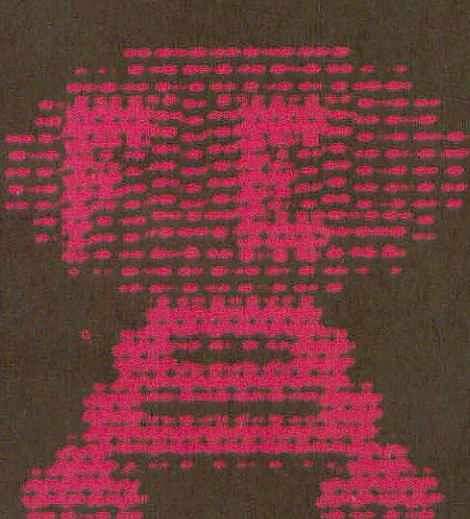


WAR LODS

CISREPORT **THE UK ARMS INDUSTRY**

95p



THE ARMS INDUSTRY

Spring 1982 Anti-Report No.31

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This Report exposes the military establishment behind Britain's growing weapons programme.

Thatcher has decided to use 'defence' spending to spearhead her economic strategy, but the war lords' clamour for more arms is taking the economy deeper and deeper into a recessionary spiral.

The government's decision to buy Trident has been criticised from all sides. Backbench Tories, sections of the defence lobby and the anti-nuclear movement have all called for its cancellation.

But if the Tories decide to cancel Trident this decision will not be based on a fear of the dangers of nuclear escalation. Instead, it will be an indication that pressures from a significant lobby within the Ministry of Defence and the arms manufacturers have been effective.

Growth

Despite substantial growth in money spent on arms, the Ministry of Defence budgets are in trouble. The last few years have seen continual revision of cash limits as more money has been passed from the Procurement Executive to the arms companies. The acquisition of Trident II, at a minimum cost of £10billion, can only worsen this crisis. But its cancellation will not mean that the arms companies receive less money.

The armourers are spread across a whole range of industry. Each year they share £6billion of Ministry of Defence money. Arms expenditure has paid for much of their growth and the current recession means that these companies are looking to the arms budget for their profits.

Trident represents just one part of Britain's nuclear arsenal. Its expense has been widely publicised but it's not the

only money-eating weapon of destruction: many other major projects are consuming increasing sums of money. The Tornado aircraft, which can carry out nuclear attacks, will have cost more than the government originally planned to spend on Trident. Chevaline, the warhead for Polaris, was ordered at a projected cost of £250million and ended up costing £1billion.

Arms expenditure has been rising throughout Europe and, as NATO demands more money on arms, Thatcher commits public money for decades ahead. The bulk of this money is going into increasingly advanced technology and fewer and fewer units so that, despite the Tory propaganda, the extra expenditure is also creating unemployment. The defence budget is being used to subsidise industry while other government spending is slashed.

The arms and defence systems that are purchased and maintained are, it is continually argued, for our benefit and our security. But the reality is that the main beneficiaries are the small number of people who control the armed services and the industries that supply the arms.

The wide support that the disarmament movement is receiving, not only in Britain but right across Europe, indicates the growing desire of people to substitute their own perceptions of what constitutes security. CND and the other European disarmament movements are the only hope if there is to be any chance of rolling back the militarist expansion with which Reagan and Thatcher have begun the 1980s.

As the attacks on living standards continue throughout the West, and as all manners of atrocities are carried out and justified in the name of freedom and security, we have to ask ourselves 'Why?' This Report contains some of the answers.

CIS

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THE NUCLEAR SPIRAL

The announcement by the Tories in July 1980 that they had made a deal with the United States to buy Trident as a replacement for Polaris was the culmination of thirty-five years of massive blunders obscured by absolute secrecy. From the start decisions had been taken by an inner circle of cabinet ministers and top civil servants who, protected by the all embracing cloak of 'national security', committed ever increasing sums of money to the production of nuclear weapons.

