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THE TRIDENT PROGRAMME

by
David Greenwood

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David Greenwood

Centre for Defence Studies
Edward Wright Building
Dunbar Street
ABERDEEN AB9 2TY
Scotland

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If my mother-in-law is to be believed, her late husband had a standard response to any proposal she might make for a major addition to her wardrobe. It was very simple.

> 'If you want it, and it suits you, and you can pay for it, you can have it!'

Doubtless the obligation to test any envisaged acquisition against these criteria made an important contribution to sound household management.

Likening the procurement of an up-to-date strategic nuclear force to the purchase of a new outfit for a not-so-young lady may appear frivolous. In fact it is not. Indeed, as Parliament and public in the United Kingdom reflect on the decision of Prime Minister Margaret Thatcher and her Ministers to buy Trident II missiles from the United States, develop a British warhead for them and build four huge nuclear-powered ballistic missile submarines (SSBNs) to take them to sea, the questions which should be put are exactly those which my father-in-law used to ask. Do we actually want (or need) this item? Is a force of the shape and size proposed suitable for a

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David GREENWOOD is Reader in Higher Defence Studies at the University of ABERDEEN, Scotland and Director of the University's Centre for Defence Studies. For their help in preparing this study he wishes to thank Peter FOOT and others with whom he had useful discussions while working on his manuscript; and Margaret McROBB, who produced the final typescript.

power of moderate stature? Can we really bear the expense - whatever that might turn out to be - given the economic circumstances and the strength of competing claims on scarce resources.

Laying out at least £8 billion on Trident - and that is the official price tag, expressed at Summer 1982 values - amounts to a major commitment of public funds. So it is important to be sure that what is proposed represents a wise investment. The United Kingdom cannot afford expensive status symbols, purchased just to keep up with the nuclear Joneses. It ought not to buy anything unbecoming. It would be ill-advised to earmark large sums for a single acquisition - even though it looks like a 'bargain' - if that means penny-pinching on everything else for years to come.

Reassurance on each of these points has been offered by the Government, of course, in several contexts. A Defence Open Government Document was issued to accompany the initial announcement, in July 1980, of the choice of a Trident system to replace the existing Polaris force. Another was published when Ministers decided, in March 1982, to reaffirm that selection and to opt for the Trident II (D5) missile rather than the Trident I (C4) originally favoured. In between, the rationale for retaining a quasi-independent strategic nuclear capability was spelt out in parts of the Statement on the Defence Estimates 1981, with glosses added from time to time in Parliamentary exchanges. The 1982 Defence White Paper echoed these earlier pronouncements, arguing that 'it would be folly for the United Kingdom to surrender its strategic deterrent'.[1]

In spite of this effort, however, there is outright opposition to the decision in many quarters (and not only among committed nuclear disarmers). There is deep scepticism about it in a lot of others, including the Conservatives' own ranks. Even the Tory Press is lukewarm in its support, the March 1982 announcement having been greeted by The Daily Telegraph with the grudging comment that 'the Government's decision....is not one which we applaud wholeheartedly.'[2]

Discussion of the intended purchase will thus continue. Indeed it will go on at least until after the United Kingdom's next General Election, in the Spring of 1984 at the latest, for final settlement of the issue must await endorsement or rejection of the procurement plan-in-being by whoever then takes office.

Examination of the merits and demerits of what the Government envisages is therefore still a worthwhile undertaking. In particular, the March 1982 pronouncements invite scrutiny with reference to arguments concerning, first, the desirability and appropriateness of a Trident II acquisition; and, secondly, the expense which that will involve and its implications for the rest of the British defence effort.

IF YOU WANT IT AND IT SUITS YOU....

It is useful at the outset to state what it is that the Government does envisage, against the background of a summary account of the recent history of British decision-making for strategic nuclear forces.

Decisions 1962-1982

Nearly 20 years have elapsed since Prime Minister Harold Macmillan, faced with the problem of finding a successor to the United Kingdom's V-bombers as a means of delivering nuclear weapons at long range, did a deal with President John F. Kennedy to obtain Polaris missiles from the United States, together with help in developing a triple-warhead to put on them and constructing up to five SSBNs to put them in - the transaction being subsequently enshrined in a Polaris Sales Agreement.[3] In the mid-1960s four submarines were built (by Vickers and Cammell Laird), the warhead was duly developed (at Aldermaston) and the missiles were supplied (by the American Lockheed company). At the same time the United Kingdom established the Clyde Submarine Base - comprising extensive facilities at Faslane on the Gareloch and an Armament Depot at Coulport on Loch Long - as a training, operations and support complex for the force. Work was also done at the Rosyth Dockyard to enable it to refit SSBNs.

Governments of both the Conservative and Labour Parties remained committed to the Polaris force throughout the 1960s and 1970s, spending money not only on its upkeep but also on maintaining the effectiveness of the missile system by undertaking a technically demanding improvement programme, viz. the Chevaline project. However, whereas the Labour Government of 1974-79 deliberately avoided any commitment to acquisition of a Polaris successor system, the Conservatives in opposition stated that they would procure a next-generation retaliatory force.[4]

On taking office in May 1979, Mrs. Thatcher's Government considered how best to give effect to this pledge; and just over one year later the then Secretary of State for Defence, Francis Pym, announced the outcome of its deliberations. This was a decision in principle

- to buy Trident I (C4) missiles from the Americans, the United States' preparedness to supply being recorded in an exchange of letters between the Prime Minister and President Carter;[5]

  and

- to build in Britain the warheads for the missiles' multiple independently-targetable re-entry vehicles (MIRVs), and a new class of larger SSBNs.

In brief, an arrangement was proposed similar to that which had been made for Polaris. The likely order of capital cost, for a four-boat force, was assessed at £4,500-5,000 million (at July 1980 prices and exchange rates). Of this sum it was estimated that 'rather over half' would fall in the 1980s, and that over 70 per cent would be spent 'with British establishments and industry'.[6]

Lots of detailed matters remained to be settled at this juncture, e.g. on the size of the SSBNs, the nuclear propulsion plant for them and their tactical weapons 'fit'; and, as it happens, the Government would have been in trouble if things had in fact been finalised in 1980. For during the first half of the following year the new Reagan Administration in the United States revised its own strategic forces programmes, and one of its key

decisions - confirmed in October 1981 - was to accelerate plans for the development of the larger Trident II (D5) missile to supersede the Trident I (C4).

During the final quarter of 1981, therefore, the Ministry of Defence had to do some hard thinking to decide whether (a) to stick to its plan to buy the Trident C4 system, and in so doing fall 'out of phase' with the Americans, or (b) to adopt the Trident D5 system and incur higher costs on both the missiles and the submarine-building. However by the beginning of January 1982 the Defence Secretary, now John Nott, knew where he stood. And a small Cabinet Committee, chaired by Mrs. Thatcher herself, subsequently approved his recommendation that Trident D5 would be the 'best buy' for Britain.[7]

Early in March 1982 a public statement to this effect was clearly imminent. For one thing, there were tell-tale signs of official preparation of the ground for a formal announcement.[8] In the event this was made on 11 March 1982. Mr. Nott addressed the House of Commons, his Ministry issued an explanatory Memorandum, and a second exchange of letters between the Prime Minister and the American President was published.[9]

Not all the essential information imparted on 11 March 1982 had been speculated about (or leaked) already. Put briefly, the Government

- confirmed that it had elected to purchase Trident II missiles, and that the Americans had agreed to supply them, adding that favourable terms for the transaction had been (or would be) negotiated;

- intimated that the problems of optimum SSBN design had been resolved in favour of a large diameter hull (and this, apparently, independently of the missile choice) with a 16-tube centre section, a new nuclear reactor and propulsion system, and a new 'suite' of sonar and other equipment;

  and,

- explained that the new missiles would not necessarily carry the maximum number of warheads which the D5 design can accommodate (up to 14) and that the new SSBNs would not necessarily take to sea their full complement of 16 missiles - this because it did not contemplate 'any significant change in the planned total number of warheads associated with the strategic deterrent in comparison with the original intentions for a force based on the C4 missile system'.*

As for costs, the Trident Memorandum cites £7,500 million (at September 1981 prices and exchange rates) as 'the total cost of the D5 force on the terms agreed with the United States Government'. It adds that 'no exact forecast of year-by-year phasing is possible at this stage'. It does note, however, that 'the dollar element... has increased from around 30 per cent to something under 45 per cent'.[10]

Is the programme really necessary?

Anyone turning to the publications and pronouncements of 11 March 1982 seeking a reasoned justification for acquiring a 'Polaris replacement' (of any sort) will be disappointed. In his Introduction to the Memorandum, Secretary of State Nott refers to the document issued

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* It would appear that the warhead, to be designed and produced in the United Kingdom, will be essentially the same as that which would have been manufactured for the C4 missiles.

by his predecessor (in July 1980); and most - but not quite all - of the arguments put forward in his and his fellow Ministers' statements echo the theses of that earlier monograph (and of the discursive sections of the 1981 Defence White Paper).[11]

Recapitulation is all that can be attempted here. Collating what can be gleaned from the relevant texts and transcripts, and using their language as appropriate, it is clear that the Government wants a next-generation strategic nuclear force for the following reasons.

(1) The United Kingdom has had one for over 25 years, and 'it would be strange to regard the curtailment of our deterrent assurance as timely and appropriate now'.

(2) 'A British capability that is ultimately independent' contributes to NATO's strategy of deterrence and thus to the nation's own security. It does so principally, this argument runs, by confronting the Soviet Union with a second centre of decision-making within the Alliance. The implication is not that what the United Kingdom can do is a substitute for the American nuclear guarantee, for 'the Government has great confidence in the depth of resolve underlying the United States' commitment'. The point is that the adversary might have doubts about it of a kind which he could not possibly entertain about the threat of riposte by 'a power whose survival in freedom would be directly and immediately threatened by aggression in Europe'. Thus a Western defence incorporating such an independent element is 'a harder one to predict, and a more dangerous one to assail' than one in which the Americans have a monopoly of nuclear retaliatory power.

Although it begs important questions, the first of these reasons cannot be dismissed out of hand, given the importance of perception in the calculus of deterrence. It is the second to which the Government attaches most importance, however, and which it has articulated most fully, e.g. in its July 1980 presentation of the case for a Polaris replacement (reproduced as Figure 1A overleaf).[12]

Moreover, the 'second-centre' thesis holds not only as formulated in this extract, on the presumption of an assured American underpinning of European security arrangements, but also in the event of the loss of that support. Indeed it can be inferred that, while the proprieties of Alliance behaviour require the imputation of doubt about the United States' guarantee to the Soviet Union, the Government actually has reservations of its own: that, in fact, it acknowledges the Gaullist logic upon which France's possession of nuclear retaliatory power rests.

