ministry's full-time Conservation Officer. This group brings together people interested and willing to work hard, some of whom may be specialists of repute in ornithology, entomology, archaeology and geology. The Nature Conservancy Council is always represented. Conservation groups start by carrying out a survey of the land, building up a dossier of maps, historical and geological records and notes of species of plants, animals, birds and insects identified on the site.

5. The detailed work of surveys is the foundation for practical management at each site. Among the activities that flow from them are the control of bracken, the provision of mixed woodlands, and the creation of wilderness areas in built-up sites instead of the ever-present manicured lawns. The guiding philosophy is that there is a beauty in wildness, with its movement, colour and sounds, which enriches the quality of life for humans as well as according more closely with the countryside itself. Each ecosystem has its own particular needs if it is to flourish. Defence lands include significant examples of chalk downland, breckland, dune systems, waterways, salt marshes, meadows, ancient woodlands, mountains and moorlands, all of which need careful and sensitive management.

6. There are very many individual activities, of which the following facts and figures can convey only an impression. Deer management is carried out at 33 sites by 270 deer managers, under the auspices of the Services Branch of the British Deer Society. There are now 160 conservation groups operating; at 33 sites archaeological sub-groups have been established and, apart from

surveys, some excavation has taken place with advice from the Council of British Archaeology or local archaeological societies; one sub-group has its own mobile exhibition. Bird-ringing has taken place at 43 sites, and 37,000 birds of 124 species have been ringed. On Salisbury Plain alone, 3 million trees have been planted since 1955. Currently, three-quarters of trees planted are of broad-leaved varieties. The Ministry's own conservation bulletin, "Sanctuary", which describes current activities in detail, is published twice a year, and over 1,000 copies are now distributed.

7. It has been possible to provide many scheduled species with their very special requirements for habitat, thus contributing to their preservation: examples are the grape hyacinth, bee orchid, Welsh gentian, lesser winter-green, natterjack toad, smooth snake, sand lizard, peregrine falcon, hobby, avocet, little tern, gadwall, black redstart, nightjar, Dartford warbler and the scarce emerald damselfly.

8. A good example of geological conservation was the highly-regarded project carried out in 1980 by the Light Infantry to re-excavate and survey the famous Stonesfield Slate Mines. These historic sites were the source of the first angiosperm plant, some of the earliest dinosaurs and unique fossil mammals.

9. Other NATO countries are developing conservation programmes on military land, and successful seminars on environmental matters were held last year in the Federal Republic of Germany and the Netherlands. The exchange of views and experience was valuable, and there was much interest in the United Kingdom's programme of practical management based on a detailed study of the

wildlife on the defence estate. The United Kingdom for its part learnt from the work being done by other member countries, such as research projects related to the survival of heathland, and restoration of polluted waterways and of eroded areas.

10. Our conservation activities are expanding continually in depth and range. With the goodwill and assistance of the national bodies and societies concerned with wildlife and nature conservation, the eager contribution of many individuals in the Services and outside, and the growing recognition of the importance of the subject, the defence estate should remain a unique national conservation asset in the years to come.

Annex A

The Balance of Forces Between East and West

1. A comprehensive review of the military balance between NATO and the Warsaw Pact should ideally incorporate not only numerical comparisons of equipment and men but also several important elements that can be highly subjective and do not easily lend themselves to quantification. A complete net assessment would need to take into account not only differences in numbers of men, tanks, artillery, aircraft, missiles, ships and so on, but also other qualitative factors that add to or subtract from their effectiveness.

2. These factors include differences in geography, environment, military strategy and force structure, political organisation and cohesion. The terrain over which fighting might take place could favour either the attacker or the defender and could also affect the ability to reinforce rapidly and effectively, or to conduct defence in depth. Other important factors might include the length of time that forces would be able to fight (their sustainability), which in turn is dependent on survivable logistic stocks and supply lines for fuel, ammunition and spares. Finally, there are intangible factors including training, leadership and morale, which as we saw in the Falklands conflict can together be crucial.

3. It is extremely difficult to determine the relative weights of these factors, and attention inevitably tends to be drawn to what appear to be the simpler comparisons of manpower and equipment. Even here, however, judgement has to be exercised on what to include or exclude. In general, the larger

the equipment the easier it is to count, and the more reliable the comparison; but there remain problems of categorisation. Arbitrary lines have to be drawn: for example, between heavy and light tanks; between fighter and ground attack aircraft; between reconnaissance and electronic countermeasures (ECM) aircraft; and between frigates and missile patrol boats. There are uncertainties about the quality, age, reliability and accuracy of equipment. Training units and reserve forces may be available for operational use, but may take varying times to prepare or may need to travel considerable distances to reach their war locations.

4. Finally, although there are no hard and fast boundaries to the threat to NATO, some must be drawn if meaningful comparisons are to be made. Those chosen must take account of land and sea features, differences in mobility (for example, of aircraft compared to tanks), the ability of missiles to transcend all boundaries, and the flexibility provided by international seas and air space.

5. To some extent, therefore, all definitions and categories are arbitrary. Furthermore, the secrecy surrounding the Warsaw Pact limits our detailed knowledge of systems and deployments and detracts from the confidence with which we can compile figures. Despite these problems, it is necessary to make comparisons of forces both to assist in defence planning and policy-making and to contribute to arms control deliberations. In the illustrations we make every effort to compare like with like and to apply the same criteria rigorously to both sides. It is nonetheless necessary to avoid placing too much reliance on the figures used: they should be regarded only as illustrating

the general scale of the opposing forces and not necessarily as showing how effective one side would be against the other.

THE CONVENTIONAL BALANCE

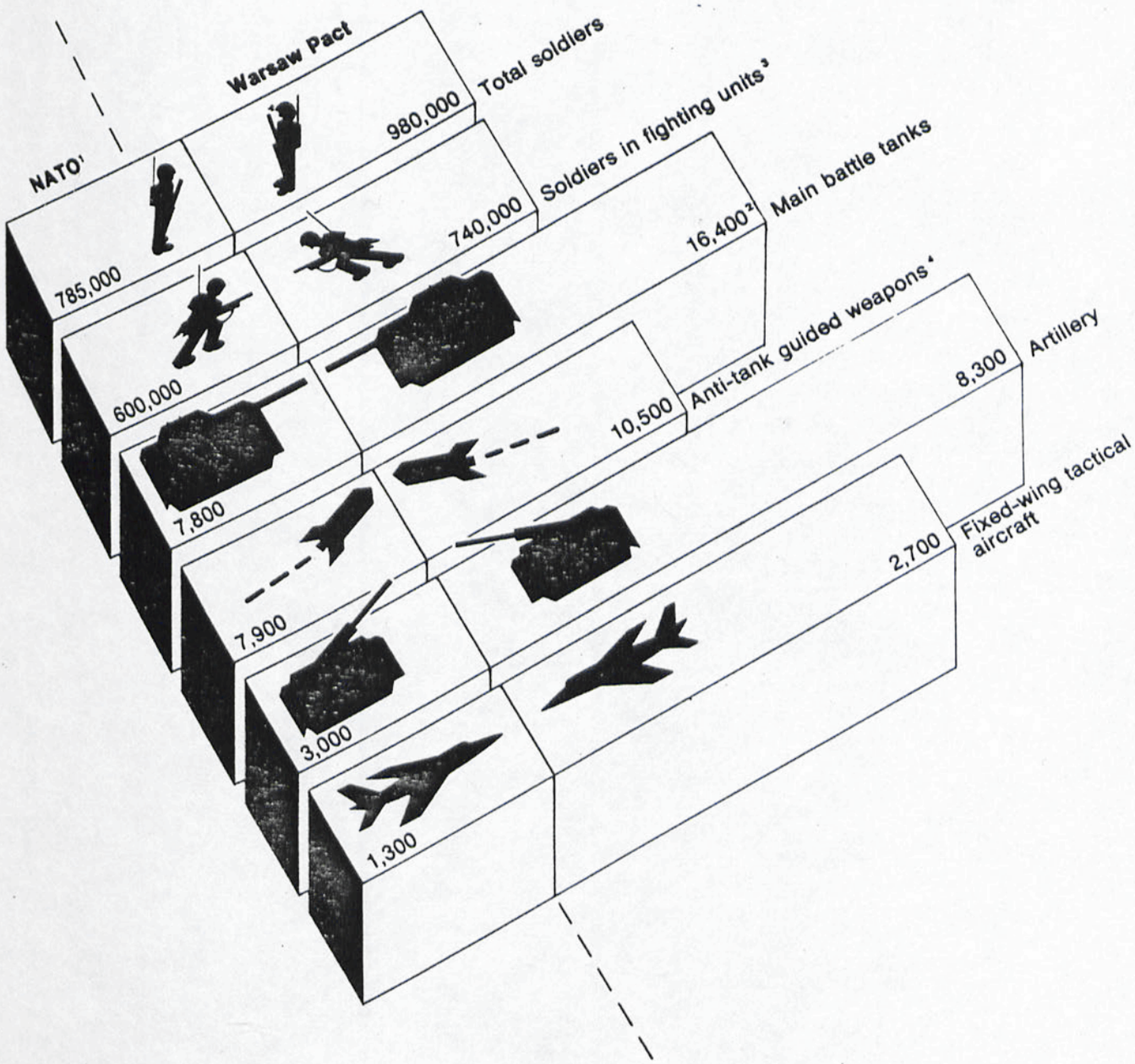
Land/Air Forces

6. Figure 9 illustrates the current balance of conventional forces on the Central Front. It shows Warsaw Pact forces estimated to be in place in Poland, Czechoslovakia and the German Democratic Republic; and NATO forces in the Benelux countries and the Federal Republic of Germany. Clearly these forces would be subject to reinforcement, but the Warsaw Pact is better placed geographically to move additional forces to the Central Front, and to sustain them once they are there.