Even as the ashes of Hiroshima and Nagasaki smouldered, a secret group of Ministers took the first step in the chain which led to Trident. They set up a committee of scientists and officials whose brief was to advise them on the possibilities of nuclear power. The committee took little time to decide, along with the Chiefs of Staff, that Britain should build the bomb.

The Cabinet under Attlee seemed to balk at this prospect and instead asked for a research programme into all aspects of the use of atomic power. It is difficult to decipher the point of this decision since at the same time

Christopher Hinton at the Ministry of Supply was instructed by his department to start, as a matter of national urgency, an engineering programme for a British bomb. By January 1947, when the Cabinet formally decided to give the go ahead to a military nuclear programme, it was already well under way. Hinton said it was nearly 30 years before he discovered that he had initiated production at least a year before the inner Cabinet had decided on a bomb.

Despite the formal decisions, the production of the bomb remained a deadly secret. As late as 1951 *The Economist* was dismissing rumours that a nuclear programme existed, and when Churchill returned as Prime Minister in 1951 he was surprised to find that his predecessors had spent nearly £100million without informing Parliament. Ignoring all notions of accountability the costs of the programme had been broken up into the most general subheadings and hidden inside the military budget.

Dominance

Once the first bomb was exploded in 1952, Britain was well on the way to the escalations in destructive power and cost that lie behind the nuclear race. Atomic power was seen as the entrance qualification for the world dominance stakes: the next step was more sophisticated ways of delivering the devastation.

Weapons became throwaway items, made redundant by the arms spiral as successive governments embarked on a game of deploy and cancel in their effort to keep up with US technological developments. By 1956 the air force had free fall nuclear bombs carried on existing long rang bombers — a combination which was unlikely to work. Almost immediately they were considered outdated and the Cabinet com-

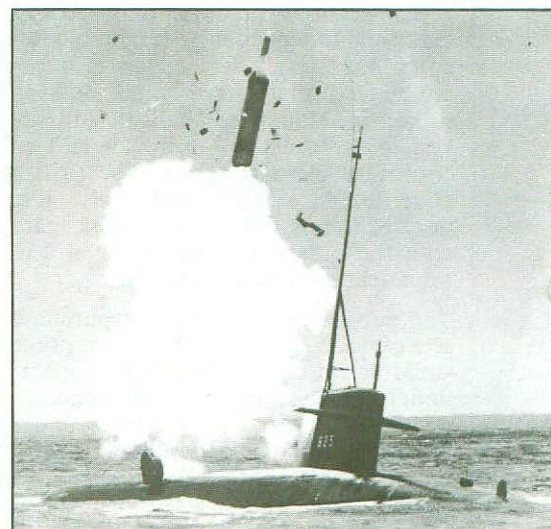
mitted cash to a purpose built delivery system — V bombers equipped with Blue Steel missiles — which started coming into service in 1958. At the same time as they were being built their presumed replacement, Blue Streak (an intermediate range ballistic missile) was in the planning stage. It didn't stay there long: the missile was defined as obsolete before it was due to be operational and was cancelled.

The government was forced to face the fact that Britain could not produce a major weapons system from its own resources. The Tories decided to buy the US Skybolt — an air launched ballistic missile still under development. In exchange for the privilege of the off-the-shelf purchase of Skybolt, the government offered Holy Loch to the Americans as a future Polaris base. But if the Cabinet breathed a sigh of relief that the next generation of weapons was secure, it didn't do so for long.

In November 1962, to the apparent surprise and subsequent panic of the British, the US cancelled Skybolt. In December, Macmillan and Kennedy



1966: Blue Streak stuck in the snow.



A Polaris missile launched from the surface.