On this reasoning, there are really two other considerations underlying the Government's thinking.

> (3) Recognition that the Atlantic Alliance may not last for ever and that because of this and other uncertainties 'in the last resort Great Britain (sic) must be responsible for its own defences' and cannot 'shuffle them off on another nuclear power'.
>
> (4) Disquiet at the prospect of a course of action (or inaction) which would 'leave the French, our immediate neighbour, as the only European nuclear power'.[13]

Fig. 1A EXTRACT from The Future United Kingdom Nuclear Deterrent Force (DOG Doc 80/23) : The Policy Background

The long-term policy issue therefore is not whether to acquire a strategic nuclear deterrent capability, but whether to give it up in the 1990s after having possessed it, through the decisions of both Conservative and Labour Governments, for nearly forty years. This issue falls to be settled in circumstances much less favourable for Western security than when the V-force and Nassau decisions were taken - there is for example a changed strategic balance and much stronger and more versatile all-round Soviet military capability than before, wielded moreover with the growing adventurism highlighted in Afghanistan. It would be strange to regard the curtailment of our deterrent insurance as timely and appropriate now.

4. Britain commits all its nuclear capability to NATO in conformity with concepts of collective deterrence worked out in the joint forum of the Nuclear Planning Group. The decisive consideration in favour of a British capability that is ultimately independent is the contribution it makes to NATO's strategy of deterrence and thus to our own national security.

5. The United States has massive nuclear striking power. It has repeatedly made clear by its words and actions, including its major force deployments in Europe, its total commitment to help defend the integrity of its European allies by whatever means are necessary, without exception. The Government has great confidence in the depth of resolve underlying the United States commitment. But deterrence is a matter of perception, and perception by a potential adversary. The central consideration is what that adversary may believe, not what we or our Allies believe; our deterrence has to influence possible calculations made by leaders whose attitudes and values may differ sharply from those of the West. The decision to use United States nuclear weapons in defence of Europe, with all the risk to the United States homeland this would entail, would be enormously grave. A Soviet leadership - perhaps much changed in character from today's, perhaps also operating amid the pressures of turbulent internal or external circumstances - might believe that it could impose its will on Europe by military force without becoming involved in strategic nuclear war with the United States. Modernised US nuclear forces in Europe help guard against any such misconception; but an independent capability fully under European control provides a key element of insurance. A nuclear decision would of course be no less agonising for the United Kingdom than for the United States. But it would be the decision of a separate and independent power, and a power whose survival in freedom would be directly and immediately threatened by aggression in Europe. The nuclear strengths of Britain or France may seem modest by comparison with the superpower armouries, but the damage they could inflict is in absolute terms immense: (A single Polaris submarine carries more explosive power than all the munitions used in World War II.) An adversary assessing the consequences of possible aggression in Europe would have to regard a Western defence containing these powerful independent elements as a harder one to predict, and a more dangerous one to assail, than one in which nuclear retaliatory power rested in United States hands alone.

6. Our contribution to the Alliance in this field is unique. France, like Britain, has powerful nuclear forces under independent national control; but her distinctive policy - well understood, long established and firmly held - debars her from undertaking the clear commitment to collective Alliance deterrent concepts, planning and strategy which we have made. No other European member of NATO is even remotely a potential candidate to contribute independent nuclear forces. The Government regards this distinctive British contribution to NATO as of great importance. Our Allies recognise its significance, as they made clear for example in the 1974 Ottawa Declaration of the North Atlantic Council.

7. British nuclear forces include both strategic and lower-level components. If we had only the latter they could not serve the key "second-centre" deterrent purpose, since the threat of their use would not be credible. An aggressor faced with an armoury comprising only non-strategic nuclear weapons would know that he could if necessary use strategic nuclear weapons to overbear it without risking strategic retaliation upon himself; and since he would know that his opponent too must realise this, he could be confident that the non-strategic weapons were most unlikely to be used. The harsh logic of deterrence requires that the nuclear decision-maker should have evident power to take his resistance all the way to the strategic level if the aggressor will not desist. If Britain's nuclear contribution to NATO is to fulfil its distinctive role in deterrence, it must include an effective strategic element.

Regarding the former, Lawrence Freedman has observed that it is 'the most compelling strategic rationale for a British nuclear force': it may be 'more primitive than intellectual' but it is 'no less powerful for that'. As for the latter, and quoting Freedman once more, 'it would rankle, again for emotional as much as intellectual reasons, to leave France as the only [fully-fledged] nuclear power, confirming its ascendancy over Britain'.[14]

Underneath the rhetoric of political expediency and diplomatic convenience which (1) and (2) represent lie the real sentiments of (3) and (4). That is the inescapable conclusion. 'Carrying-on' in the strategic nuclear field is justified, at the declaratory policy level, by a desire not to act in a way which the adversary might take for weakness. In fact, what is at issue is how 'opting-out' might be interpreted by allies. The convoluted 'second-centre' thesis is promulgated, with its emphasis on the fear that the Soviet Union might doubt the reliability of the American nuclear guarantee. In fact, it is their own apprehension which animates the policy-makers.

Reinforcing these 'positive' arguments are 'negative' ones; that is to say, rejection of the principal contentions of the nuclear disarmament lobbies. In this connection the clearest enunciation of the Government's position is the essay on 'Nuclear Weapons and Preventing War' which appeared in the 1981 Defence White Paper and is reproduced at Figure 1B overleaf. Counters to most of the disarmers' arguments are to be found in these paragraphs. 'Abhorrence of war is no substitute for realistic plans to prevent it' is a statement which

Fig. 1B EXTRACT from Statement on the Defence Estimates 1981, Cmnd 8212-I : Nuclear Weapons and Preventing War

1. Nuclear weapons have transformed our view of war. Though they have been used only twice, half a lifetime ago, the terrible experience of Hiroshima and Nagasaki must be always in our minds. But the scale of that horror makes it all the more necessary that revulsion be partnered by clear thinking. If it is not, we may find ourselves having to learn again, in the appalling school of practical experience, that abhorrence of war is no substitute for realistic plans to prevent it.

2. There can be opposing views about whether the world would be safer and more peaceful if nuclear weapons had never been invented. But that is academic; they cannot be disinvented. Our task now is to devise a system for living in peace and freedom while ensuring that nuclear weapons are never used, either to destroy or to blackmail.

3. Nuclear weapons are the dominant aspect of modern war potential. But they are not the only aspect we should fear. Save at the very end, World War II was fought entirely with what are comfortably called "conventional" weapons, yet during its six years something like fifty million people were killed. Since 1945 "conventional" war has killed up to ten million more. The "conventional" weapons with which any East-West war would be fought today are much more powerful than those of 1939–1945; and chemical weapons are far more lethal than when they were last used widely, over sixty years ago. Action about nuclear weapons which left, or seemed to leave, the field free for non-nuclear war could be calamitous.

4. Moreover, whatever promises might have been given in peace, no alliance possessing nuclear weapons could be counted on to accept major non-nuclear defeat and conquest without using its nuclear power. Non-nuclear war between East and West is by far the likeliest road to nuclear war.

5. We must therefore seek to prevent any war, not just nuclear war, between East and West. And the part nuclear weapons have to play in this is made all the greater by the facts of military power. The combination of geography and totalitarian direction of resources gives the Soviet Union a massive preponderance in Europe. The Western democracies have enough economic strength to match the East, if their peoples so chose. But the cost to social and other aims would be huge, and the resulting forces would still not make our nuclear weapons unnecessary. No Western non-nuclear effort could keep us safe against one-sided Eastern nuclear power.

6. An enormous literature has sprung up around the concepts of deterrence in the nuclear age. Much of it seems remote and abstruse, and its apparent detachment often sounds repugnant. But though the idea of deterrence is old and looks simple, making it work effectively in today's world needs clear thought on complex issues. The central aim is to influence the calculations of anyone who might consider aggression; to influence them decisively; and, crucially, to influence them before aggression is ever launched. It is not certain that any East-West conflict would rise to all-out nuclear war: escalation is a matter of human decision, not an inexorable scientific process. It is perfectly sensible—indeed essential—to make plans which could increase and exploit whatever chance there might be of ending war short of global catastrophe. But that chance will always be precarious, whether at the conventional or the nuclear level; amid the confusion, passions and irrationalities of war, escalation must always be a grave danger. The only safe course is outright prevention.

7. Planning deterrence means thinking through the possible reasoning of an adversary and the way in which alternative courses of action might appear to him in advance. It also means doing this in his terms, not in ours; and allowing for how he might think in future circumstances, not just in today's. In essence we seek to ensure that, whatever military aggression or political bullying a future Soviet leader might contemplate, he could not foresee any likely situation in which the West would be left with no realistic alternative to surrender.

8. Failure to recognise this complicated but crucial fact about deterrence—that it rests, like a chess master's strategy, on blocking off in advance a variety of possible moves in an opponent's mind—underlies many of the criticisms made of Western security policy. To make provision for having practical courses of action available in nuclear war (or for reducing its devastation in some degree by modest civil defence precautions) is not in the least to have a "war-fighting strategy", or to plan for nuclear war as something expected or probable. It is, on the contrary, a necessary path to deterrence, to rendering nuclear war as improbable as we humanly can. The further evolution last year of United States nuclear planning illustrates the point. The reason for having available a wider range of "non-city" target options was not in order to fight a limited nuclear war—the United States repeatedly stressed that it did not believe in any such notion—but to help ensure that even if an adversary believed in limited nuclear war (as Soviet writings sometimes suggest) he could not expect actually to win one.

9. The United Kingdom helped to develop NATO's deterrent strategy, and we are involved in its nuclear aspects at three main levels. First, we endorse it fully as helping to guarantee our security, and we share in the protection it gives all Alliance members. Second, we cooperate directly, like several other members, in the United States power which is the main component of the nuclear armoury, by making bases available and providing certain delivery systems to carry United States warheads. Third, we commit to the Alliance nuclear forces of various kinds—strategic and theatre—under our independent control. The details of all this are matters of debate, which the Government welcomes. But the debate should recognise that positions which seek to wash British hands of nuclear affairs, while continuing (as NATO membership implies) to welcome United States nuclear protection through the Alliance, offer neither moral merit nor greater safety. Whether we like the fact or not, and whether nuclear weapons are based here or not, our country's size and location make it militarily crucial to NATO and so an inevitable target in war. A "nuclear-free" Britain would mean a weaker NATO, weaker deterrence, and more risk of war; and if war started we would if anything be more likely, not less, to come under nuclear attack.