7. This is illustrated graphically in Figure 10, which presents a broader view of in-place forces covering all of North and Central Europe, including those in the United Kingdom and Soviet Western Military Districts: the illustration therefore includes elements that are at a lower state of readiness than those shown in Figure 9. Most of NATO's additional reinforcements of men and equipment must be moved across the Atlantic from North America; by contrast, Soviet forces held in the three Soviet Western Military Districts could mobilise and move quickly into the Central Front.

8. Considerable improvements have taken place in the sustainability of the Soviet ground forces facing NATO: that is to say, in their ability to sustain intensive operations on the Central Front using supplies and equipment pre-

Figure 9 The Current Balance of Forces on the Central Front



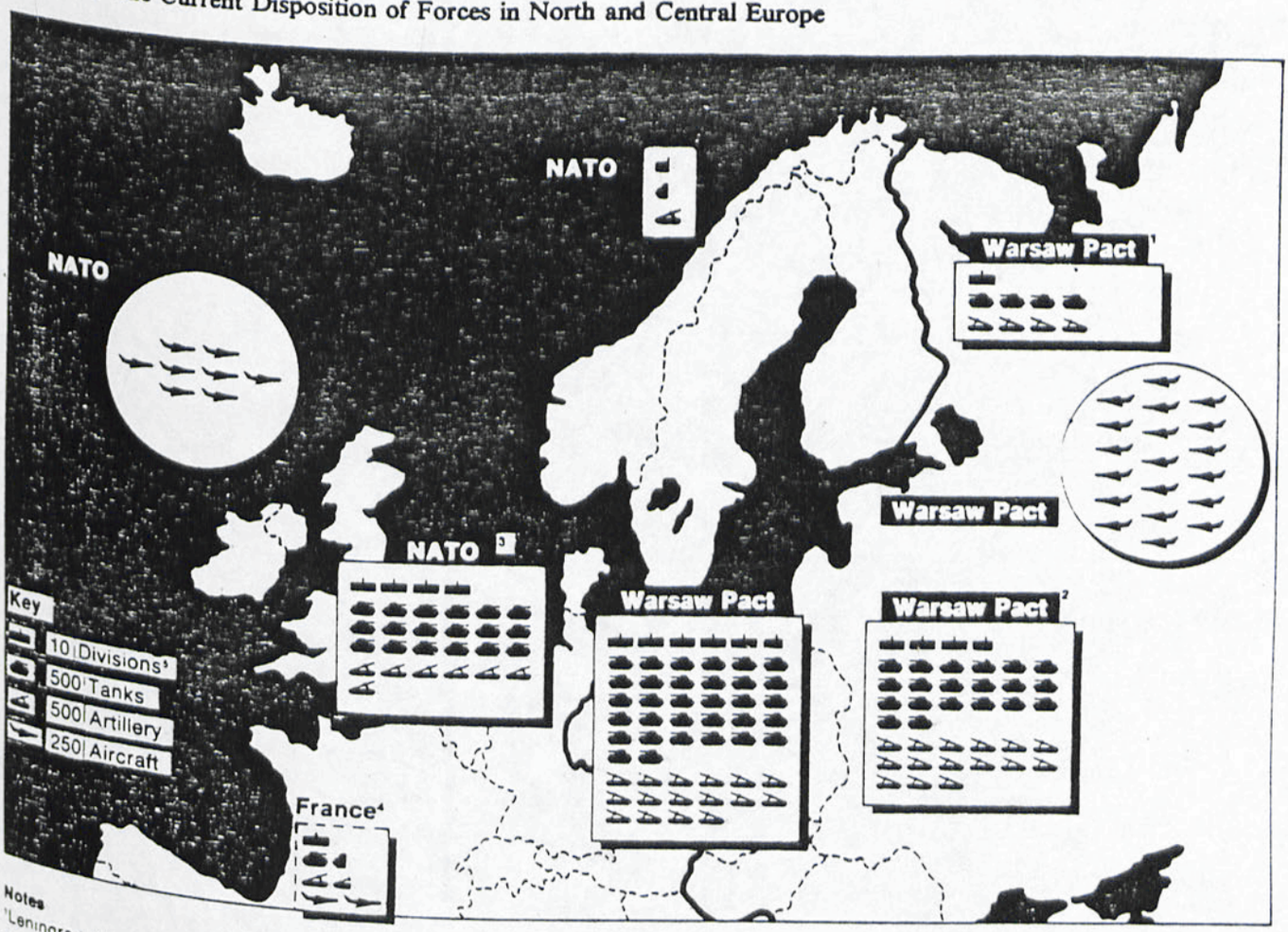
[1] Includes French forces in the Federal Republic of Germany which are not declared to NATO. Excludes the Berlin garrison.

[2] Excludes Warsaw Pact tanks in storage and training units,some of which were included last year.

[3] Corresponds to a balance of 57 Warsaw Pact to 33 NATO divisions. Warsaw Pact divisions normally consist of fewer personnel than many NATO divisions, but contain more tanks and artillery.

[4] Crew served systems and vehicle or helicopter mounted systems.

Figure 10 The Current Disposition of Forces in North and Central Europe



Notes

[1]Leningrad Military District.

[2]Three Soviet Military Districts.

[3]Includes French forces in the Federal Republic of Germany.

[4]France is a member of NATO but does not participate in its integrated military structure.

[5]Warsaw Pact divisions normally consist of fewer personnel than many NATO divisions, but contain more tanks and artillery.

stocked in Eastern Europe, thus reducing dependence on long supply lines back to the Soviet Union itself. It is now assessed that the Warsaw Pact's stockpiles of ammunition, fuel and tactical pipeline-laying equipment in Eastern Europe could permit it to sustain operations for some 60 to 90 days; this period is about twice as long as that pertaining only five years ago.

9. The Warsaw Pact is constantly enhancing its conventional capabilities, in quality as well as in numbers, so that in many areas NATO's technological lead - which we have relied on for many years to compensate for smaller numbers - is being eroded. Soviet use of new technologies, particularly in extending the range, accuracy and destructive potential of conventional weapons, is being reflected in organisational changes to their armed forces and the development of new operational concepts.

10. A new tank, known as the T80, is appearing with Soviet forces in Eastern Europe, while the T72 is starting to replace older equipment in service with the non-Soviet Warsaw Pact forces. Modern T64, T72 and T80 types now comprise about 50 per cent of the tank force on the Central Front facing NATO. Self-propelled artillery is replacing older towed types, and an improved infantry combat vehicle is being deployed. The Soviet Union's heavily-armed attack helicopter, the Hind, has been deployed in large numbers. Two new agile attack helicopters, nicknamed Havoc and Hokum, are being developed; they will have improved armament, performance and survivability, and are likely to enter service in the later 1980s to complement the Hind force.