When money is involved, everything's secret

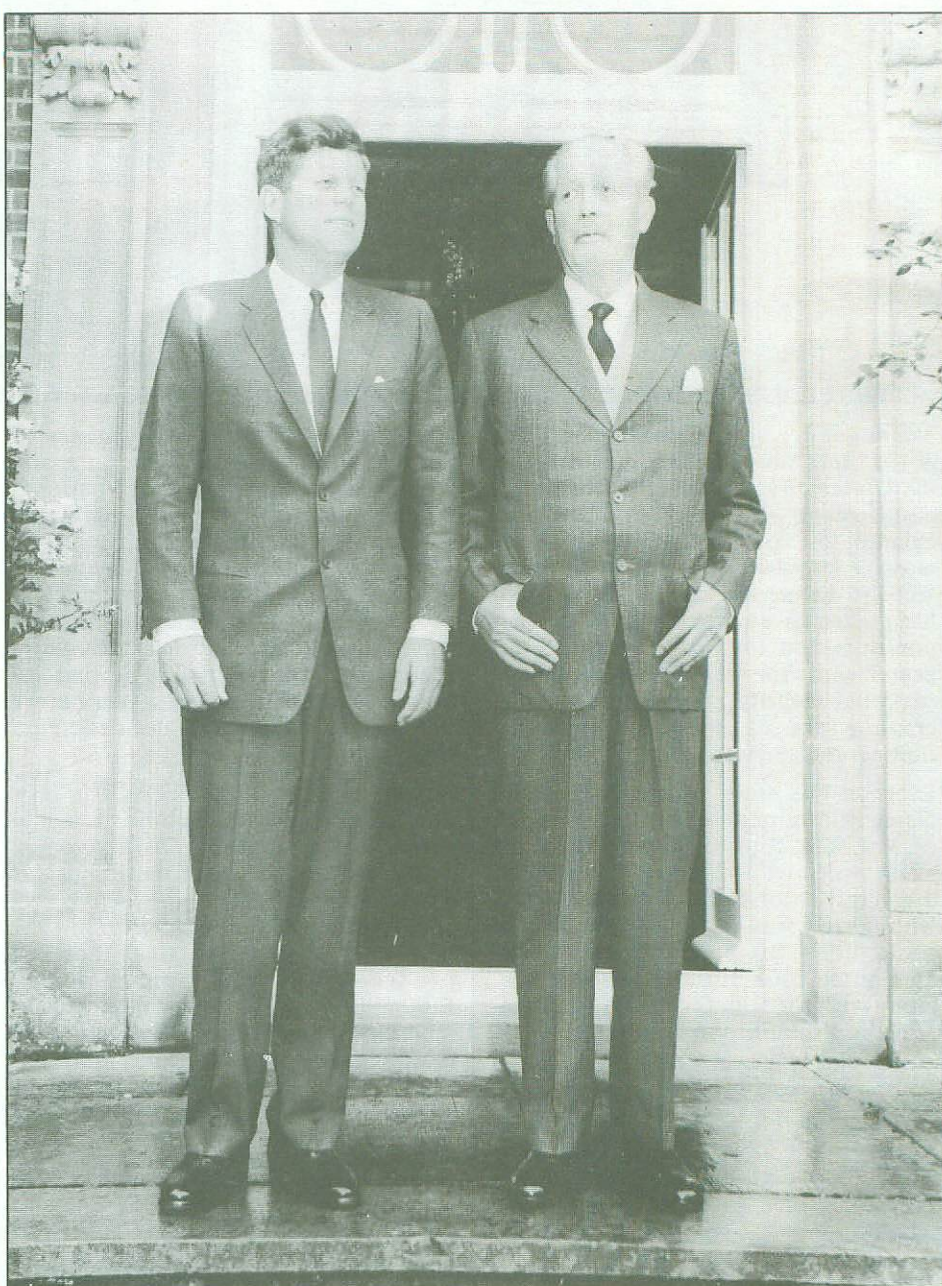
met in Nassau and agreed a deal allowing the UK to purchase Polaris missiles and build the US-designed submarines. This time the price for access to US technology was a commitment to assign UK nuclear forces to NATO and target them in accordance with NATO (basically meaning US) plans. The agreement stated that 'these British forces will be used for the purposes of international defence of the Western Alliance in all circumstances' to which Macmillan added the rider 'except where Her Majesty's Government may decide that supreme national interests are at stake'. These fourteen words form the entire basis of claims to the independence of the British deterrent.