10. The East-West peace has held so far for thirty-five years. This is a striking achievement, with political systems so sharply opposed and points of friction potentially so many. No-one can ever prove that deterrence centred on nuclear weapons has played a key part; but common sense suggests that it must have done. Deterrence can continue to hold, with growing stability as the two sides deepen their understanding of how the system must work and how dangers must be avoided. Not since the Soviet gamble over Cuba in 1962 have we come anywhere near the brink. It is entirely possible, if we plan wisely, to go on enjoying both peace and freedom—that is, to avoid the bogus choice of "Red or dead".

11. To recognise the success of deterrence is not to accept it as the last word in ensuring freedom from war. Any readiness by one nation to use nuclear weapons against another, even in self-defence, is terrible. No-one—especially from within the ethical traditions of the free world, with their special respect for individual life—can acquiesce comfortably in it as the basis of international peace for the rest of time. We have to seek unremittingly, through arms control and otherwise, for better ways of ordering the world. But the search may be a very long one. No safer system than deterrence is yet in view, and impatience would be a catastrophic guide in the search. To tear down the present structure, imperfect but effective, before a better one is firmly within our grasp would be an immensely dangerous and irresponsible act.

disposes of their fundamental emotional appeal. 'No Western non-nuclear effort could keep us safe against one-sided Eastern nuclear power' strikes at the weakest spot in the general unilateralists' case, as propounded by the European Nuclear Disarmament (END) movement, for example. And a favourite theme of the national Campaign for Nuclear Disarmament (CND) gets short shrift with the reminder that a nuclear-free Britain 'would mean.... more risk of war' and, if war broke out, would 'be more likely, not less, to come under nuclear attack'.[15]

Lucid expositions of official rationales for nuclear armaments, like Figures 1A and 1B, are a comparatively recent innovation. Needless to say, they are controversial. But it can no longer be alleged, as it was once fashionable to allege, that the powers-that-be in the United Kingdom want strategic nuclear weapons 'because they're there' and for no other good reason(s).

Indeed, it is clear that there is a cogent case for a last-resort deterrent, for all that one may have reservations about (a) the Government's judgement on the inadvisability of renunciation (as do those who espouse the multilateral disarmament philosophy but see a role for unilateral initiatives) and (b) the emphasis placed on the 'second centre' idea (as do some strategists, including former Chief of the Defence Staff Lord Carver).[16] Simply stated, though it may be difficult to offer convincing scenarios on how and when a nuclear retaliatory capability might be of value, it is impossible to assert with confidence that no such circumstances could arise.[17]

Knowledgeable critics of the Trident programme concede this much. Jeff McMahan's careful analysis of the issues leads him to the general conclusion 'that Britain ought to abandon all nuclear weapons'. However, before stating this personal conviction, he writes as follows.

> 'Weighing up the pros and cons....is an extremely difficult exercise. This is not only because there are so many arguments on both sides, but also because there are powerful arguments on both sides, and the range of considerations which are relevant in balancing them against each other is large and very complex.[18]

This amounts to an acknowledgement that, whatever else it may be, the Government's wish to have a next-generation strategic retaliatory force is not the product of whim or caprice.[19]

Even if the powers-that-be 'want' a Trident force for good reasons (in this sense), the question arises: does such a capability 'suit' the United Kingdom? Is a force of the size and shape envisaged an appropriate one for a power of medium stature?

Is the D5 the 'right' system?

The Memorandum published on 11 March 1982 did not repeat, nor is it necessary here to review, the arguments favouring choice of another submarine-launched ballistic missile (SLBM) system as a follow-on to Polaris. The

issues have been fully aired in several places, notably the Government's 1980 document The Future United Kingdom Strategic Nuclear Deterrent Force and a Report of the House of Commons' Select Committee on Defence, published on 25 June 1981, entitled Strategic Nuclear Weapons Policy.[20]

Having decided that the country should procure a Polaris successor, Mrs. Thatcher's Government did consider a number of options. But it concluded that, if the United Kingdom were to have a retaliatory force which would remain credible through to the opening decades of the next century, the selected system would need

- a weapon which could assuredly penetrate any defences the Soviet Union might develop during its lifetime - and that tipped the scales in favour of a ballistic missile;

  and

- a 'launch platform' which it would be problematical for the Soviet Union to detect and track, and which would, therefore, be invulnerable to pre-emptive attack (for all practical purposes) - and that dictated a submarine-based alternative.

Following this reasoning, which the Parliamentary Defence Committee broadly endorsed, Ministers opted - in July 1980 - for purchase of Trident C4 rockets from the United States and the construction of a new class of SSBNs (as noted earlier).*

Explaining this selection in 1980, the Government argued that four submarines with C4 missiles would meet its

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* See pages 4 and 5 above.

requirements in all respects. Furthermore, it was recognised that such a force would - albeit fortuitously - preserve a ratio between the British strategic capability and that of the Soviet Union comparable to that which had obtained at the time of the introduction of Polaris (1 : 30 or thereabouts).[21]

Since the Trident D5 has a larger payload which it can deliver with greater accuracy over a longer range - although, naturally, payload and range are interdependent - the obvious challenge is: how can it be that, now, it is this system which is 'right' for the United Kingdom? The official response would be (1) because 'commonality' with the United States is all-important; and, anyhow, (2) it is not intended to utilise the D5's full potential.

Under the first heading, the Trident Memorandum of 11 March 1982 notes several 'penalties of uniqueness' which it is desirable to avoid, and which can only be avoided by procuring D5 missiles in parallel with the Americans. These penalties, the document states, stem from two causes.

> 'The first is that of logistic support of the weapon system, where we would increasingly have to make judgements on our own future programme [if we persisted with C4] without the benefit of detailed United States advice based on their continuing experience from deploying C4. The second results, paradoxically, from the very high priority that the United States give to their strategic nuclear forces. While we retain commonality we get all

> the benefits that accrue from that priority; if we became unique we would only get such services which the Americans could fit into their programme and we could afford to pay for.'[22]

Clearly it is not just test firings and spares that are at issue here. The Government is apprehensive on a couple of specific counts. It fears a repetition of the Chevaline experience, which turned out to be an inordinately expensive mid-term improvement programme. And it fears a repetition of the Polaris 're-motoring' problem (the cost of which has been put at £300 million).[23] At the same time, this argument has a distinctly negative cast. It is not so much that D5 'suits' the British requirement as that the alternative looks unattractive.

Not utilising the full potential of the D5 missile is a more direct admission that the more capable system is in fact ill-suited to the United Kingdom's needs. The bigger Trident delivery vehicle is designed to carry up to 14 warheads in MIRVs which can be targeted with high accuracy (as opposed to the 8 warheads which the C4 variant can deliver with much less precision). Because of this, when it became clear that the Government was contemplating 'the D5 option' several commentators expressed concern. This would mean, they argued, acquiring a capability of a <u>size</u> greatly in excess of any imaginable national requirement: a theoretical maximum of 896 warheads in a force of four 16-tube boats (implying a practical maximum of 672 warheads, since only three submarines at most can be operational).* They contended further that it would mean acquiring

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* 4 (boats) x 16 (tubes/missiles) x 14 (warheads) = 896; 3 (boats) x 16 x 14 = 672. The comparable figures for C4 (only 8 warheads) are 512 and 384 respectively.

a capability of a significantly different character, because the D5's greater accuracy confers - in principle, at least - that capability to attack hardened missile silos which one would need if contemplating a 'first strike' against an opponent.[24]

Deflection of these critiques has been accomplished, first, by the official pledge that 'the move to D5 will not involve any significant change in the planned total number of warheads....in comparison with the original intention for a force based on the C4....' linked as that is to the explanation that the decision to build 16-tube SSBNs 'should not necessarily be taken to imply that we are currently planning to deploy the maximum number of missiles and warheads that will theoretically be possible as a result of this decision'; and, secondly, by the Government's assertion that 'the increased accuracy of the Trident D5 system played no part in its decision to adopt the more modern system' coupled as that is with the observation that 'a first strike capability is....totally beyond its grasp' because the 'firepower of the British force with maximum D5 payloads would be sufficient to target only a very small proportion of Soviet ICBM silos'.[25] But the phrases 'significant change' and 'should not necessarily' in the first formulations suggest that the force sizing question may be more complicated than it seems. And the disclaimer about 'first strike' is one of those pronouncements which may be more reassuring to West European than to East European ears. More to

the point, though, the very fact that the 'hedges' have been made testifies to the unsuitability of the D5 system for Britain.

In sum, and in language my mother-in-law could understand, the Government 'wants' a new strategic deterrent force for reasons which are intelligible even to those not persuaded by them; but the only model on offer is one which does not really 'suit' the United Kingdom. In fact, the D5 is an outsize system whose key merit - from the British standpoint - is that it will be in stock for a long time. When buying 'off the peg' that is the sort of thing you have to accept, however; you cannot expect to get the kind of perfect fit for which you could hope if purchasing made-to-measure.

Normally the advantage of ready-to-wear is the certainty you have about the cost, viz. a fixed price and a lower one than the bespoke article. So far as the Trident acquisition is concerned, matters are not so straightforward. For one thing the D5 missile is not truly <u>prêt à porter</u>; it is, and will for some time remain, an item in the Americans' catalogue rather than a model in the store. For another, the procurement programme is in fact a hybrid; while the delivery vehicles are to be bought off the shelf (in due course), the warheads and the platforms (i.e. the SSBNs) have yet to be designed, developed and produced (in Britain). Accordingly the likely expense of the purchase, in terms of actual outlays and in terms of the opportunity cost in possible alternative uses of defence resources, is a subject for careful elucidation rather than a known quantity.

...AND YOU CAN PAY FOR IT...