11. On the air side, Soviet deployment of the Fulcrum has begun and that of Flanker will probably begin shortly: these new aircraft are all-weather

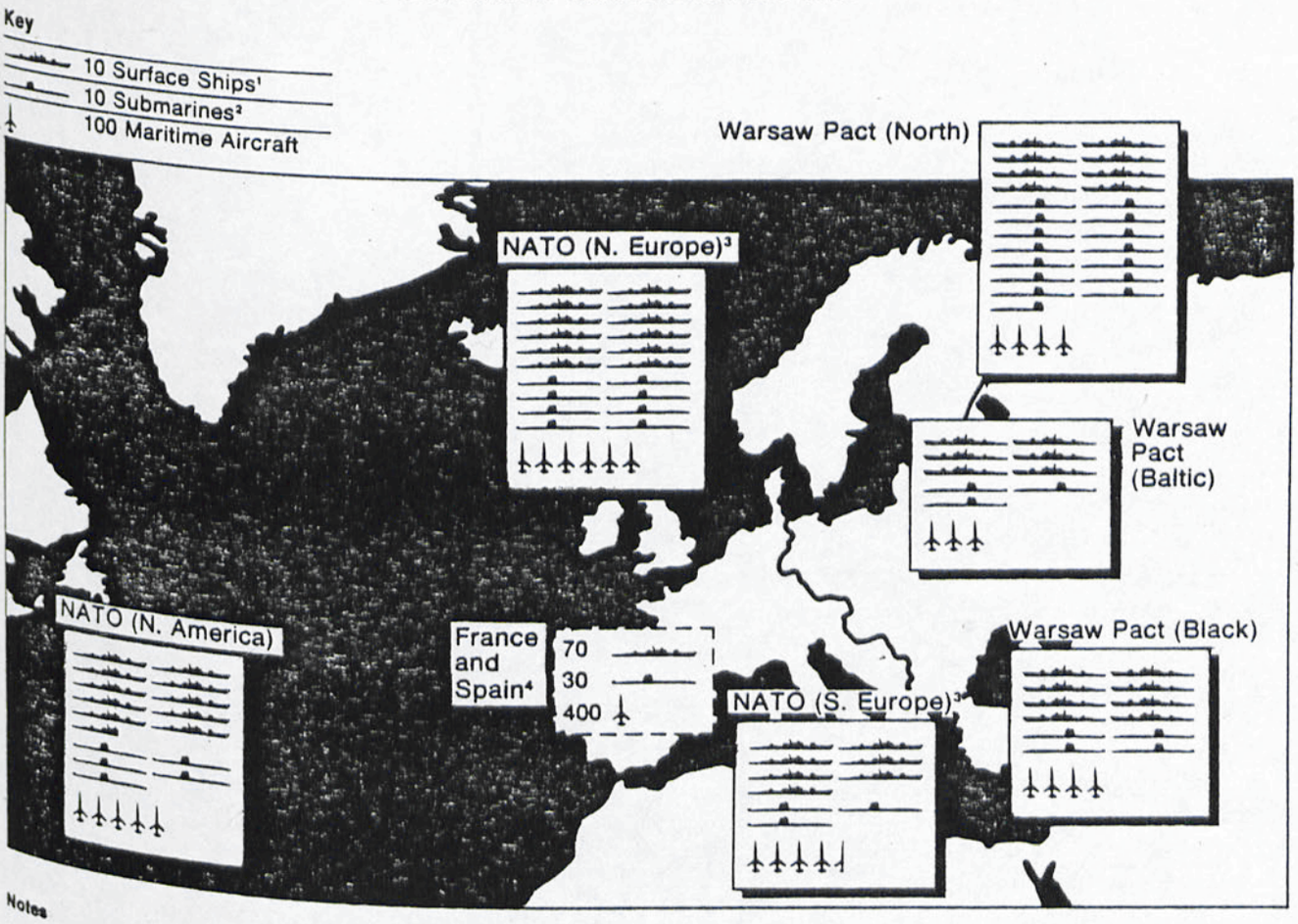
fighters with look-down/shoot-down weapon systems and beyond-visual-range air-to-air missiles. Ground-attack variants of Fulcrum and possibly Flanker will probably be developed. The airborne early warning system based on the Candid airframe is now coming into service and will boost the intercept capability of these aircraft. The specialist ground-attack aircraft Frogfoot is now deployed in limited numbers in the Soviet Union, Afghanistan and Czechoslovakia. This aircraft will complement the attack helicopter force in providing direct support for the Warsaw Pact ground forces.

12. NATO's land/air forces are being strengthened in a number of ways. The advanced Leopard II, Challenger and Abrams tanks are being introduced into service, displacing older tanks which will be added to the reserves to improve sustainability. Bradley infantry fighting vehicles and Saxon armoured personnel carriers are entering service, as are modern artillery pieces; existing armoured vehicles are being upgraded with night-sights and improved fire control systems. Anti-armour capability is being improved by the deployment of HOT, Milan and man-portable anti-tank rocket launchers. More combat aircraft will be introduced in 1985, predominantly of the advanced Tornado and F16 types. Air defences will be improved by the introduction of more tankers and AWACS, and survivability by additional ECM and other measures.

Maritime Forces

13. In last year's Statement we showed the balance of ready maritime forces in the Eastern Atlantic. This year, we extend our coverage to show in Figure 11 the principal naval forces of NATO and the Warsaw Pact normally located or based in the North Atlantic and the seas bordering Europe. Although

Figure 11 NATO and Warsaw Pact Naval Forces based in the NATO Area



Notes

[1]Principal Surface Combatants; frigates, destroyers, cruisers, aircraft carriers.

[2]Excludes SSBNs.

[3]Includes US Forces based in Europe.

[4]France and Spain are members of NATO, but do not participate in its integrated military structure. Their naval forces are divided between the Atlantic and the Mediterranean.

ships and submarines could be deployed anywhere in this area, the naval forces have been divided according to sea or fleet areas relating to home bases. On the NATO side, naval forces are shown separately for North America, Northern Europe and Southern Europe (including the United States 6th Fleet in the Mediterranean). Warsaw Pact forces are divided between the Baltic Sea and Black Sea Fleets, and the Northern Fleet - much the most important of the three.

14. It is not sensible to view the maritime balance in simple ship-against-ship terms because there are fundamental differences in the missions of the naval forces of NATO and the Warsaw Pact: NATO must, for example, ensure the passage of reinforcement and resupply shipping across the Atlantic to the Central Region and the flanks, a task which the Warsaw Pact has no need to emulate. Such differences influence the relative number and type of warships required, as well as their weapons and electronics fit. The largest single contribution to the NATO forces is that made by the United States, although it must be assumed that only limited US Navy forces would be available in the Eastern Atlantic at the outbreak of hostilities. European Navies, and in particular the Royal Navy, must therefore be ready to play a leading role in initial operations.

15. The Soviet Union is steadily enhancing its maritime capability through the construction of new surface warships and submarines. Three new classes of nuclear-powered attack submarines have appeared: Mike, Sierra, and Akula. They are larger than their predecessors and continue the trend towards large, fast units incorporating high technology, possibly with titanium hulls, which are stronger, weight for weight, than steel. Some eight different

types or classes of submarine are now under construction; and the Soviet Union is currently completing submarines at a rate of about one every five weeks. A second Oscar class submarine, carrying cruise missiles, has recently become operational, and further Kirov and Slava class cruisers and Udaloy and Sovremenny class destroyers are being constructed, as is a large aircraft carrier which is expected to be nuclear-powered.

16. It is vital for NATO to be able to deploy naval forces that are capable of countering Soviet developments and maintaining sea control in key areas. The United States is continuing its building programme towards a 600-ship Navy designed to achieve these objectives across three oceans. In 1985 the European members of the Alliance were planning to introduce over 20 new vessels, mainly escorts and destroyers, and to upgrade existing vessels with improved radars, sonars, ECM and communications.

Arms Production

17. The Soviet Union alone produces more armaments than all the NATO countries combined, and the output of the non-Soviet Warsaw Pact countries adds appreciably to the imbalance. The Warsaw Pact do not publish details of arms production, so it is not possible to provide precise and detailed information; but estimates published by the United States Department of Defense suggest that in virtually all categories of equipment Warsaw Pact production since 1974 has substantially exceeded that of NATO. Examples are set out in the following table:

Estimated Production of Selected Weapons for Warsaw Pact and NATO Forces, 1975-84

Category	Soviet Union	Non-Soviet WP	Total WP	Total NATO	Ratio WP: NATO
Tanks	22,000	3,500	25,500	10,990	2.3:1
Other Armoured Vehicles	46,000	8,600	54,600	18,230	3.0:1
Artillery, Mortars & Rocket Launchers	21,000	3,500	24,500	4,500	5.4:1
Tactical Aircraft	8,200	1,200	9,400	6,730	1.4:1
Attack Submarines	65	-	65	61	1.1:1
Major Surface Warships	90	17	107	192	0.6:1

(Source: US Secretary of Defense's Annual Report to Congress, for Fiscal Year 1986)

Chemical Weapons

18. The Soviet Union regards both chemical and nuclear systems as weapons of mass destruction whose use would be subject to the highest political control. Although they have expressed support for the control and abolition of chemical weapons, they have not slackened the build-up and maintenance of their ability to wage offensive chemical warfare. Research, development and production of chemical weapons is adding to their stockpile, which is currently estimated to include over 300,000 tons of nerve agents. Moreover, Soviet forces are comprehensively equipped and trained to operate in a chemically