The government opted to buy the most sophisticated version of the Polaris missile which could spread three nuclear explosions over one area. The warheads for these missiles were to be designed and built in Britain. During the 1960s four submarines, carrying 16 missiles each, were built — two at the Cammel Laird shipyard in Birkenhead and two at Vickers in Barrow. They were launched between 1966 and 1968 and by September 1970 had all been 'on station', waiting to fire their missiles at the heart of the USSR.

Obsolete

Meanwhile over the ocean the American government was becoming alarmist about an alleged ABM (anti-ballistic missile) system which they said ringed Moscow. The great missile race was launched. Despite the knowledge that an ABM system was more than likely to cause the very devastation in Moscow that it was supposed to prevent, US arms manufacturers used it as a justification for developing MIRVs (Multiple Independently-targetable Re-entry Vehicles). The US government announced that they would build a submarine launched ballistic missile system — Poseidon — which would incorporate these weapons. The British government, which had only just decided to buy Polaris, was faced again with the prospect of falling behind in the nuclear escalation stakes.

The admission, implicit in a purchase of Poseidon, that the UK Polaris force could be obsolete before it was operational, was deemed politically unacceptable. In 1967 the Cabinet under Harold Wilson decided instead to carry out research into avoiding ABM systems. The weapons design team at the UK Atomic Weapons Research Establishment in Aldermaston gladly seized upon this project since a new R&D effort would hold their highly specialised skills together.



Kennedy and Macmillan. In 1962 they became the architects of Britain's nuclear dependence.

In 1967 Aldermaston started working on a concept known as 'Antelope 1', an early US design study for Poseidon. With their US counterparts, mostly at Lockheed in California, they spent some years engaged in 'serious studies' on 'improvements' to the Polaris re-entry system. Between 1970 and 1973 Antelope became 'Super-Antelope' and eventually went into development under the code name 'Chevaline'. The official story was that Chevaline would eventually cost £100million-£150million.

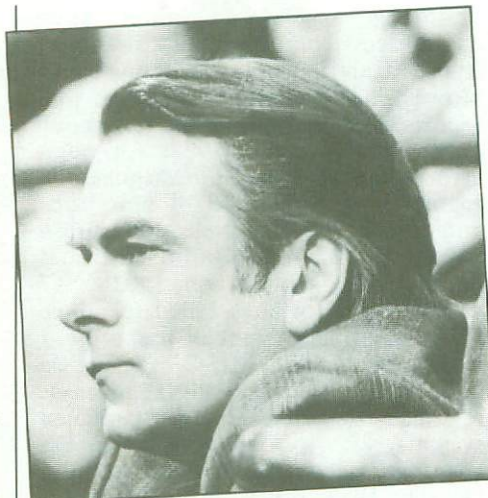
The point where a decision to move from 'serious study' into the development phase, where the real costs would lie, is unclear. Aldermaston states that government approval was granted in 1970 while Freedman (p45) records a

secret Cabinet committee of the Heath administration as only giving its approval in 1973. Costs of Chevaline development — hidden under 'Other R&D' in the 1970s Defence White Papers — started rising rapidly in 1972 and from that year onwards the item 'Special Materials' (which includes materials for nuclear warheads) ceased to appear separately in the defence expenditure figures.

In February 1973 a parliamentary committee examining nuclear deterrence, suspicious of a secret R&D programme to develop a new British warhead, asked Lord Carrington, Heath's Defence Secretary, about the possibility of hidden funds in the defence budget. Concealment of 'that sort of money' was impossible, said Carrington, and

besides he wouldn't be party to a disguised budget. The history of the secret negotiations and decisions made a mockery of this statement as does the fact that during 1973 responsibility for Aldermaston passed from the UKAEA to the MoD. The wish to disguise the existence of the Chevaline programme appears to have been the major reason for this bureaucratic shuffle. It took four years before news of the Chavaline project began to leak out.