Making the case for the D5 purchase in the Statement on the Defence Estimates 1982 (Cmnd 8529-I), the Government says (rightly) that 'the cost must be seen against the capability it will provide, compared to the costs of other capabilities funded from the defence budget'. The official assessment is that 'the planned expenditure on the strategic deterrent can in no way be described as excessive in relation to planned expenditure on other capabilities'.[26]

Yet it is acknowledged that there are those who sincerely 'argue for an alternative use of resources'; and, in acknowledging that in such terms, the powers-that-be are conceding that their critics have a point.[27] What is that point? What is the Trident programme going to cost? How large will planned expenditure on it loom in the years ahead? How much spending for other worthwhile purposes will have to be forgone? Against this factual background, can the United Kingdom afford the acquisition?[28]

Costs and Cost Escalation

How much the programme will cost is really anybody's guess. The Trident Memorandum quotes £7,500 million at September 1981 prices and exchange rates as the probable bill for the procurement, spread over 10-15 years. This is equivalent to at least £8000 million

on a 1982-83 prices (cash) basis; and these values are the ones most appropriate for present purposes, being those used in the most up-to-date costings of the planned defence effort as a whole available at the time of writing (June 1982), viz. the functional analysis of expenditure in the 1982 Defence White Paper.[29]

Explanation of the reasons for the leap in estimated expense from the £4,500-£5,000 million quoted in mid-1980 (and for a long time thereafter) to this £7,500/8,000 million (depending on the price basis) is to be found in the Trident Memorandum.* In a useful Note for the House of Commons' Select Committee on Defence, Lawrence Freedman has shown that not everything has been fully explained. The reasons for the higher overall estimate are straightforward: a modest revision of the costing for the baseline C4 force as imagined in mid-1980; an increase to take account of the decisions to have a bigger, fatter submarine with an improved propulsion system and an improved 'fit' of sensors and weapons; another because of the switch to the D5 missile per se; and, finally, increments to cover inflation and adverse exchange-rate movements. The reasons for the different distribution of expenditure among the various components of the programme are much less apparent.[30]

Leaving aside these mysteries, though, since they are not directly germane to the present argument, the important question is: can one have confidence in the

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* See pages 5 and 7 above. The explanation is repeated in Cmnd 8529-I at paras 119-121 (with the White Paper's Fig. 2) on pages 5 and 6 of the document.

updated £7,500/£8,000 million estimate, which is made up as shown in Table 1 below? The short answer is that one cannot, because each of the elements in the programme looks prone to cost escalation going beyond the contingency allowances built into the official estimate. Obviously, this contention calls for elaboration, item by item.

Table 1

TRIDENT COST ELEMENTS

Item	£m	% of total
At September 1981 prices and exchange rates		
1. Missiles	1275	17
2. Warhead, miscellaneous and unallocated contingency	1725	23
3A. Submarines	2625	35
3B. Weapon system equipment	1275	17
4. Shore Construction	600	8
Total	7500	100
At 1982-83 Estimates values		
Total	8000	100

Source: The United Kingdom Trident Programme, Defence Open Government Document 82/1 (upper panel). Author's estimate (lower panel).

Missiles account for one-sixth of the capital cost of the programme, according to the Government's own figures (see Item 1 in Table 1 opposite). A fixed contribution to research and development for the D5 system has been agreed with the Americans 'equivalent to $116 million in fiscal year 1982 dollars, subject to actual payments being adjusted to reflect an agreed inflation index'.[31] In his Note for the House of Commons' Select Committee just cited, Lawrence Freedman calls this 'an important source of reassurance' against cost escalation; and the Chairman of that Committee, questioning the Secretary of State for Defence on 17 March 1982, expressed 'pleasure at the fixed charge on R & D'.[32] However, reassuring and pleasing though it may be that this bargain has been struck, it must be noted that $116 million - say £65 million at mid-1982 exchange rates - represents only 5 per cent of the total for this element of the estimated bill. The remaining 95 per cent is presumably based on a current best guess as to what the United States will charge for the delivery vehicles as they come off Lockheed's production line in the early 1990s. That guess could easily be too low by 25 per cent (or more).[33]

Although the second line item in Table 1 is a catch-all, the amount for the design and production of the warheads themselves must be its main component. Since 'there is no reason to doubt that the warhead currently under development at Aldermaston will be used for the D5', gauging vulnerability to cost escalation here is essentially a matter of deciding how much trust to

place in estimates emanating from the Atomic Weapons Research Establishment (AWRE).[34] On this point, the Chevaline experience is singularly unencouraging, on first sight at least. The project cost estimate for this Polaris improvement programme rose - and this is at constant prices - three-fold between 1972 and 1982, and by almost one-third from mid-1975 to 1982, i.e. from the 'first stage at which the project was established in practicable terms' following the initial and grossly optimistic forecasts of its likely expense.[35] Chevaline was an undertaking of extra-ordinary difficulty, of course, involving development of a complex spacecraft to fit the front-end of the existing Polaris rockets: but the researchers knew that when they started, yet still got their arithmetic spectacularly wrong. A warhead for D5 will be less complicated, because the re-entry vehicles themselves are being bought from the United States as part and parcel of the missiles. This does not, however, guarantee that the expense of the job has been assessed with any greater skill. Admittedly, there is some evidence that the cost estimation for the actual warhead component of the Chevaline project was less bad than the other parts. Moreover, inflated numbers may have been conjured up for the Trident calculation to make room for some escalation before things get embarrassing. So another instance of costs 'going bananas' may be unlikely. At the same time, it is doubtful if anyone would be surprised if the eventual entry under this heading turned out to be £2000 million or thereabouts.[36]

The <u>submarine and associated weapons systems</u> together account for more than half the estimated expenditure

on the Trident programme and are the element(s) with the greatest cost escalation risk. There are three reasons for this.

- The SSBNs themselves will have to be designed from scratch. No-one has yet built a 16-tube hull for the bigger Trident missile. On the Secretary of State for Defence's own testimony, British Shipbuilders are 'absolutely confident that they can tackle the larger centre section of the submarine' which does not 'pose...the kind of difficulties for Vickers which some commentators have suggested might exist'.[37] While that is undoubtedly correct as a reference to technical competence, it is not the same thing as saying that the builders are able, at this juncture, to give a good forecast of what it will cost them to do the job.

- It was originally planned to fit the new SSBNs with a propulsion system based on the nuclear pressurised water reactor (PWR) already in production for the Trafalgar-class Fleet submarines (SSNs), designated PWR 1. It has now been decided to employ the technically more advanced PWR 2 system which is still being developed by Rolls Royce and Associates. The operational benefits of the PWR 2 package - notably longer reactor core life and reduced noise - are clearly important. But this decision means that the first-of-class Trident SSBN will have to bear a large development cost burden and will have to take an unproven prototype to sea.[38]

- The 'suite' of sonar and other tactical systems equipment to be fitted in the submarines will be brand new too. As in the case of propulsion, the earlier intention to equip the four Trident boats with what is being produced for the latest SSNs has been abandoned.

> According to the Trident Memorandum 'while this current system...would, with some modification, be capable of countering adequately the threat from potentially hostile ships and submarines in the 1990s, it would allow little scope for improvement in order to meet advances in the threat which might occur later in this century [sic] or early in the next'.

Thus in virtually every instance where the Government had the option to 'stay with current technology or move to a new generation' it has rejected 'the known and proven' and seems intent on 'making these SSBNs the most advanced possible'. This in spite of the testimony of a top Navy Department official - speaking, to be sure, when the Ministry of Defence still had the smaller submarine in mind - that 'experience tells us that it is not always wise to put too many new equipments in a single hull'.[39]

Regarding <u>shore construction</u> - the final line item of Table 1 (on page 22 above) - the envisaged outlays of £600 million are in fact slightly lower than those projected back in 1980 for the C4 programme. Neither the Government's own policy pronouncements nor the evidence accumulated by the House of Commons' Select Committee on Defence give any clue as to the reason for this. Neither do they contain any information which would help to assess how accurate the revised figure might be. It is possible that the estimate could edge upwards again, in real terms, because (a) the exact nature and scale of the new facilities to be created at the Clyde Submarine Base do not

appear to have been settled yet, and (b) whether or not major capital works will be required at the Rosyth dockyard, on the Forth, is likewise uncertain.*

In sum, there is potential for escalation in each of the Trident programme's cost elements, as the Government has presented them. However, that is not the whole story. Some spending will have to take place over the next several years which, though not acknowledged in that official reckoning of the project's £7,500/8,000 million capital cost set out in Table 1, is nevertheless properly attributable to the planned acquisition.

Persistent questioning of Secretary of State John Nott by the Labour MP and former Minister of State for Defence Dr. John Gilbert, at the Select Committee 'hearings' on 17 March 1982, elicited a clue as to one such category

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* The Clyde Submarine Base incorporates the Armament Depot at Coulport on Loch Long together with the several berths and large floating dock - plus training, administrative and other support facilities - at Faslane on the Gareloch. That exactly what work is to be done here had not been decided by the spring of 1982 is apparent from evidence given to the Select Committee on 17 March 1982. Referring to Faslane, the Chief Strategic Systems Executive (Rear Admiral Grove) said 'the only thing affected by the size of the submarine would be the size of the floating dock or whatever docking facility we chose'. (Emphasis added.) On Coulport, the Secretary of State for Defence (Mr. Nott) said 'our plans are to proceed with the Coulport arrangements' in respect of which a formal planning application has been filed; but he added that there might be 'some changes to the existing application for environmental and other reasons'. (Emphasis added.)

So far as Rosyth is concerned, at the same hearing Rear Admiral Grove stated that there would be 'no problem' accommodating the bigger Trident SSBNs in the dockyard. But he did not fully explain how this assertion squares with evidence given to the Select Committee, at Rosyth (in connection with an earlier inquiry), to the effect that the draught of a submarine of OHIO-class proportions would be 'much deeper than we would want' although a boat drawing 35 feet could be taken 'in special circumstances'. (Emphasis added again.)

(See HC 266 (1981-82), Qs 37, 44; and HC 36 (1980-81) Qs 737, 809. (Full citations at notes 21 and 20 respectively.))

of expenditure. Dr. Gilbert sought elucidation of the problems of communications, command and control - C^3, for short - as they might affect the next-generation strategic nuclear force. In response Mr. Nott referred to 'a continuing, on-going programme for the updating of our command and control systems in all areas'; and this led into the following exchange.

> 'Dr. Gilbert: Have you included such funds as you are budgeting for the maintenance of the integrity of the command and control systems in these figures you have given us for the totality of the Trident programme?
>
> Mr. Nott: Of course.
>
> Dr. Gilbert: You have?
>
> Mr. Nott: Of course, and in the defence budget generally.'