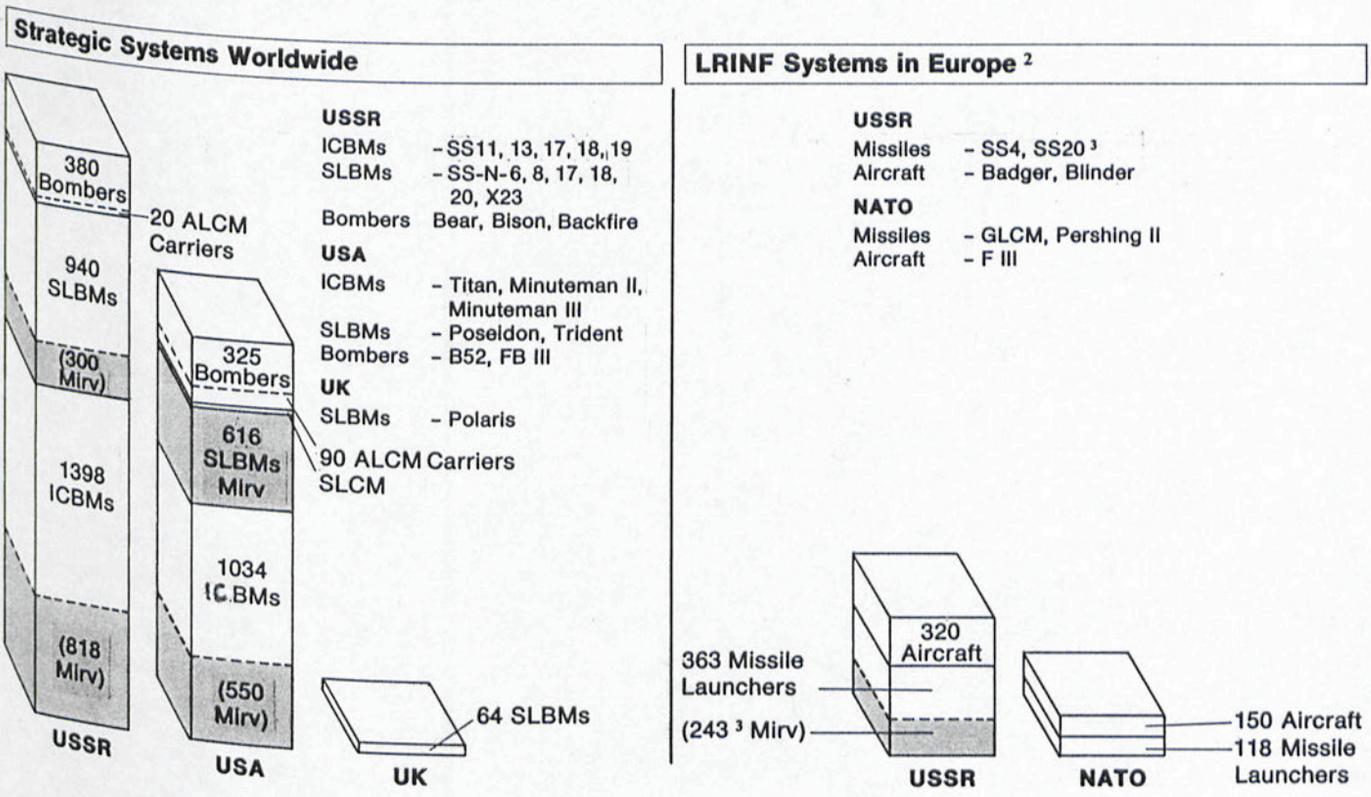
contaminated environment. Among NATO members, only the United States has chemical weapons; but she has produced none since 1969 and has only a limited and ageing retaliatory capability, which is not declared to NATO.

THE NUCLEAR BALANCE

19. The balance of nuclear forces is shown in Figures 12 and 13. The illustrations are based on simple numerical comparisons of nuclear delivery systems and therefore suffer from the limitations described in paragraphs 1 to 5 above. They do not take fully into account the number of warheads available for these systems: many strategic missiles can carry several warheads, which can be directed against different targets; aircraft can carry variable weapon loads; and most shorter-range missile launchers and artillery can be re-loaded. While Figure 12 does indicate the number of systems with multiple independently-targettable re-entry vehicles (MIRVs), warhead numbers cannot be compared in detail. In spite of such shortcomings this representation of the nuclear balance provides a useful broad picture.

20. Figure 12 shows nuclear-dedicated systems and covers strategic forces and longer-range intermediate nuclear forces (LRINF). Figure 13 shows shorter-range intermediate nuclear forces (SRINF) and short-range forces; on the NATO side, for comparison purposes only, it shows total numbers of systems of dual-capable types, even though a large proportion of such systems is assigned to conventional operations only and cannot be used in the nuclear role. The division into strategic, LRINF, SRINF and short-range forces is a useful aid if like is to be compared with like; there is plainly little sense in attaching the same weight to an intercontinental ballistic missile

Figure 12 The Balance of Nuclear-dedicated Forces[1] - end 1984



Notes

1 French systems are not included in this diagram. They comprise 64 SLBM, 18 S3 missiles and 36 Mirage IV Bombers. The diagram does not include defensive systems.

2 Includes land based systems in Europe from the Urals westward

3 See para 27 of Annex A. Each SS20 missile has three warheads.

Figure 13 **The Balance in Europe of Shorter-range Systems with Nuclear or Nuclear-capable Variants[1][2] – end 1984**

Note

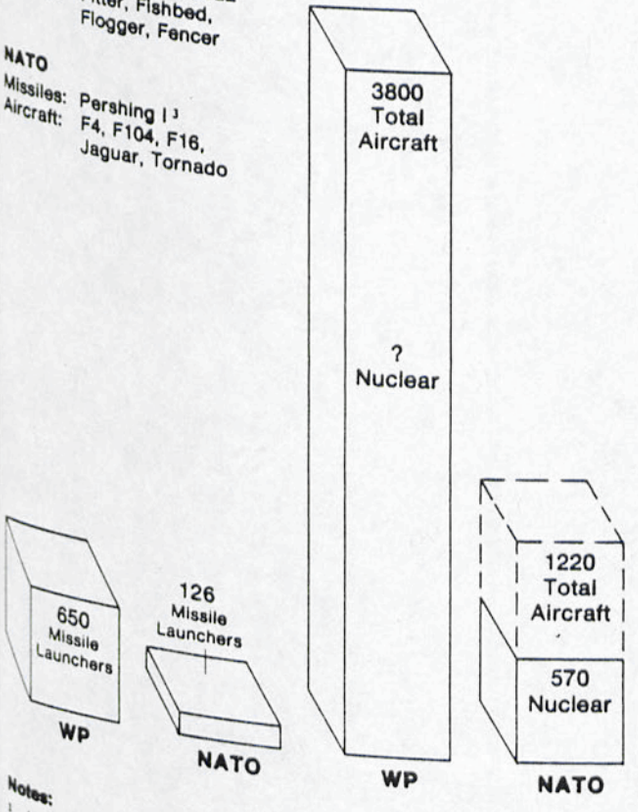
SRINF Systems. This diagram shows all aircraft of types known to have a nuclear-capable variant. On the NATO side, the number assigned to the nuclear role is indicated by the coloured part of the column. The other aircraft shown are not assigned to the nuclear role, and could not be so used. The Warsaw Pact does not disclose similar information about its own aircraft, and it is not possible to produce reliable estimates. All Warsaw Pact aircraft of types known to be nuclear-capable are therefore shown.

Short-Range Systems. This diagram shows all artillery pieces of types known to have a nuclear-capable variant. On the NATO side, the number available for the nuclear role is indicated by the coloured part of the column. Similar information is not available for Warsaw Pact systems.