Chevaline was a cost disaster. In April 1974 a secret Cabinet committee of the incoming Labour Government approved the already escalating price in time for the first Chevaline explosion at the US test site in Nevada. Further cost



escalation provoked a review in 1975 when a forecast of £400million was approved on the grounds that the Aldermaston team must be kept busy. It was no longer possible to opt for Poseidon especially since Nixon, in an effort to gain military endorsement for the first Strategic Arms Limitation Talks, had approved the development of the next US system — Trident.

Trapped

In mid-1977, with estimates at the £800million mark, a Cabinet group seriously considered scrapping Chevaline. But the logic of expensive weapons development prevailed: it was decided that with so much already

spent, savings would be minimal. The last point of no return in a momentous chain had been reached.

At the same time as the Labour committee was giving the final go-ahead to Chevaline, officials at the MoD suggested that they needed to consider the question of a replacement for the whole Polaris system. This advice was somewhat belated since it came after two important decisions had been made. Even the inner Cabinet appears to have exercised no control over them.

In 1976 the MoD drew up a specification to which Rolls Royce and Associates were to design and build a prototype reactor for a new generation of nuclear submarines. In physical dimensions and power output the specification took account of the possibility that a new Hunter-Killer (SSN) submarine fleet would be built during the 1990s, that a new SLBM force might be made up of upgraded Polaris missiles and new Polaris-type submarines, or that a new SLBM force would be based on the US Trident missile system.

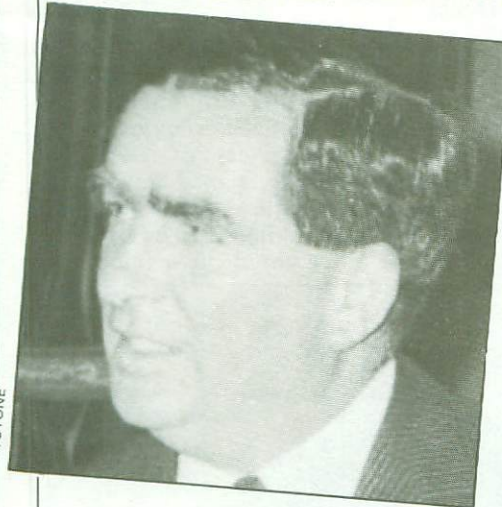
In addition, as early as 1975 scientists at Aldermaston were engaged on preliminary designs for a warhead to fit the US Trident missile. The MoD actually described the work as 'an intelligent anticipation of government policy, not an attempt to pre-empt a decision about which system to buy' when they announced that their 'Trident-compatible' tests were complete in August 1980. Whether or not this is completely true there can be little doubt that Nevada site test explosions from 1978 onwards had as much, if not more, to do with Trident warhead development than with Chevaline.

One further thing is clear; the overlap of the Chevaline and Trident R&D periods allowed the MoD to use the public existence of the Chevaline programme to obscure the results of decisions taken as many as six years before.

Ritual

Vickers' Barrow shipyard, where all four Trident submarines will be built, is currently being converted into an indoor submarine-building facility. Work started in the late 1970s and it seems no coincidence that the target date for completion (1985-6) is exactly the time the MoD plans to start building Trident submarines.

Having decided to even consider replacing the Polaris force the Labour Cabinet prepared the ground for the Tory acquisition of Trident. Two committees set up in 1977 to consider the options virtually ruled out anything



The companies

Britain will buy its strategic nuclear deterrent Trident, like its predecessor Polaris, from the United States. This doesn't mean that British companies don't profit in the process.

British Aerospace handles the inspection and installation of the missiles and associated systems on Polaris and presumably will take on this role for Trident. The company is also heavily involved in the management of the Chevaline warhead programme, and as the prime outside contractor put 300 of its engineers at Bristol onto managing the project in the mid 1970s. It was their influence, argues Admiral Sir Raymond Lygo, Chairman of BAe's missiles division, that got the Chevaline project 'back on track in terms of costs and timetable'. British Aerospace is now arguing that they should be given a big share of the Trident programme, despite the increase in costs that this would bring, in order to build up 'capability for the design and manufacture of large solid fuelled rocket motors'. No doubt BAe have an eye on the potential for the growing telecommunications and broadcasting satellite market.