The Minutes of Evidence tell nothing about hesitation, intonation or looks exchanged. But the record suggests that maybe some monies for Trident-related C^3 lie concealed under other headings in the Ministry of Defence's Long-Term Costings.[40]

Lying concealed there somewhere is another item: substantial provision for the modernisation of the AWRE at Aldermaston. Development and manufacture of the new warhead for the Trident D5, together with research on future generations of nuclear armament, will ensure a full workload for the Establishment throughout the 1980s and 1990s. To cope with it a major new facility is being created, at a cost of at least £250 million

(according to one estimate). This is an expense which would probably not have commended itself if the Government had decided against acquiring a Polaris successor. Part of the intended expenditure - if not all of it - should therefore be marked down to the Trident programme.[41]

Estimating what all this might add up to is obviously difficult. Suffice it to say that there are good reasons for believing that the official £7,500/8,000 million price tag will be exceeded; and they are specific reasons, quite apart from general scepticism about cost estimation on major procurement programmes. A bill in the region of £10,000 million in 1982-83 money is not at all unlikely. And that is the figure which, in my judgement, should be used when appraising the proposed Trident acquisition in relation to possible alternative uses of resources.*

The Incidence of Expenditure

Predicting the probable incidence of capital expenditure on the programme is problematical too. Formally, the Government says 'no exact forecast of year-by-year phasing is possible at this stage'.[42] So it has published none. However, to support its argument that purchasing Trident will bear no more heavily on the defence equipment budget than the Tornado aircraft procurement, it has sketched a rough spending

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* See pp. 35-45 below.

Table 2

PROBABLE TIME-STREAMS OF EXPENDITURE : TRIDENT PROGRAMME

£ million

Estimate	up to 1985	1985-1986	1986-1987	1987-1988	1988-1989	1989-1990	1990-1991	1991-1992	1992-1993	1993-1994	1994-1995	1996-1999	Total
Official capital cost estimate													
at September 1981 prices and exchange rates	500	350	500	650	800	975	925	900	750	550	350	250	7500
at 1982-83 Estimates values	535	375	535	700	850	1025	1015	950	800	575	375	265	8000
Author's capital cost estimate													
at 1982-83 Estimates values	625	450	650	900	1100	1250	1200	1150	1000	800	500	375	10000

Source: Author's estimates based on DOGD 82/1 (see text opposite).

profile. From this it is possible to derive 'probable time-streams of expenditure' such as those given in Table 2 opposite.[43]

Let it be stressed that the figures in this tabulation have no official standing. They are inferred from what is itself an illustrative diagram which the Government has produced.* That said, they provide a basis for a rough-and-ready assessment of (1) the likely distribution of Trident programme outlays and (2) the significance of these expenditures in relation to overall defence spending and the Ministry of Defence's capital budget in the years ahead.

Using the table's third line - based on a £10 billion capital programme (at 1982-83 prices and exchange rates) - as the point of reference, the following points are noteworthy.

- Peak expenditure will occur in 1989-90 and will amount, in that year only, to c.£1250 million (in 1982-83 money).

- Expenditure will exceed £1000 million (at these same values) for a full 5-year spell, from 1988-89 to 1992-93.

Sums like this mean that the programme will assuredly dominate the Defence Ministry's book-keeping in the later 1980s and early 1990s.

Making plausible assumptions about the likely size of the defence budget as a whole and about the scale of

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* It is Figure 6 in DOGD 82/1, Figure 4 in Cmnd 8529-I, and is reproduced in this paper as Figure 2 (on p. 34 below).

spending on new equipment within it, indicators of the salience of the programme can be worked out.

- In the high-spending years, expenditure on the Trident acquisition will represent 6-8 per cent of the defence budget.

- The programme's share of the equipment budget (broadly defined) will be 12-18 per cent in these years.

- As a proportion of new equipment - capital outlays strictly defined - expenditure will be nearer 20 per cent.

The distinction between the last two 'indicators' here reflects the fact that the equipment budget, as customarily described by the Ministry of Defence, incorporates funds for research and for spares in addition to allocations for the development and actual production of new hardware i.e. capital expenditure proper.[44]

Expressed thus, the Trident programme looms larger on the Ministry of Defence's budgetary horizon than official modes of presentation have suggested. These have emphasised the average cost of the acquisition, over the full term of the procurement plan, in relation to all defence expenditure. The relevant paragraph in the 1982 Defence White Paper, for instance, reads as follows.

> '123. As for the impact on the defence budget, we estimate that the Trident D5 programme will cost on average about £500 million a year over 15 years....

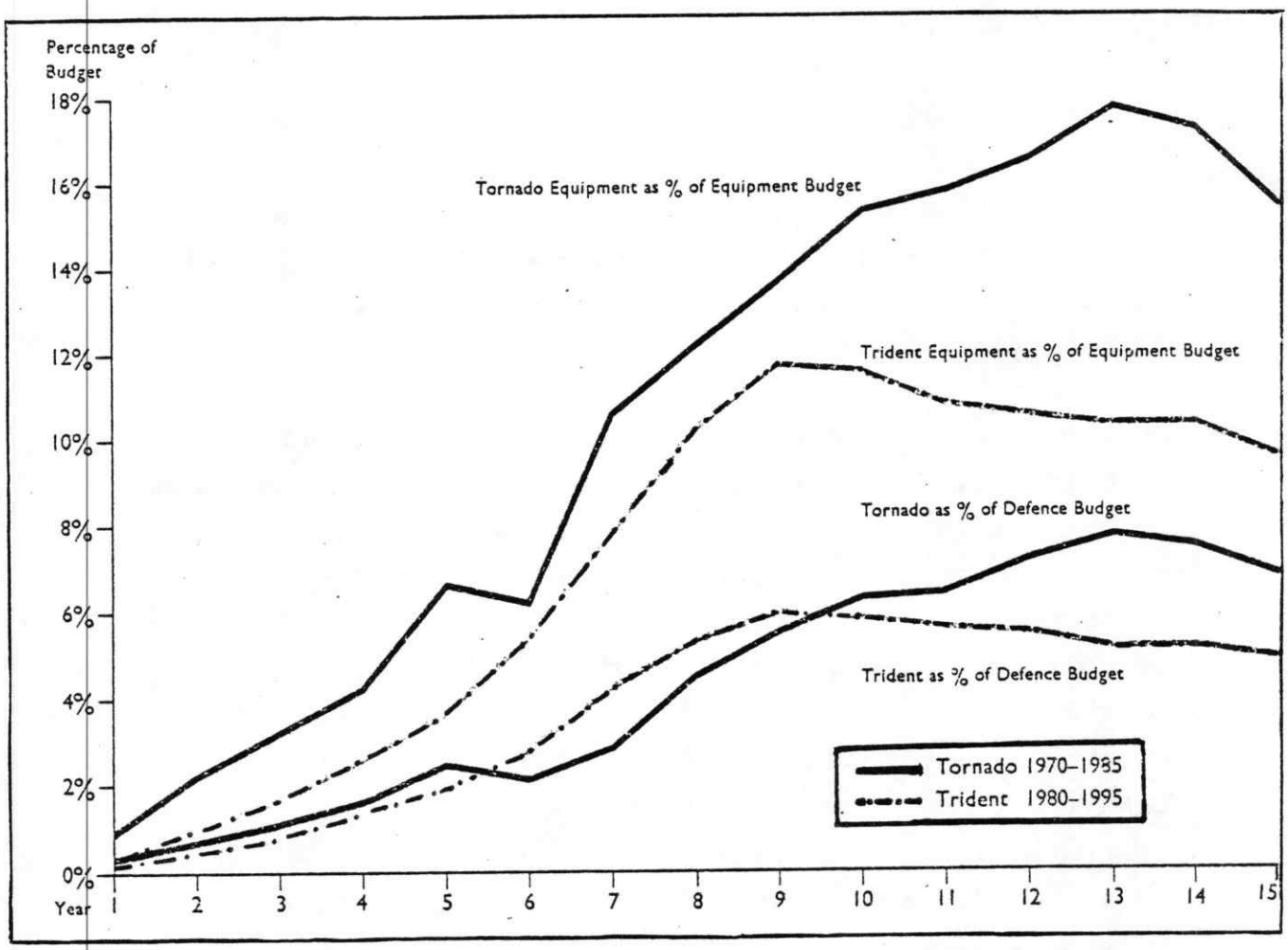
> Put another way, it will take some 3 per cent of the total defence budget over the period...'[45]

(This formulation clearly relates to that estimated total capital cost of £7,500 million at September 1981 prices and exchange rates to which official statements adhered throughout the first half of 1982.)

Such reference as there has been to the distribution of expenditure over time and in relation to the equipment budget (on its widest definition) has been (a) in diagrammatic form and (b) linked to portrayal of the Tornado aircraft programme as an example of a major weapons system acquisition which has absorbed, is absorbing, and until the mid-1980s will continue to absorb, an even larger slice of defence resources than the Trident procurement is expected to take. The chart which first appeared in the Trident Memorandum (March 1982) and was included in the Statement on the Defence Estimates 1982 (June 1982) is reproduced as Fig. 2 overleaf. It is a striking presentation, and it has been used successfully to deflect criticism that replacing the Polaris force calls for an unusually large, discrete, block of expenditure which can be expected to 'crowd out' other equipment plans to an unprecedented extent.

However, formally unexceptionable though Fig. 2 is, for the sake of perspective three comments on it are in order. First, the Tornado project is not so much one project as two, to give the Royal Air Force of the 1980s and 1990s both its principal strike/attack plane

Fig. 2 CHART from Statement on the Defence Estimates 1982 (Cmnd 8529-I)



and a new interceptor. Secondly, that programme will yield no less than 385 front-line aircraft, to constitute the backbone of the RAF in the United Kingdom and Germany for the next generation. Thirdly, the proportions shown in the diagram distort perception of the absolute relationship between the two acquisitions to the extent that both the total budgets and the equipment budgets of 'the Tornado timespan' are (or will be) lower than those envisaged for that of the Trident programme.[46]

Opportunity Costs

Any examination of what - and when - the United Kingdom will have to pay for its new strategic nuclear force must, however, go beyond the type of analysis contained in the preceding paragraphs. The true cost of the proposed procurement is the possible alternative use(s) of the resources which will be committed to it. The real price of the Trident programme is that enhancement of the nation's conventional forces which could be had for £10 billion in the period to 1995 (and beyond).

Logically, it is only after calculations about alternatives have been done - making explicit these opportunity costs of the programme (in the economist's parlance) - that sound judgements can be made on whether Trident does or does not represent a good buy for Britain.