SRINF Systems

Warsaw Pact
Missiles: Scud, Scaleboard/SS22
Aircraft: Fitter, Fishbed, Flogger, Fencer

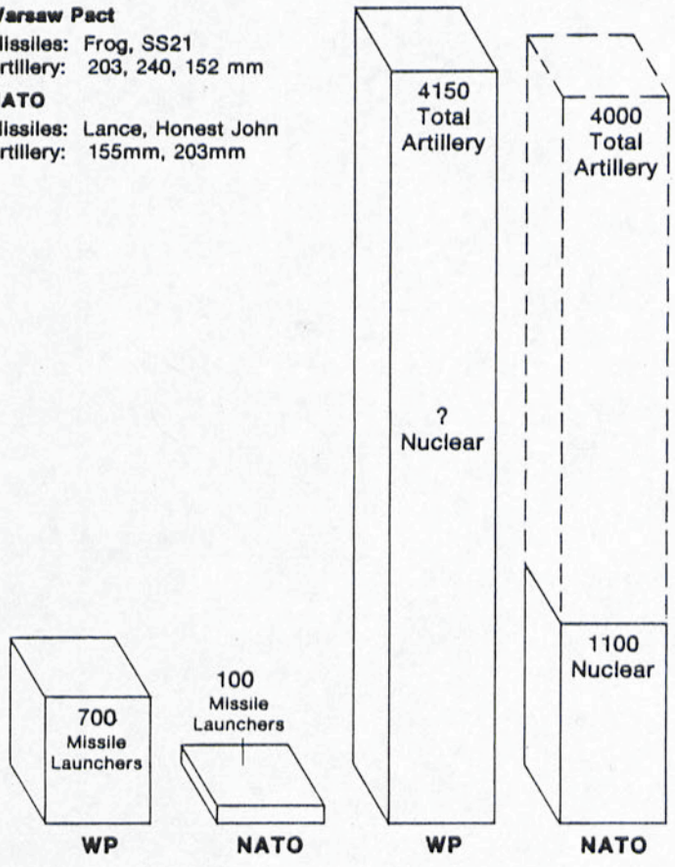
NATO
Missiles: Pershing I [3]
Aircraft: F4, F104, F16, Jaguar, Tornado



Short-Range Systems

Warsaw Pact
Missiles: Frog, SS21
Artillery: 203, 240, 152 mm

NATO
Missiles: Lance, Honest John
Artillery: 155mm, 203mm



Notes:

1. Includes land based systems in Europe from the Urals westward
2. French systems are not included in this diagram. They comprise Mirage IIIE and Jaguar aircraft and Pluton missiles. The diagram does not include maritime systems
3. The Pershing I missile is a nuclear dedicated system but its range puts it in the category of SRINF systems

as to a short-range howitzer. Where possible, the categories are based on the criteria used in arms control discussions. They are by no means definitive: the Soviet Union generally uses different terminology; the role of the system could sometimes be more important than its range; many systems could be used at ranges well below maximum; and assessing aircraft range is particularly difficult because it depends on flight profile, weapon load, and whether the aircraft can be refuelled. Furthermore, new systems such as cruise missiles may straddle the divisions.

Strategic Forces

21. Strategic forces are generally regarded as those with an intercontinental reach and include systems of types specified in SALT II and proposed by the United States for coverage in the START negotiations. The Backfire and FB111 bombers, although not covered by SALT, are included because if refuelled both would have an intercontinental range. Although the FB111 does have a strategic mission, the Soviet Union claims that the Backfire is not intended for intercontinental missions. Air- and sea-launched cruise missiles are also included because their launch platform may give them the potential for intercontinental strike; the ground-launched cruise missile, on the other hand, does not have an intercontinental range and is therefore shown with LRINF forces.

22. Over the past fifteen years, the Soviet Union has been improving and modernising its strategic forces to a much greater extent than the United States, and its weapon systems are therefore generally much newer. While the United States still retains a slight advantage in overall warhead numbers

when aircraft-delivered weapons are included (approximately 10,000 to 10,500 against 9,000 to 10,000), the Soviet Union has more delivery systems. It also has many more warheads on missiles and has about three times as much missile throw-weight - about 5.6 million kilograms compared with the United States' 1.8 million kilograms. Two new Soviet intercontinental ballistic missiles (ICBMs), the SS-X-24 and the SS-X-25, are in an advanced stage of development; both could be deployed on mobile launchers. The third Typhoon submarine, which carries 20 SS-N-20 submarine-launched ballistic missiles (SLBMs) with MIRVs, has been undergoing sea trials, and at least three or four more are expected; another SLBM, the SS-NX-23, is also on sea trials. The new strategic bomber, the Blackjack, is still under development and could become operational later in the decade as an air-launched cruise missile (ALCM) carrier. An entirely new variant of the Bear bomber is now in production, designed to carry cruise missiles, and the first squadron, carrying the AS-15 ALCM, began operational deployment at the end of 1984. Other Soviet cruise missiles under development are the sea-launched SS-NX-21, which is small enough to be fired from torpedo tubes, and the ground-launched SSC-X-4. Both of these could be deployed within the year. All three cruise missiles are similar in concept to the US Tomahawk, and have ranges of up to 3,000 km. A larger cruise missile is under development and may be produced in ground and sea versions.

23. In the light of continuing Soviet improvements, the United States has begun its own strategic force modernisation programme. Initial deployment of MX ICBMs each with ten warheads is scheduled to begin in 1986 in existing Minuteman silos, and design work is in hand on a small mobile ICBM for deployment in the 1990s. Ohio class submarines, each with 24 Trident I (C4) missiles,

are being deployed at the rate of about one a year and the Trident II (D5) missile is under development. ALCMs have now been deployed on B52G bombers, and B52Hs are being modified to carry them; the B1 bomber, whose development is well advanced, is expected to enter service in 1986. In the longer term the United States is planning to develop an Advanced Technology Bomber and an advanced cruise missile. The first of the nuclear-armed sea-launched cruise missiles (SLCM) were deployed during 1984.

Defence Against Ballistic Missiles

24. The Soviet Union maintains around Moscow the world's only Anti-Ballistic Missile (ABM) system. Since 1980 a programme to improve this system has been under way. The original force of 64 launchers is being increased to the 100 allowed under the ABM treaty; a new generation of interceptors is being introduced which will provide a two-layer defence system; and the existing radar system is being supplemented. The Soviet Union has also since the late 1960s been pursuing an extensive programme in advanced technologies, including various lasers and neutral particle beams which could be relevant to ballistic missile defence both on the ground and in space. Many of the technologies being explored by the USSR are similar to those the United States is researching in its Strategic Defence Initiative (SDI) programme.

25. In March 1983, President Reagan announced a long-term research programme, known as the SDI, to investigate the possibility of providing an effective defence against ballistic missiles. This is exploring recent advances in technology and includes research into directed energy weapons, conventional weapons and surveillance and target acquisition systems.

Longer-Range Intermediate Nuclear Forces (LRINF)

26. These were the main systems under discussion in the intermediate nuclear forces (INF) negotiations. INF include all systems that fall between short-range and strategic forces, and can be sub-divided between longer-range and shorter-range systems. The latter have a maximum range of about 1,000 km, the distance of Western Europe from the Soviet Union.

27. NATO's deployment of Pershing II missiles and ground-launched cruise missiles (GLCM) is proceeding on schedule. Three flights of GLCM are now deployed in the United Kingdom. The Soviet Union has withdrawn some of its older, single-warhead SS4 missiles, but the rate of construction of new SS20 bases during 1984 was unprecedentedly high: at least ten new bases (sufficient for 90 missiles) are currently being prepared. This construction programme will more than offset the conversion of some central SS20 bases for other purposes, probably the new SS-X-25 ICBM; but meanwhile the number of SS20s at operational bases is fluctuating as a result of the programme of conversions and deployments. When deployed, Soviet GLCMs will add to the Warsaw Pact advantage in intermediate systems.

28. The numbers of LRINF, SRINF and short-range forces shown include only land-based systems in Europe West of the Urals. They exclude systems based outside Europe, such as SS20s in the Eastern USSR, and aircraft with a primary maritime mission, such as those of the Soviet naval air forces and those of NATO air forces with an anti-ship capability. In addition, both NATO and the Warsaw Pact have sea-based nuclear systems. On the NATO side these include the Terrier surface-to-air missile, the ASROC and SUBROC anti-submarine

missiles, and air-delivered bombs. The A6 and A7 aircraft aboard United States aircraft carriers are capable of delivering nuclear weapons against targets ashore, although this is not their primary mission and at any one time only a portion would be in range of land targets. The Warsaw Pact has SS-N-3, SS-N-7, SS-N-12 and SS-N-19 varieties of anti-ship cruise missiles, anti-submarine nuclear depth bombs and surface-to-air missiles as well as a small number of SS-N-5 non-strategic ballistic missiles on board submarines.

Shorter-Range Intermediate Nuclear Forces (SRINF)

29. While NATO has been withdrawing Pershing I missiles as Pershing II are deployed, the Soviet Union has been deploying a more accurate version of the Scaleboard missile, known as the SS22, and has probably moved about 50 of them forward into East Germany and Czechoslovakia. An improved version of the Scud, the SS23, has also been developed. NATO has been modernising its air forces by the introduction of Tornado and F16 to replace the older F104 and F4, while the introduction of new high-performance, dual-capable Soviet aircraft such as Flogger and Fencer has continued. A comparison of SRINF aircraft is, however, difficult to make. These aircraft can all be used for either nuclear or conventional operations, and Figure 13 shows the total numbers of such aircraft on both sides. The Warsaw Pact does not disclose how many of its aircraft are assigned for nuclear operations. We have therefore assumed a worst case and included all Warsaw Pact shorter-range aircraft of types assessed as being nuclear-capable. On the NATO side, the number assigned to the nuclear role, 570, is indicated by the coloured part of the column; the other aircraft shown, an additional 650, are of similar types but are assigned for conventional use and could not be used

in the nuclear role. These additional aircraft have been included for comparative purposes with the Warsaw Pact figure: even with their inclusion, the Warsaw Pact still has a marked advantage.