The example that BAe probably envy is that of Rolls Royce and Associates. This company, partly owned by Vickers, Rolls Royce, Foster

Wheeler and Babcock and Wilcox, designs and supplies atomic reactors for British nuclear submarines based on technology from the Westinghouse corporation of the US. Rolls Royce and Associates developed the Dreadnought plant 'through several different generations of major modifications and also minor modifications to improve the plant'. The company is now building a new prototype reactor in Dounreay, the work for which was initiated in 1976. Its brief was to produce a new reactor for future nuclear submarines, updated Polaris submarines and Trident. The reactor vessels themselves are supplied by Babcock and Wilcox. Rolls Royce state that the new reactors will be many times more expensive.

Other sub-contractors in electronics, components etc will all have some work to do. They number approximately 120, and are typified by Gresham Lion Ltd, a privately owned company which employs around 900 people. Gresham Lion manufacture the Type 2400 weapon control system in collaboration with Ferranti. It's a fairly complicated package of 'weapon interface electronics for the torpedos and missiles in the nuclear submarines of the Navy'. It's little wonder that in 1981 they were receiving between £10-25million from the MoD.

but a sea-launched force. The Labour Cabinet decided that in principle a third generation strategic nuclear force should go ahead and that, not surprisingly, it should be a submarine one. Senior US sources say that Callaghan was committed to buy Trident had Labour won the 1979 election. While Labour governments have had more difficulty in keeping their word on nuclear issues than the traditionally pro-nuclear Tories there were indications in the attitude of the Labour leaders that, although they would use a public debate to express their unwillingness to buy the next generation of nuclear weapons, they would use secret committees to do just that.

The 1979 Tory election victory, with a manifesto commitment to Polaris replacement, resulted in the creation of 'MISC 7' (for miscellaneous —

denoting a Tory Cabinet sub-committee) comprised of Thatcher, Pym, Carrington, Whitelaw and Howe. This committee was given two reports, last seen by the secret Labour groups in November 1978. Although efforts had been made to disguise the reports by the addition of new 'tops and tails' (a Whitehall convention whereby former administrations' papers are kept secret) MISC 7 members cannot have failed to notice the substantial amount of preparatory work already done. MISC 7 appears to have at least gone through the motions of considering alternative sea-launched systems, with a briefing from the US Cruise Missile Office in Washington in October 1979. But with a US government genuinely wanting the UK to buy the full Trident system, and the UK intending to continue US-UK naval links, one member of MISC 7 describ-

ed the process as a 'painstaking attempt not to be seen jumping to the obvious conclusion' (Freedman, p65).

With the ritual out of the way, various government officials went to work on the terms under which the UK could buy Trident. The deal that was concluded bore a remarkable similarity to the Polaris sale: four submarines with an option on the fifth, initial delivery of about 100 missiles and a 5% surcharge as a British contribution to US R&D costs. It is not unlikely that the particularly large number of Cruise missiles allocated to the UK was also the result of the Trident negotiations.

Deals

On the 15th June 1980 Michael Quinlan, Deputy Under-Secretary in charge of Policy and Programmes at the MoD and Walt Slowcombe, US Deputy Under-Secretary of Defence for Policy Planning, signed the letter of agreement on the boot of a car somewhere in Washington. The British were so secretive about the affair that

Nuclear explosion

There is more to Britain's nuclear weapons stockpile than the four missile-carrying submarines. NATO forces, and that includes the British military, have deployed all types of nuclear weapons throughout their armed services. The spread is such that the old division between 'nuclear' and 'conventional' weapons no longer holds, and nuclear weapons are now envisaged for the most menial military tasks. These weapons are not about deterrence, they are to be used in fighting wars.