Lack of official information on opportunity costs was noted, and criticised, in the Report of the House of Commons' Select Committee on Defence entitled Strategic Nuclear Weapons Policy issued in June 1981. Both the majority and minority views which were ingeniously incorporated in that Report alluded to the matter.[47] However, the Secretary of State for Defence would not be moved. In a Letter to the Committee's Chairman, written in October 1981, he acknowledged that 'a decision to acquire any item of defence equipment, within a given fixed level of Defence expenditure, means that the money...cannot be spent on any other item of defence equipment'; and he agreed that, as future equipment plans were developed, 'the allocation of resources will

have to take account of the required expenditure on Trident'. Following these remarks, though, came two dismissive concluding sentences.

> 'But we shall not identify those equipments which might have been acquired in place of Trident... The Government's firm view is that the allocation of resources to Trident yields a higher value than any alternative use of the money.'[48]

It could not have been put more plainly: those wishing to query 'the Government's firm view' must speculate for themselves on 'those equipments which [might be] acquired in place of Trident'.

So what alternative uses of £10 billion spring readily to mind, confining attention to the defence field (for present purposes)?

Alternatives

Programme options for the later 1980s and 1990s fall into broadly two categories. In the first place, additional money could be apportioned more or less evenly among the Services' non-nuclear responsibilities as at present envisaged, viz. the defence of the United Kingdom itself (the 'home base'), the national contributions to NATO's forces for land-air warfare in the Allied Command Europe (ACE) area and for maritime operations in the Eastern Atlantic, and capabilities for possible operations outside the Alliance's area

of interest as defined in the North Atlantic Treaty.[49] Alternatively, extra funds could be used to strengthen or expand provision for one, perhaps two, of these tasks rather than each of them.

Regarding the first of these possibilities, it might be thought that a great many desirable things, for which it has not been practicable to plan within the constraint of existing budgetary projections, could be done if funds at present earmarked for the Trident acquisition were made available, so to speak, for reallocation. In fact it is not quite so straightforward as that.

- After the 1981 defence review, in which Mr. John Nott ran the rule over the entire future programme and budget, there appeared the special White Paper entitled The United Kingdom Defence Programme : The Way Forward. It prescribed alterations to the conventional force structure, reduced force levels, postponement or cancellation of some procurement plans; and many, if not most, of the changes foreshadowed were prompted by pressure to make ends meet. In theory, with annual sums like those in the final line of Table 2 back in play (as it were), the least desirable of these changes would not have to be made.[50]

- After the 1981 public expenditure survey 'round', plans for government spending to 1984-85 were drawn up, to be presented - in a novel 'cash plans' format - as the 1982 Public Expenditure White Paper (published on 9 March 1982, which was Budget Day). At first glance the money allocated to defence looked

Table 3

THE DEFENCE PROGRAMME AND BUDGET 1982-83 (FUNCTIONAL ANALYSIS) AND A NOTIONAL ASSIGNMENT OF TRIDENT MONEY TO OTHER PROGRAMMES (WITH OBSERVATIONS THEREON)

Programme	£m	% of total
Nuclear Strategic Force	327	2.3
Navy GP Combat Forces*	1861	13.2
European Theatre Ground Forces	2194	15.6
Other Army Combat Forces	41	0.3
Air Force GP Forces*	2729	19.4
Mission programmes	7152	50.8
Support programmes	6939	49.2
TOTAL	14091	100.0

£m	Possible amendment to plans
	[Cancel Trident]
200	Smaller/slower rundown in surface Fleet More SSN-building, Sea King replacement
200	Smaller/slower cut in Army's strength Maintain 'out of area' brigade Accelerate equipment modernisation
200	Accelerate Tornado/AV-8B acquisitions Buy Jaguar replacement and new weapons
600	Means 7.5 per cent more for the front line in the later 1980s
400	[Less than 50 per cent because an equiproportionate increase in support should not be necessary]
1000	[Compare Table 2, bottom line] BUT SEE TEXT PAGES 40 AND 41

Source: Statement on the Defence Estimates 1982, Cmnd 8529-II (Defence Statistics), Table 2.3 (left-hand panel): Author's assignment/observations (right-hand panel).

* GP denotes General Purpose

> adequate to sustain the dispositions envisaged in The Way Forward. As it happens though, the amounts were (and will probably remain) too low for that. So the Defence Ministry faces a 'volume squeeze' through the middle years of the 1980s. In practice, therefore, cancelling Trident - to release annual sums like those in the final line of Table 2 - would, at best, do no more than forestall further changes.[51]

These points require some clarification and elaboration, with reference to the actual budgetary arithmetic: the following paragraphs provide it.

In the Statement on the Defence Estimates 1982, as in previous years' Defence White Papers, there is a functional analysis of defence expenditure. An abbreviated version of that information is set out in the left-hand panel of Table 3 opposite. The data do not show the attribution of funds to major roles and missions (as defined on p.36 above). Nevertheless the money explicitly allotted to Strategic Nuclear Forces - for the Polaris force, at present - is identifiable (first line); and the rest is cash for other components of the national defence effort. The right-hand panel of the table shows a notional assignment of one 'high spending' year's worth of Trident money to these other programmes, together with an indication of the sort of amendment to the blueprint for defence in the 1980s contained in The Way Forward which would be possible, in theory, if extra cash were 'made available' for other programmes, annually, on a scale rising to values like these by the later 1980s.

Needless to say, this is a very rough-and-ready representation of opportunity cost. But it illustrates what spreading a hypothetical 'Trident dividend' more or less evenly among the Services would make possible, at least in principle.[52]

Given the cash allocated to defence for the period 1982-83 to 1984-85, and making plausible assumptions about what a Conservative Government might seek to allot in the second half of the decade, it is very much 'in principle' however.* This is because, as hinted, the cash planning figures for 1982-83 to 1984-85 (and, one may assume, in the Treasury's mind's eye beyond that) are not big enough to cover the probable cost of the programme-in-being. The 1982 Public Expenditure White Paper's cash plans incorporate the following amounts for defence:

	1982-83	1983-84	1984-85
Defence Budget £ billion cash	14.1	15.3	16.4

Taking the first of these numbers as a starting point and feeding in (a) the 3 per cent per year real growth on which government pronouncements have laid great stress (and which is an Alliance commitment, albeit an informal one), (b) inflation factors corresponding to what official forecasts envision for the next couple of years, plus (c) some allowance for the fact that defence costs tend to rise more

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* It seems reasonable to suppose that a Labour or Liberal/SDP Alliance Government would opt for lower defence budgets than a Tory administration. Thus the portrayal which follows is of the best budgetary future the Defence Ministry can expect.

quickly than prices in general - feeding in all these, it transpires that the sum for 1983-84 should be over £16 billion and that for 1984-85 should be £18 billion at the very least.*

So a 'Trident dividend' of up to c.£1 billion per year, evenly apportioned (as hypothesised in the right-hand panel of Table 3), would in practice permit not the remission of 'savings' foreshadowed in The Way Forward but merely the avoidance of some further (i) contraction in the scope of the defence effort or (ii) diminution in its scale, as the 'squeeze' implicit in the Treasury's tightly-drawn cash limits took effect.[53]

Put as plainly as possible, despite the agonies of the 1981 defence review, further tailoring of the United Kingdom's military coat is in prospect, given the cloth the Cabinet has said it is prepared to make available. Hence the practical alternative use of Trident money, if it is thought of as a potential source of funds for augmentation of other programmes across the board, is not in financing the reinstatement of things which have already been expunged from future plans. Rather it is in insuring against yet more excisions from the programme-in-being.

All of this is subject to the proviso 'on present plans'. The pertinent question then is: in the aftermath of the United Kingdom's contretemps with

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* It is clear today (Summer 1982) in the Ministry of Defence's programme and budget division that the apparently adequate appropriations are no such thing but do indeed portend a 'volume squeeze' of these proportions.

Argentina in the South Atlantic during April-June 1982, is not a major revision of the defence programme-in-being (and associated budgetary projections) in prospect?

Not, it would appear, to an extent which would invalidate the foregoing analysis. Starting with the money, at the end of June 1982 the Secretary of State for Defence won two notable concessions from the Cabinet (by all accounts). He obtained, first, approval for the actual costs of the Falklands' operation to be set against the government's £2,250 million contingency reserve for 1982-83; and, secondly, a 'promise' of supplementary funding in subsequent years to cover the dual expense of making good equipment losses and providing continuing protection for the United Kingdom's 8000-mile-distant outposts. None of that, however, implied any relief from his central budgetary dilemma. Nor was one able to discern, at midsummer 1982, a strong and durable consensus - in Parliament or among the public-at-large in Britain - for a big boost in defence spending, over and above the special costs of the Falklands fracas, which would afford such relief in the medium or longer term.[54]

Good arguments were advanced, however - both during and immediately after the campaign in the South Atlantic - in favour of a re-examination of the priorities for conventional forces expressed in The Way Forward. Needless to say, not all the participants in this debate sought the same revisions. But the loudest voices were those advocating a check to the

envisaged naval rundown and a greater emphasis on capabilities for extra-European tasks.[55] Ministers appeared disposed to stand firm against the challenge. In his Foreword to the 1982 Defence White Paper, Mr. John Nott wrote bluntly that the 'main threat to the security of the United Kingdom is from the nuclear and conventional forces of the Soviet Union and her Warsaw Pact allies'; and he added his judgement that, this being the case, the 'framework' of the programme-in-being remained 'appropriate'. All he would concede was that his Department 'should consider whether any adjustments or changes in emphasis are now required'; and he set it to do that, promising a further policy statement once the exercise was done.[56]

Let it be supposed, for the sake of argument, that the principal revisionists' view prevails, leading to promotion in the pecking order of priorities for the Royal Navy and forces for operations outside the NATO area generally. Assume, that is to say, that the politically attractive programme option for the 1980s and beyond is the enhancement - relatively speaking, given the overall budgetary predicament just elucidated - of these particular capabilities.*

'Equipments which might be acquired in place of Trident' for these purposes: that is what must now be identified, to provide an alternative perspective on the £1 billion procurement programme's opportunity cost. Obviously, there are many candidates. But a typical commentator's shopping list would include most, if not all, of the items in the catalogue presented at Table 4 overleaf.

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* This is the second of the possibilities noted in the opening paragraph of the present sub-section, at pages 36 and 37 above.