Short-Range Nuclear Forces

30. Short-range nuclear forces are artillery and missiles with a range of less than about 150 km. They are sometimes known as "battlefield" weapons.

31. The Soviet Union continues to replace older Frog missiles in Eastern Europe with the much more capable SS21, of which there are now more than 50 in East Germany. They are also being deployed in Czechoslovakia. Soviet artillery is being improved and more weapons are being deployed, particularly in the forward area, but as with tactical aircraft there are problems in producing a comparison. Artillery systems may also be dual-capable, and although NATO assigns a certain number for nuclear operations it is not possible to determine how many Soviet systems could be used in the nuclear role. The figures for Soviet artillery therefore include all 1150 203mm and 240mm pieces and newer versions of the 152mm artillery system, all of which could fire nuclear shells, and in addition include about 3,000 older 152mm guns, some of which may also have a nuclear capability. On the NATO side all 155mm and 203mm artillery which could be used in nuclear operations are shown in Figure 13 along with, for comparison purposes only, another 3,000 pieces of the same types that are not currently nuclear-capable.

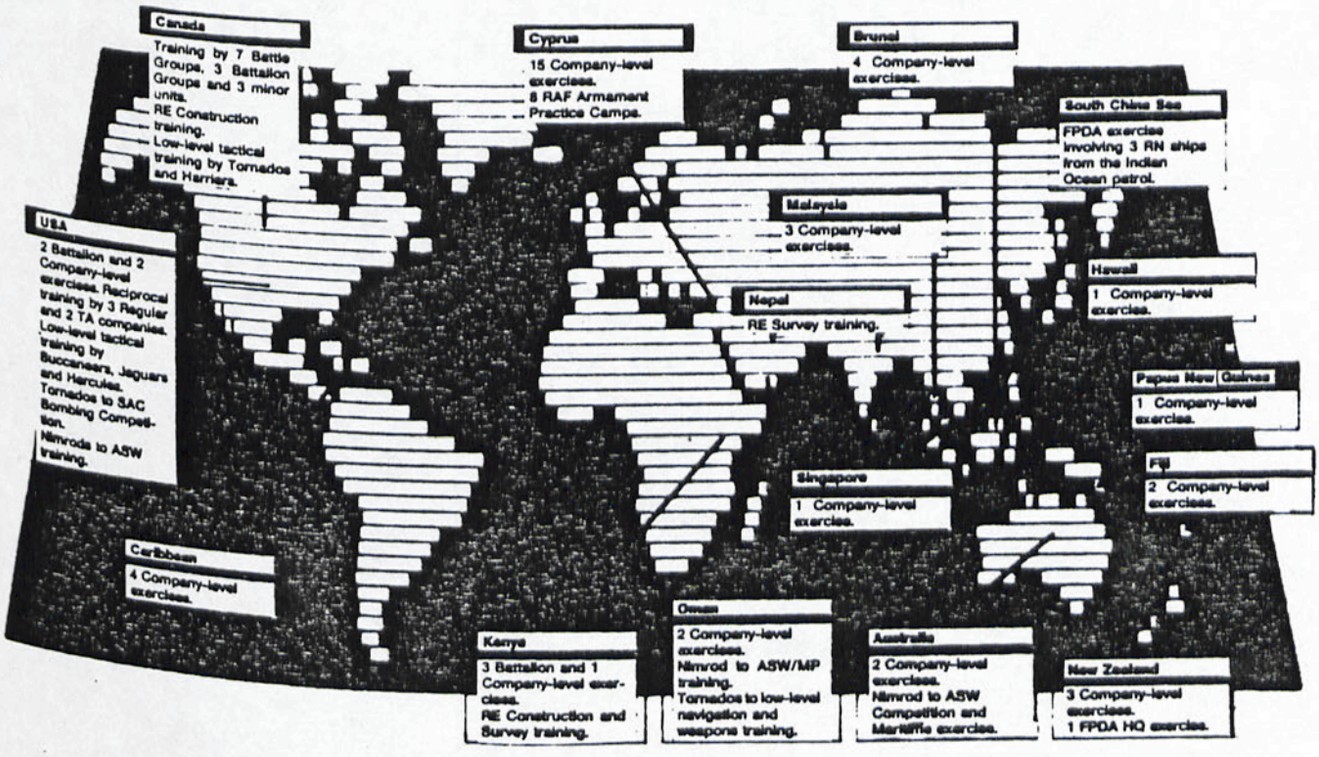
Annex B

Exercises

1. The armed forces took part in an extensive programme of varied training activities both within and outside the NATO area in 1984. The training programme included purely national exercises as well as those in conjunction with our NATO allies and with other friendly countries. Exercises conducted outside the NATO area are shown in Figure 14.

2. The major United Kingdom exercise conducted in the NATO area in 1984 was LIONHEART in September, in which our aim was to mount the largest ever reinforcement of our forces in the Central Region. This exercise is discussed in detail on page[ ]. Earlier in the year, the United Kingdom contingent of the Allied Command Europe Mobile Force (AMF), comprising over 2,000 troops and two RAF squadrons, deployed to North Norway for AVALANCHE EXPRESS: this AMF land and air exercise, which involved troops from eight other NATO nations, was also supported by the United Kingdom/Netherlands Landing Force. A large Royal Navy force (34 ships) and RAF Nimrod aircraft played a significant part in TEAMWORK 84, a NATO-wide maritime and amphibious exercise, and our air defence forces took part in ELDER FOREST, a concurrent SACEUR-sponsored air defence exercise. In OPEN GATE and DISTANT HAMMER the United Kingdom provided a strong Royal Navy presence supported by Nimrod aircraft, and this was repeated later in the year for DISPLAY DETERMINATION, another NATO maritime and amphibious exercise held in the Mediterranean. BOLD GANNET, in September, was a major joint NATO maritime, amphibious and field training exercise, held on and around the Zealand group of islands, in which there was a large

14 **Exercises Outside Europe in 1984**



United Kingdom involvement with the UK/NL Force, UK Mobile Force, and RAF offensive support and helicopter squadrons.

3. Many national exercises of a varied nature were mounted throughout the year. The annual Royal Navy fleet exercise, AUTUMN TRAIN, was conducted in the Eastern Atlantic in October and involved a total of 13 vessels, including the two aircraft carriers, HMS Invincible and HMS Illustrious. RAF Tornado aircraft practised low-level tactical flying in Canada, making full use of the large expanses of unpopulated territory and the relatively free airspace unavailable in this country, and Jaguars and Hercules took part in similar, specialist training in the USA. Joint Maritime Courses provided intensive operational training for United Kingdom and NATO ships and aircraft.

4. During the year, the RAF gained success in two major international competitions. Six Tornado aircraft supported by three Victor tankers competed in the annual United States Air Force (USAF) Strategic Air Command Bombing competition against USAF B52s and F111s from both the USAF and the Royal Australian Air Force. Various missions were flown, involving both simulated and live weapon releases, evasion of electronic warfare threats and in-flight refuelling, and the RAF crews gained two first places, two seconds and one third in the three trophy events. As this was a competition run by the USAF with rules designed for American aircraft using American techniques, these results reflect great credit, not only on the RAF and the crews concerned, but also on the operational effectiveness of Tornado. Later in the year, in Australia, a Nimrod aircraft took first place in the annual anti-submarine warfare competition contested between Australia, Canada, New Zealand and the United Kingdom. The Nimrod remained in the area to participate in an Australian

national maritime exercise, SAND GROPER. Other RAF deployments included a Nimrod and four Tornado aircraft to exercises in Oman. In other regions, forces from our garrison in Hong Kong joined with Army units from the other partner nations for the 1984 Five Power Defence Arrangement (FPDA) land exercise, SOUTHERN SAFARI, held in New Zealand; and a company from United Kingdom Land Forces participated in the US exercise, GALLANT EAGLE, in California. The major Five Power Defence Arrangements maritime exercise, STARFISH, took place in the South China Sea during the summer; the Royal Navy was represented by a frigate from the Indian Ocean patrol and two patrol craft from Hong Kong.