In northern Germany the British army have Lance tactical missiles which, armed with a nuclear warhead, have a range of up to 75 miles. These are under joint British/US arms control, but the army also has full control of a range of weapons that can deliver nuclear shells. The self-propelled howitzer, the M 110, can fire shells over about 12 miles. Other guns able to fire nuclear shells are being purchased by the army. These include 50 M 109 guns and the new multinational FH 70 towed howitzer which are nuclear-capable.

The Royal Air Force still has a nuclear capacity, with Vulcan bombers based in the UK designated as low level strike bombers. The Buccaneer aircraft can also deliver nuclear weapons over a distance of more than a thousand miles. In the 1980s these planes are due to be replaced by the Tornado, which can carry nuclear weapons into battle as a low level high speed bomber. The Jaguar aircraft and the AV 8 B can both carry nuclear bombs.

The RAF also operates Nimrod aircraft which, designed for surveillance over the sea and submarine hunting, carry nuclear depth charges.

The Royal Navy has, in addition to the Polaris missiles, nuclear depth charges which can be dropped from ship-borne helicopters such as the Sea King, Lynx and Wasp helicopters. Sea Harriers, the naval version of the RAF's Harrier, can also carry nuclear bombs, for use against surface targets on sea and land.



A Westland built anti-submarine helicopter.

All this means that nuclear weapons have become a virtual commonplace in Britain's military bases. Airfields, dock yards and army depots anywhere in the country are liable to contain stores of these lethal warheads.

The politicians and the bureaucrats in the MoD continually stress that the use of a nuclear deterrent is unthinkable. Their argument is that nuclear weapons only exist to prevent large-scale war. Yet governments have been taking decisions that make it easier and more likely that nuclear warfare can escalate from conventional war. Whatever the decisions on Trident or Polaris, Britain is still integrated into NATO, and makes its contribution to the growing arsenal of atomic weapons that are designed to be used in Europe and the North Sea.

instead of getting the British Embassy to type the letter, notepaper was taken to the Pentagon where both letters of exchange were typed.

The saga of Trident will not end there. There is every indication that it is heading for exactly the same problems that have dogged the British nuclear weapons programme from the first. Polaris was supposed to be a relatively 'cheap' way of getting a British deterrent. The cost escalation of Chevaline as well as the January 1982 announcement by the MoD that modernisation of the Polaris submarines will cost 'several hundred million pounds' made nonsense of this. Trident was supposed

to cost £4-5billion: already it has become apparent that at a conservative estimate it will cost £10billion.

When Pym announced the Trident deal he was adamant that £5billion was the absolute maximum the system would cost. Within months he had to take this back: almost as an afterthought he announced that variations on cost could add up to £1billion extra.

It is impossible to see how Pym decided on these figures. As the House of Commons Defence Committee commented 'one of the most bizarre aspects of the proposed procurement of a new generation deterrent based on Trident missiles is the great degree of uncertainty as to the deterrent's final form'. The Tories had originally decided to buy Trident I only to be thrown into confusion by the American announcement that Trident I was to be replaced by a much more sophisticated version — Trident II.

If the Ministry opts for Trident I it will be buying an obsolete weapon which will end up more expensive because the US manufacturers will no longer be



This kidney machine will save a life.



This fallout shelter holds 12 people for a month.



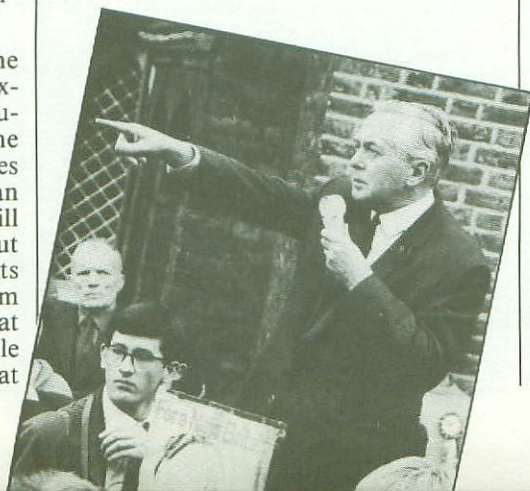
making it in bulk. But the acquisition of Trident II will also bring an escalation of cost that is, at present, indeterminate.