Table 4

HYPOTHETICAL EQUIPMENT CATALOGUE : SELECTED ITEMS

Item	Unit Price[a] £m
INVINCIBLE-class carrier (new)[b]	350-375
Assault ship (new)	200-225
Type 22 frigate (BROADSWORD class)	150
Type 23 frigate (DARING class?)[c]	100
Nuclear-powered Fleet submarine (SSN)	200
Sea Harrier (improved?)	8
New ASW helicopter	5
New Assault helicopter	5
Tanker aircraft	See text (top of page 46)
Transport aircraft	
New combat aircraft (e.g. P.110)	10
Battlefield helicopter	3-5
Light tank	1

Notes

a. Rough estimates - guesses in some cases - at 1982-83 Estimates values (cf. Table 2's bottom line).

b. See text opposite.

c. No public announcement has been made regarding the naming of the Type 23s. But the alphabetically-minded Naval Staff, having used 'C' for early SSNs, could do worse than opt for this: following DARING, you could have DAUNTLESS, DEFIANT, DEMON, DILIGENT, DOMINANT, DOUGHTY and DROMOND plus (my favourites for an up-to-date Fleet) DILIGENT, DISCREET, DISSUADER and DOYEN (for the Senior Service). Twelve names should be enough.

The prices shown opposite are only rough estimates of the capital cost (per unit) of the goods in question. Nevertheless they permit assessment of the probable expense of those 'procurement packages' for strengthening the Fleet and improving extra-European capabilities likely to feature, or already featuring, in the debate about priorities. On the items themselves, the following comments are in order.

- A decision to keep three carriers - rather than two as previously planned - was made in mid-July 1982 (and the proposed sale of INVINCIBLE to the Australians cancelled). Not content with that, some admirals might press for a fourth ship (which could incorporate whatever modifications evaluation of the Falklands' experience suggests might be desirable).[57]

- Purchase of replacements for the assault ships FEARLESS and INTREPID might commend itself particularly, because of the potential utility of such vessels for operations on NATO's flanks as well as beyond the North Atlantic.

- Escort numbers can be built up in the short run only by construction of additional frigates of the Type 22 variety, and in the medium term by a substantial procurement of ships to the new Type 23 design.

- In addition to strategic arguments there is an obvious industrial case for building more SSNs 'in place of Trident'.

- Expanding the surface Fleet would clearly create a requirement for extra naval aircraft, both fixed- and rotary-wing.

- Improving capabilities for operations outside the NATO area generally, implying rapidly deployable - and suitably air-supported - ground troops, would entail (among other things) a major enhancement of the Royal Air Force's tanker and long-range transport capacity. What expenditure that might involve is problematical. Special purpose-built planes would come very expensive. The 737s, 747s, 757s and 767s owned (or ordered) by British Airways could be made capable of playing a part at much less cost.

- Creating a rapidly-deployable force component capable of giving a reasonable account of itself anywhere would probably also mean spending money on a new, versatile, combat aircraft, on battlefield helicopters, and on a light tank for the Army.

If the prices given in Table 4 are right (approximately), it is clear that for £10 billion the armed forces could have a lot of useful hardware. But one or two cautionary notes against careless inference should be entered at this juncture.

Devising an equipment catalogue like Table 4 - and composing shopping lists therefrom - is child's play. Having done the exercise, though, three points must be made before rushing to judgement about opportunity costs. First, acquiring equipment is one thing, manning it is another. The United Kingdom might not be able to recruit, even if it could afford, the Service manpower to sustain a greatly expanded Fleet and/or a major force component specially geared for extra-European tasks. Secondly, the Falklands'

experience surely confirmed the wisdom of that commitment in The Way Forward to greater stress on units' hitting-power and staying-power (as opposed to the size of the nominal order of battle). The real cost-effectiveness of 'more hulls' and 'more aircraft' is not at all self-evident. Thirdly, what was called earlier 'the central budgetary dilemma' facing the defence organisation affects the scope for changing priorities as it does the potential for across-the-board augmentation of the defence effort. It will bear repeating that the appropriations the Treasury has in mind for defence fall several hundred millions of pounds short of what is required to sustain the existing programme. Even if the Trident project were abandoned forthwith there would be no current or prospective 'dividend' to finance a Services' spending spree.

Paying for it

What conclusions are to be drawn from the foregoing examination of the expense of the proposed Trident acquisition, in terms of outlays as such and opportunity costs as discussed in the immediately preceding pages?

In the case of straightforward outlays it has been shown that Trident's price is high, on any reckoning. There are good reasons for expecting the total bill to exceed the official £7,500/8,000 million estimate: a figure of £10,000 million might be nearer the mark. Moreover,

annual outgoings of more than £1000 million are likely to be involved in a run of five 'high spending' years in the later 1980s and early 1990s. That is very big money; it could amount to 20 per cent of the Defence Ministry's capital budget (strictly defined) in those years.

The idea has been put about that, large though its price-tag is, the Trident D5 purchase nevertheless represents a bargain for the United Kingdom. Prominent among the arguments here has been reference to arrangements with the United States to enable British firms 'to compete on equal terms with US industry for subcontracts for weapons system components for the D5 programme as a whole, including the American programme'.[58] However, this is a side issue, on two counts. In the first place, the scope for British enterprises is strictly limited and their chances of gaining substantial business are slim.[59] In the second place, the following argument (from The Guardian) is undoubtedly correct.

> 'It is always, or nearly always, a mistake to mix the portfolios of defence and employment...If it can be shown that Britain needs Trident, then that will be reason enough to buy it. If it is not needed then the folly will not be redeemed by the goodies of a spin-off from Lockheed.'[60]

And, it might be added, even if the jobs issue is brought into the argument, it is virtually certain that more employment would be generated by £10 billion spent for

other purposes. Procurement funding for new ships, aircraft and armoured vehicles would reach parts of industry which Trident money cannot reach.

High or not, bargain or not, the cash price matters less than the opportunity costs of the Trident programme. Spending £10 billion on this system means not having that amount to use elsewhere. Formally, it means not having the money for either (1) across-the-board augmentation of the defence effort's non-nuclear components or (2) strengthening the Fleet and extra-European capabilities generally: more realistically, it means having no funds (3) to relieve the squeeze on the Services implicit in the Treasury's tightly-drawn cash limits for the defence budget. Looked at this way, Trident appears a very expensive acquisition indeed.

SUMMARY AND CONCLUSION

Does the Trident D5 represent a 'good buy' for Britain? That is the question.

In the opening paragraph of this essay, it was suggested that an appropriate test to apply would be that to which my late father-in-law subjected his wife's requests for additions to her wardrobe.

> 'If you want it, and it suits you, and you can pay for it, you can have it!'

The preceding pages represent an attempt to apply that test.

An examination of the political and military case for acquiring a next-generation strategic nuclear force indicates that the Government 'wants it' for good reasons. The rationales upon which emphasis is placed in official policy pronouncements are not totally convincing. But there are others which, although 'more primitive than intellectual', cannot be dismissed out of hand. Although one may disagree with the Government's judgements, on several points, its wish to have a Trident force 'is not the product of whim or caprice'.*

Ministers were content, in July 1980 and for more than a year after that, to plan for a purchase of American Trident I (or C4) missiles, production of British warheads to put on them and construction of British submarines to take them to sea. Circumstances impelled them to change their plan and to opt - in March 1982 - for buying the bigger, fatter and more potent Trident II (or D5) rockets from the United States. This system does not 'suit' the United Kingdom anything like so well. It is an outsize model, unbecoming a power of moderate stature; and its principal merit - from the British standpoint - is that the missiles (but only the missiles) should be available 'off the peg' from the late 1980s.

On the question of expense - 'paying for it' - the evidence is clear. In my estimation, the United Kingdom's taxpayers will have to find something like £10 billion (at 1982-83 values) for the four-boat programme planned. The cost will fall unevenly,

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* The quoted phrases here are from pages 11 and 14 above.

rising in the later 1980s to a 'hump' at the turn of the decade - during which annual sums of £1-1.25 billion will be required - and falling, although only slowly at first, through the mid-to-late 1990s. While the yearly outlays may amount on average to 'only' 3 per cent of the total defence budget over the 15 to 18-year-long procurement period, in the 'high spending' years the proportion will be 6-8 per cent. Moreover, at this time the expenditure will absorb around 20 per cent of the Defence Ministry's capital budget. In short, the price is high, on any reckoning; and the expense will loom large on the defence budgetary landscape, especially between 1988-89 and 1992-93. (See Table 2 on p.30.)

No judgement on the worthwhileness of the planned project can be made on the basis of estimated outlays alone, of course. The real price of Trident is the alternative use(s) of resources that will have to be forgone to pay for it, i.e. the opportunity cost(s) of economists' parlance. What could be done with £10 billion - or, looking at it in a more practical way, with £1-1.25 billion in the 'high spending' years - for other components of the United Kingdom's defence effort?

Distributing a notional late nineteen-eighties' Trident 'dividend' of c. £1 billion a year evenly among the major functional categories of the overall defence programme would, in theory, permit a 'rolling back' of some of that diminution of the defence effort envisaged in present plans (as set out in the White

Paper, The Way Forward, of June 1981). A few possible amendments to those plans are shown in Table 3 (on p.38 above). Alternatively - and, again, in principle - equipments could be bought 'in place of Trident' to give effect to a reordering of security priorities such as many commentators are advocating in the aftermath of the Falklands imbroglio (April-June 1982). Selected items, with price-tags, are listed in Table 4 (on p.44). However, the Defence Ministry's general budgetary circumstances make all such speculation somewhat artificial. The cash sums it has been allotted for 1982-83 to 1984-85 - and, no doubt, in the Treasury's mind's eye beyond that - are insufficient to cover the probable cost of its programme-in-being. And the shortfall could exceed £1 billion by 1984, if my calculations are right. Hence, the first claim on any hypothetical Trident 'dividend' would presumably be prevention of further erosion of the defence effort, within the existing framework of priorities. (On these points, see pages 40-41 above.) The true opportunity cost of the Trident programme, according to this reasoning, is not being able to prevent the insidious erosion of capabilities as time goes by.

So, does the Trident D5 represent a sensible purchase or doesn't it? The Government wants it, for good reasons. But the D5 is not a suitable system for Britain. And in order to pay for it the nation has to be prepared not merely to forgo improvement of non-nuclear capabilities but actually to countenance

further depletion of them. That is an exorbitant price. The conclusion is that, by my father-in-law's rules, Mrs. Thatcher should not be allowed to have her new missiles. The Prime Minister may choose to ignore the rules, of course, because she is a determined woman. My mother-in-law always abided by them; and is, to this day, highly respected and invariably well-dressed.

Aberdeen
July 1982

NOTES and REFERENCES overleaf.