Annex C

Strength of the Fleet

Table 1. Ships of the Royal Navy

Serial	Type/Class	No	Operational or engaged in preparing for service or trials or training	No	Undergoing refit or on standby etc
1	Submarines				
	Polaris	3	Resolution, Renown, Revenge	1	Repulse
	Fleet	12	Valiant, Warspite, Churchill, Conqueror, Sovereign, Swiftsure, Sceptre, Spartan, Splendid, Trafalgar, Turbulent, Tireless*	2	Courageous Superb
	Oberon Class	8	Orpheus, Oberon, Oracle, Osiris, Opossum, Opportune, Olympus, Ocelot	5	Onyx, Onslaught, Otus, Otter, Odin
	Porpoise Class	2	Sealion, Walrus		
2	ASW Carriers	3	Invincible, Illustrious, Ark Royal*		
3	ASW/Commando Carrier				
4				1	Hermes +
	Assault Ships				
5		2	Fearless+, Intrepid		
	Guided Missile Destroyers				
	County	2	Fife, Glamorgan		
	Type 82			1	Bristol
	Type 42	12	Birmingham, Cardiff, Newcastle, Glasgow, Exeter, Southampton, Nottingham, Liverpool, Manchester, York, Gloucester* Edinburgh*		

Serial	Type/Class	No	Operational or engaged in preparing for service or trials or training	No	Undergoing refit or on standby etc
6	Frigates				
	Type 22	7	Broadsword, Battleaxe, Brillant, Brazen, Boxer, Beaver, Brave*		
	Type 21	5	Amazon, Arrow, Alacrity, Avenger, Active	1	Ambuscade
	Leander Class	18	Leander, Ajax, Galatea, Naiad, Arethusa, Cleopatra, Phoebe, Argonaut, Minerva, Danae, Penelope, Andromeda, Charybdis, Hermione, Jupiter, Scylla, Achilles, Diomede	5	Euryalus, Sirius, Ariadne, Apollo, Aurora
	Rothesay Class	4	Plymouth, Yarmouth, Berwick, Rothesay		
	Navigation Training Ship	1	Juno+		
7	Offshore Patrol				
	Castle Class	2	Dumbarton Castle, Leeds Castle		
	Island Class	6	Alderney, Guernsey, Jersey, Lindisfarne, Orkney, Shetland	1	Anglesey
8	MCMVs				
	Minesweepers Ton Class	7	Alfriston, Bickington, Crichton, Hodgeston, Stubbington, Walkerton, Soberton	2	Cuxton, Upton
	River Class	11	Waveney, Carron, Dovey, Helford*, Humber, Blackwater*, Itchen*, Helmsdale*, Orwell*, Ribble*, Spey*		

Serial	Type/Class	No	Operational or engaged in preparing for service or trials or training	No	Undergoing refit or on standby etc
8 Cont	Minehunters				
	Ton Class	13	Bildeston, Brereton, Brinton, Gavinton, Hubberston, Iveston, Keddleston, Kellington, Kirkliston, Maxton, Nurton, Sheraton, Wilton	2	Bossington, Bronington
	Hunt Class	10	Brecon, Brocklesby, Cattistock, Cottesmore, Dulverton, Ledbury, Middleton, Chiddingfold, Hurworth*, Bicester*		
9	Patrol Craft				
	Bird Class	4	Cygnet, Peterel +, Sandpiper +, Kingfisher	1	Sea Otter
	Loyal Class	2	Alert, Vigilant		
	Coastal Training Craft	15	Attacker+, Fencer+, Hunter+, Chaser+, Striker+, Archer+*, Biter+*, Smiter+*, Pursuer+*, Trumpeter+*, Blazer+*, Dasher+*, Puncher+*, Charger+* Ranger+*		
	Coastal Patrol Craft	2	Monkton, Wolverton		
	Peacock Class	5	Peacock, Plover, Starling, Swallow, Swift		
	Falkland Islands Patrol Vessels	3	Protector, Guardian, Sentinel		
10	Support Ships				
	Submarine Tender			1	Wakeful
	MCM Support Ship	1	Abdiel		

Serial	Type/Class	No	Operational or engaged in preparing for service or trials or training	No	Undergoing refit or on standby etc
	Seabed Operations Vessel	1	Challenger		
11	Royal Yacht/ Hospital Ship	1	Britannia		
12	Training Ships				
	Fleet Tenders	4	Manly+, Mentor+, Messina, Milbrook		
13	Ice Patrol Ship	1	Endurance		
14	Survey Ships	8	Beagle, Bulldog, Fawn, Fox, Hecate, Herald, Hydra, Gleaner	1	Hecla

Note

(i) All ships in serials 1-7 are assigned to NATO, or will be so assigned on becoming operational. Ships in remaining serials could be made available in support of NATO operations if national requirements permit.

(ii) This table includes ships due for completion or disposal during the course of 1985-86; the numbers of each type are not, therefore, an accurate indication of the ships available at any one time. Ships solely engaged in harbour training duties are not included.

(iii) Ships marked * were under construction on 1 April 1985 and are planned to enter service during 1985-86.

(iv) Ships marked + are engaged partly on trials or training.

(v) Ships approved during 1984-85 for disposal:

Antrim, Lowestoft, Falmouth, Torquay, Lewiston, Pollington, Shavington, Wotton, Wasperton, Yarnton, Waterwitch, Woodlark, Echo, Enterprise, Egeria, Beachampton, and the hovercraft BH7.

Table 2. Ships of the Royal Fleet Auxiliary - Strength at 1 April 1985

Serial	Type/Class	No	Operational or engaged in preparing for service or trials or training	No	Undergoing refit or on standby etc
1	Fleet Tankers Large	3	Olwen, Olna, Tidespring	1	Olmeda
2	Fleet Tankers Small	5	Black Rover, Blue Rover, Gold Rover, Green Rover, Grey Rover	-	
3	Support Tankers	5	Appleleaf, Bayleaf, Brambleleaf, Pearleaf, Plumleaf (i)	-	
4	Fleet Replenishment Ships	3	Resource, Regent, Fort Grange	1	Fort Austin
5	Helicopter Support and Supply Ship	1	Reliant	-	
6	Helicopter Support Ship	1	Engadine (ii)		
7	Landing Ship Logistic	5	Sir Bedivere, Sir Percivale, Sir Geraint, Sir Lamorak, Sir Caradoc (iii)	2	Sir Lancelot, Sir Tristram
8	Forward Repair Ship	1	Diligence		

Notes

(i) RFA Pearleaf, whose charter ends in March 1986, will be replaced by RFA Orangeleaf (ex MV Balder London) on completion of her conversion to full support tanker configuration.

(ii) RFA Engadine is engaged in training.

(iii) Sir Caradoc and Sir Lamorak are interim replacements for Sir Tristram and Sir Galahad.

Table 3. Royal Marines Commando Forces

Serial	Type	No
1	Headquarters	
	Commando Brigade Headquarters RM	1
2	Commandos	
	RM Commandos	3
3	Artillery	
	Commando Regiment RA	1
	Commando Battery RA (Volunteer)	1
4	Engineers	
	Commando Squadron RE	1
	Commando Squadron RE (Volunteer)	1
5	Light Helicopter Support	
	Brigade Air Squadron RM	1
6	Logistics Units	
	Commando Logistic Regiment RM	1
7	Special Boat Squadron	
	Squadron RM	1
8	Assault Squadrons	3

Table 4. Naval Aircraft

Serial	Role	Aircraft	Squadron No.
1	Air Defence/Attack	Sea Harrier FRS1	800 801 899
2	Anti Submarine	Sea King Mk 2/5	810 814 819 820 824 826 706
		Wasp	829(ii)
3	Anti Submarine /Anti Ship	Lynx Mk 2/3	815(ii) 702
4	Airborne Early Warning	Sea King Mk 2(AEW)	849(ii)
5	Commando Assault	Sea King Mk 4 Sea King Mk 4/ Wessex Mk 5 Wessex Mk 5	846 707 845
6	Aircrew Training	Gazelle Mk 2 Jetstream Mk 2/3	705 750
7	Fleet Support/Search and Rescue	Wessex Mk 5	771 772(ii)
8	Fleet Support	Hunter Canberra	-

Notes

(i) All the above aircraft are declared to NATO.
(ii) Aircraft in these squadrons are deployed in flights of single and multiple aircraft.

ANNEX D

Strength of the Army

Major Combat Headquarters and Combat Arm Numbers (i)

	Regular Army				TA
	BAOR	Berlin	UK	Elsewhere	UK
Headquarters					
Corps Headquarters	1				
Armoured Divisional Headquarters	3				
Infantry Divisional Headquarters			1		
Brigade Headquarters	8	1	16		
Field Force Headquarters				1(ii)	
Armour					
Armoured Regiments	11		3(iii)		
Armoured Reconnaissance Regiments	2		3		5(iv)
Artillery (v)					
Field Regiments (incl one Commando Regt in UK)	8		6		2
Heavy Regiments	1				
Missile Regiments	1				
Depth Fire Regiments (incl locating capability)	2				
Air Defence Regiments	2		1		3
Locating Regiments			1		

	Regular Army				TA
	BAOR	Berlin	UK	Elsewhere	UK
Engineers					
Engineer Regiments	5		5	1(vi)	7
Armoured Engineer Regiments	1				
Amphibious Engineer Regiments	1				
Infantry					
Battalions	13	3	31	3	35
Gurkha Battalions			1	5	
Special Air Service					
Regiments			1		2
Army Air Corps (vii)					
Regiments	3		1		
Honourable Artillery Company					
Regiments					1

Notes

(i) Normal deployment locations as at 1 April 1985 are shown; no account is taken of temporary or emergency deployments.