NOTES and REFERENCES

1. The publications referred to in this paragraph are as follows: The Future United Kingdom Strategic Nuclear Deterrent Force, Defence Open Government Document (DOGD) 80/23, Ministry of Defence, July 1980; The United Kingdom Trident Programme, DOGD 82/1, Ministry of Defence, March 1982 (referred to in the text from time to time as the Trident Memorandum); Statement on the Defence Estimates 1981, Cmnd 8212-I, London: Her Majesty's Stationery Office (HMSO), April 1981; and Statement on the Defence Estimates 1982, Cmnd 8529-I, London: HMSO, June 1982.

2. The Daily Telegraph, 12 March 1982. (Leading article.) Prominent among the dissentient Tory backbenchers is former Navy Minister Keith Speed: see his remarks reported in The Times, 12 February 1982 and his article in The Guardian, 12 March 1982.

3. The Polaris Sales Agreement, Treaty Series No. 59 (1963), Cmnd 2108, London: HMSO, April 1963. For a useful brief review of decisions before 1962-63, see J.F. Rybicki 'Great Britain's Strategic Nuclear Deterrent', Armed Forces Journal International, January 1981, pp.32-36.

4. The phrase 'maintaining the effectiveness' of the Polaris force was the favourite formulation in policy statements throughout the 1970s. On the Chevaline programme, see Ninth Report from the Committee of Public Accounts, Session 1981-82, Chevaline Improvement to the Polaris Missile system, House of Commons Paper 269 of Session 1981-82, London: HMSO, March 1982 (cited hereafter as HC 269 (1981-82)).

5. The British Strategic Nuclear Force, Texts of Letters.... Cmnd 7979, London: HMSO, July 1980.

6. DOGD 80/23, cited at note 1, paras 63 and 64 (p.25).

7. On all this see Bridget Bloom's stories in The Financial Times, (7 September 1981, 30 October 1981 and 2 November 1981 (especially)). On the denouement at the beginning of 1982 see also the Sunday Standard, 7 February 1982 and a good article by Alan L. Otten in The Wall Street Journal, 25 February 1982.

8. See Jon Connell's story in The Sunday Times, 21 February 1982, a piece in The Economist 6 March 1982, and my own article in The Times 8 March 1982.

9. DOGD 82/1, cited at note 1 and The British Strategic Nuclear Force, Texts of Letters...., Cmnd 8517, London: HMSO, March 1982.

10. DOGD 82/1, paras 28, 41 and 42 (p.9).

11. DOGD 80/23 and Cmnd 8212-I. (Full citations at note 1.)

12. All quotations in this paragraph are from either the texts mentioned at note 11 or Secretary of State Nott's Statement to the House of Commons on 11 March 1982. For earlier enunciations of the 'second centre' thesis, see L. Freedman, Britain and Nuclear Weapons, London: Macmillan, 1980, Ch.12, pp.127-134.

13. The quoted phrases in these sub-paragraphs are from the Defence Secretary's statement to the House of Commons on 11 March 1982.

14. Freedman, op.cit, pp.139 and 140.

15. For concise statements of some of the key arguments of 'the disarmers' see J. McMahan, British Nuclear Weapons : For and Against, London: Junction Books, 1981, passim.

16. On these 'reservations' see McMahan, op.cit, Ch.III, passim and Lord Carver's article 'Why Britain should reject Trident', Sunday Times, 21 February 1982.

17. Freedman, op.cit, p.139.

18. McMahan, op.cit, p.149 and p.136.

19. There is a considerable literature on nuclear armament and disarmament issues and the discussion here does not do justice to it. The books by Freedman and McMahan already cited are probably the most important general contributions to the recent debate about Britain's 'Polaris replacement' problem: but there is much relevant material elsewhere, for example in G. Goodwin (ed) Ethics and Nuclear Deterrence, London: Croom Helm, 1982; in L. Martin, The Two-Edged Sword, London: Weidenfeld and Nicholson, 1982; and in E.P. Thompson's Protest and Survive (Spokesman Pamphlet No.71).

20. DOGD 80/23 and the Fourth Report from the Defence Committee, Session 1980-81, Strategic Nuclear Weapons Policy, House of Commons Paper 36 of 1980-81, London: HMSO (cited hereafter as HC 36 (1980-81)).

21. See Lawrence Freedman's note in First Special Report from the Defence Committee, Session 1981-82, Strategic Nuclear Weapons Policy, House of Commons Paper 266 of Session 1981-82, London: HMSO (cited hereafter as HC 266 (1981-82)).

22. DOGD 82/1, para 22 (p.5).

23. Cmnd 8529-I, para 125, p.7.

24. HC 266 (1981-82) pp.24 and 25. See also Thomas J. Downey's article in The New York Times, 11 February 1982, with its contention that 'the Trident II will be the most destabilizing first-strike weapon ever built'; and Henry Stanhope's short piece in The Times, 12 March 1982 entitled 'Trident something of a luxury'.

25. DOGD 82/1, para 31 (p.6).

26. Cmnd 8529-I, para 122 (p.6).

27. Cmnd 8529-I, para 3 (p.1).

28. The argument of the following paragraphs is an elaboration of themes in my essay 'Back to the Drawing Board?' Defence Attache, 3/1982, pp.11-21.

29. Cmnd 8529-II (Defence Statistics), Table 2.3 (on p.12).

30. See HC 266 (1981-82) pp.26 and 27.

31. Cmnd 8517 (Weinberger-Nott Letter) p.5.

32. HC 266 (1981-82) p.28 and Q.93 (on p.15).

33. The statement that the United Kingdom will pay what the US Navy pays is not particularly reassuring, since that is an unknown quantity at this stage. Nor is the argument that the Polaris purchase was completed at a price close to that forecast when the deal was done in 1962: remember that in 1962 Polaris was a long way further down the road than the Trident D5 is in 1982.

34. The quoted statement here is from Lawrence Freedman's Note for the Defence Committee in HC 266 (1981-82) (p.24).

35. The detailed figures are in HC 269 (1981-82), Report, paras 3 and 4 (p.vi). See also the comment on this Report in The Economist 24 April 1982.

36. It was Secretary of State John Nott who said that the cost of the Chevaline improvement programme had 'gone bananas' (The Times, 9 July 1981). But see David Fishlock's article 'Revealed : Chevaline's £1 bn secrets' in The Financial Times, 14 July 1981.

37. HC 266 (1981-82), Q.51 (on p.9).

38. For details on PWR2 see The Financial Times, 15 March 1982. The true prototype is building at Barrow and is scheduled for installation at Dounreay, in the far north of Scotland, during 1984 'for extensive trials and fuel-testing': this prototype will run ashore, 'for several years before the first sea-going PWR is commissioned'.

39. Quoted statements from HC 266 (1981-82), p.28 (Freedman); and from HC 36 (1980-81) Q.1607.

40. HC 266 (1981-82) Qs. 34 and 35.

41. See New Statesman, 2 July 1982, pp.6 and 7. Another development which should perhaps fall into the same category is the new uranium enrichment plant to be built at Capenhurst at a reported cost of over £100 million (see The Financial Times, 30 June 1982).

42. DOGD 82/1, para 41 (p.9).

43. See DOGD 82/1, Figure 6 (on p.8) reproduced in Cmnd 8529-I as Figure 4 (on p.7); and, for another 'interpretation' of the portrayal, HC 266 (1981-82), p.29.

44. See the diagram in Cmnd 8212-I, Figure 11 (on p.41).

45. Cmnd 8529-I, para 123 (on p.6).

46. See my article in The Times, 8 March 1982.

47. HC 36 (1980-81), especially Report, paras 45-49 (pp.xviii-xx) and in what is in effect the Minority Report, paras 72-92 (pp.liii-lviii) and para 108 (pp.lxi-lxii).

48. HC 266 (1981-82), p.22. (Letter dated 9 October 1981, final paragraph.)

49. See Cmnd 8212-I, p.10 and also D. Greenwood Reshaping Britain's Defences, Aberdeen Studies in Defence Economics (ASIDES), No. 19, Summer 1981, pp.8 and 9.

50. The United Kingdom Defence Programme : The Way Forward, Cmnd 8288, London: HMSO, June 1981 (ASIDE No. 19, cited in the previous note, is a commentary on this document.)

51. The Government's Expenditure Plans 1982-83 to 1984-85, Cmnd 8494 (Volumes One and Two), London: HMSO, March 1982. The White Paper's key tabulations were reproduced in most major national newspapers: see, for example, The Financial Times, 10 March 1982.

52. On the distinction between mission programmes and support programmes in Table 3, a differentiation not made in official data, see D. Greenwood Budgeting for Defence, London: Royal United Services Institute (RUSI), 1972, Ch.4, pp.49-55 (and also Ch.1, pp.11-12).

53. Among the first to spot the implicit squeeze was Jon Connell, see The Sunday Times, 6 December 1981. See too Sarah Hogg's piece, also in The Sunday Times, on 14 March 1982. On the general question of tightly-drawn cash limits as harbingers of 'volume squeezes' see The Times, 6 December 1981 (David Blake) and The Financial Times, 11 March 1982 (Max Wilkinson and John Elliott). Relevant too is Sir Leo Pliatsky's piece 'The unfunny money puzzle' in The Financial Times, 15 March 1982.

54. On these themes see my article in The Guardian, 30 June 1982, and also the 'Comment' piece in The Guardian Weekly, week ending 4 July 1982, p.10.

55. The debate got underway in earnest in the days preceding and immediately following the appearance of the 1982 Defence White Paper. See, for instance, the leading article in The Times of 21 June 1982 and subsequent correspondence. It has to be said that many protagonists, particularly naval lobbyists like former Chief of the Defence Staff Lord Hill-Norton, showed an astonishing failure to understand the nature of - and rationale for - the so-called 'Navy Cuts' foreshadowed in The Way Forward (cf. my essay 'Nott's Way Forward' in Defence Attache, 4/1981, pp.9-17).

56. Cmnd 8529 (Foreword).

57. I owe this idea to The Economist, 10 July 1982.

58. See a report in The Financial Times, 17 March 1982 (by Bridget Bloom).

59. Ibid. (the story is headed 'British chances of US subcontracts seem slight'), and in the Sunday Standard, 6 June 1982, an article by Andrew Chuter entitled 'Trident : will it prove a damp squib'. The latter piece explains that, among other things, 50 per cent of the American programme contracts will have been let by mid-1983. Since 'preparatory work and research and development ahead of a contract award takes months, if not years,...this effectively excludes British industry from half the programme already' writes Chuter. On top of that, he argues that 'for the less experienced British company the obstacles to getting a realistic chance of bidding for at least half the programme are daunting'.

60. The Guardian, 23 February 1982 (Leading article).

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