(ii) Gurkha Field Force.

(iii) Includes two training regiments at Bovington and Catterick.

(iv) Two armoured reconnaissance regiments and three light reconnaissance regiments.

(v) Artillery unit equipments consist of:

Field Regiments - depending on role, 105mm light guns, 105mm self-propelled (SP) guns, 155mm FH70 towed howitzers and 155mm SP guns;

Heavy Regiments - 8 inch howitzers;

Missile Regiment - Lance;

Depth Fire Regiments - 175mm self-propelled guns;

Air Defence Regiments - Rapier and Blowpipe/Javelin.

(vi) Queen's Gurkha Engineer Regiment.

(vii) Aircraft types are: Beaver, Alouette, Scout, Lynx, Gazelle.

A .x E

Strength of the Royal Air Force

Front line units (i)

Ser	Role	Aircraft or Equipment	UK	RAF Germany
1	Strike/ Attack	Tornado GR1	9 Squadron 27 Squadron 617 Squadron	15 Squadron 16 Squadron 17 Squadron 20 Squadron 31 Squadron
		Buccaneer	12 Squadron 208 Squadron	
		Jaguar		14 Squadron
2	Offensive Support	Harrier	1 Squadron	3 Squadron 4 Squadron(v)
		Jaguar	6 Squadron 54 Squadron	
3	Maritime Patrol	Nimrod MR	42 Squadron 120 Squadron 201 Squadron 206 Squadron	
4	Reconnaissance	Canberra PR9	1 PRU(ii)	
5	Air Defence	Jaguar	41 Squadron	2 Squadron
		Lightning	5 Squadron(iii) 11 Squadron(iii)	
		Phantom FG1	43 Squadron 111 Squadron(iii)	
		Phantom FGR2	29 Squadron 56 Squadron(iii)	19 Squadron(iii) 92 Squadron(iii)
		Phantom F4J	74 Squadron(iii)	
		Bloodhound	25 Squadron(iii) 85 Squadron(iii)	
		Rapier	27 Squadron RAF Regiment(iii) 48 Squadron RAF Regiment(iii)	16 Squadron RAF Regiment(iii) 26 Squadron RAF Regiment(iii)

Ser	Role	Aircraft or Equipment	UK	RAF Germany
5 Contd				37 Squadron RAF Regiment(iii) 63 Squadron RAF Regiment(iii)
6	Airborne Early Warning	Shackleton	8 Squadron	
7	Air Transport	VC 10	10 Squadron	
		Hercules	24 Squadron 30 Squadron 47 Squadron 70 Squadron	
		HS125/Andover	32 Squadron	
		Chinook Helicopters	7 Squadron	18 Squadron
		Wessex Helicopters	72 Squadron	
		Puma Helicopters	33 Squadron	230 Squadron
8	Tankers	Victor K2	55 Squadron 57 Squadron	
		VC10K	101 Squadron	
9	Search and Rescue	Sea King Helicopters	202 Squadron	
		Wessex Helicopters	22 Squadron	
10	Ground Defence	Light Armour/ Infantry Weapons	2 Light Armour Squadron RAF Regiment 15 Light Armour Squadron RAF Regiment 51 Light Armour Squadron RAF Regiment 58 Light Armour Squadron RAF Regiment 2503(County of Lincoln) Field Squadron R Aux AF Regiment(iv) 2620(County of Norfolk)Field Squadron R Aux AF Regiment(iv) 2622(Highland) Field	1 Squadron RAF Regiment

Ser	Role	Aircraft or Equipment	UK	RAF Germany
10 Contd			Squadron R Aux AF Regiment 2623(East Anglian) Field Squadron R Aux AF Regiment 2624(County of Oxford) Field Squadron R Aux AF Regiment 2625(County of Cornwall) Field Squadron R Aux AF Regiment	

Notes

(i) This table shows normal deployment locations as at 1 April 1985. All front-line aircraft, together with certain training and communications aircraft, are assigned to NATO or could be made available in support of NATO operations. Additionally at 1 April 1985 normal deployment outside the NATO area was as follows:

a. Falkland Islands. Phantoms, Harriers, Hercules, Chinook helicopters, Sea King helicopters and Rapier. Victor and Hercules aircraft are also deployed to Ascension Island for the Falklands airbridge.

b. Cyprus. One squadron of Wessex helicopters and one RAF Regiment squadron.

c. Hong Kong. One squadron of Wessex helicopters.

d. Belize. One flight of Harriers, one of Puma helicopters and a half squadron of RAF Regiment.

(ii) PRU - Photo Reconnaissance Unit.

(iii) These are forces under NATO command.

(iv) R Aux AF - Royal Auxiliary Air Force.

(v) Also has Reconnaissance role.

Annex F

Aircraft Accidents

Accidents involving loss or serious damage to aircraft of the three Services
1 January 1984 to 31 December 1984

Date	Aircraft	Parent Service	Service Casualties		Civilian Casualties	
			Killed	Serious Injury	Killed	Serious Injury
5 Jan	Lynx	Army	2			
6 Feb	Tornado	RAF		2		
7 Feb	Jaguar	RAF	1			
16 Mar	Sea Harrier	RN				
21 Mar	Hawk	RAF		1		
13 Apr	Wasp	RN				
11 May	Jet Provost	RAF				
20 May	Buccaneer	RAF	2			
3 Jun	Harrier	RAF		1	1	
3 Jun	Nimrod	RAF		1		
22 Jun	Gazelle	Army	1			
12 Jul	Tornado	RAF)(i)				
12 Jul	Jaguar	RAF)				
13 Jul	Lightning	RAF	1			
18 Jul	Tornado	RAF		1		
15 Aug	Jet Provost	RAF				
22 Aug	Jaguar	RAF		1		
31 Aug	Hawk	RAF				
25 Oct	Hawk	RAF		1		
31 Oct	Hunter	RN			1(ii)	

Date	Aircraft	Parent Service	Service Casualties		Civilian Casualties	
			Killed	Serious Injury	Killed	Serious Injury
7 Nov	Hawk	RAF				
8 Nov	Tornado	RAF		1		
8 Nov	Lightning	RAF				
14 Nov	Chinook	RAF		2		
29 Nov	Harrier	RAF		1		
1 Dec	Sea Harrier	RN		1		
3 Dec	Wessex	RN	1			

Notes
(i) Mid-Air Collision
(ii) Civilian Pilot

ANNEX G

Defence Industry

UK-based MOD contractors paid £5M or more by MOD for equipment in 1983-84

Over £100 million

British Aerospace plc (Aircraft)
British Aerospace plc (Dynamics)
British Shipbuilders
Ferranti plc
The General Electric Co plc
The Plessey Co Ltd
Racal Electronics plc
Rolls Royce Ltd
Royal Ordnance Factories
Thorn-EMI plc
Westland plc

£50-100 million

Austin Rover Group Ltd
Dowty Group plc
Hunting Associated Industries plc
Philips Electronic & Associated Industries Ltd

£25-50 million

General Motors Ltd
Lucas Industries plc
Marshall of Cambridge (Engineering) Ltd
Pilkington Bros plc
Short Bros Ltd
Smiths Industries plc
United Scientific Holdings plc
Vickers plc

£10-25 million

Acrow plc
British Electric Traction Co plc
BTR plc
Cable & Wireless plc
Cossor Electronics Ltd
Cambridge Electronic Industries plc
Dunlop Holdings plc
Flight Refuelling (Holdings) plc
Guest Keen and Nettlefolds plc
Harland & Wolff Ltd
Hawker Siddeley Group plc
ICL plc
ITM Offshore
Northern Engineering Industries plc
Oerlikon Buerle Holdings Ltd
Remploy Ltd
Singer Co (UK) Ltd
STC plc
The Throgmorton Trust plc
UKAEA
The Weir Group Ltd

£5-10 million

BICC plc
B Thompson Ltd
Englehard Industries Ltd
Ferguson Industrial Holdings plc
Goodyear Tyre & Rubber Co
Gresham Lion plc
Louis Newmark plc
MacTaggart Scott (Holdings) Ltd
Portsmouth Aviation Ltd
Rank Organisation plc
RCA Ltd
RFD Ltd
Saft (UK) Ltd
Schlumberger Measurement & Control Ltd
S Pearson & Son plc
Siemens Ltd
Systems Designers International plc
Thomas Tilling plc
Vantona Group plc
Western Scientific Instruments Ltd
Wilkinson Sword Group Ltd
Yarrow plc

Note

Within each financial bracket, contractors are listed in alphabetical order.