There is no doubt that each part of the Trident II system will prove more expensive than predicted: the only confusion is about the extent to which the costs will rise. Trident II submarines will be 10 feet bigger in diameter than the largest Polaris — a fact which will add at least £50million to each one. But the problem created by the bigger boats might make this cost rise seem minimal. For there is some doubt that the Trident II submarines will be able to enter the Rosyth refitting basin at

any other time than high tide without expensive adjustments. Add to this an estimate that larger missiles for the system will mean a 25-50% cost increase, and the extra costs needed to solve safety problems which will be caused by storing the more explosive fuel at Coulport, and the price of the Trident system breaks all previous records.

Radical

The decision to buy Trident will cause severe budgetary problems both within the MoD and within the larger economy. But it could also have more far reaching consequences. The Tories justify their decision by saying that possession of Trident will mean a continuation of a commitment to a British deterrent. They argue that it will simply restore Britain's strategic nuclear capability to what it was 10 years ago relative to the capabilities of the other nuclear powers.



Very few people agree with this assessment. Both the Institute of Strategic Studies and the House of Commons Defence Committee have stated that the acquisition of a Trident force would mean a considerable increase in the number of deliverable warheads controlled by Britain and in effect could be regarded as vertical proliferation. Trident cannot be justified even in terms of what is usually called the 'United Kingdom's strategic needs'. If, in addition, the government decides to buy Trident II missiles, which are capable of effectively attacking Soviet missiles in their silos, this would be a radical change in Britain's strategic nuclear posture.

Britain's venture into the possession of its own 'deterrent' has already cost billions of pounds. That money has been cut out of government spending to fund weapons of mass destruction which were all said to be obsolete almost as soon as they came off the production lines. Successive governments, and sometimes it seems individual civil servants have made decisions which developed their own momentum and had severe long term ramifications. All this has been accomplished in secret in the name of national security. Perhaps this is the final irony — behind the grand words the only justification for Britain's nuclear deterrent is so that Britain, without its NATO allies, can have the privilege of being one of the two parties to start a nuclear holocaust. Trident is the means — war is the end.

THE DEFENCE BUDGET

In the financial year 1981/2 the government aims to spend a total of £12.6billion on the military. This sum represents 11.5% of total government expenditure and continues the disproportionate weighting that is given to the military in Britain. Britain spends more money per person in the armed forces than any other NATO country; and as a proportion of gross domestic product, the Tories are committed to spending more than any other European government.

The defence budget for 1981/2 represented an 8% increase, in real terms, over the spending levels of 1978/9, the year immediately preceding Thatcher's accession to power. This is a phenomenal rise in spending, especially given the economic climate in which it has been incurred. It seems that there is not enough money for anything other than arms spending. Since 1975/6, in fact, while total public spending on programmes has fallen by almost £2billion after taking inflation into account, spending on the military has risen by over £.5billion. And all of that increase has gone to the armourers. Their bank

balances have blossomed while the community's schools, hospitals and social services have withered.

The military budget not only grows in the face of government spending cuts, but gets preferential cash allocations unheard of in other departments. Most budgets (supposedly including defence) are subject to severe cash limits. These mean that cash is allocated each year and the amount of spending has to be adjusted to fit the limit, however much prices might rise in that year.

Cash limits have been used by the government to control public spending and, in the health service for example, as a highly effective way of imposing cuts. Health Authorities, bound by the limits, have been forced to reduce services, close wards and postpone spending. To quote Gerard Vaughan when he was Minister of Health: 'cash limits are paramount once the year starts. If anything has to give it is the volume'.

But it was a very different story for spending on arms. In 1980/81 the defence cash limit was set at £10.1billion. It didn't stay that way for long. In July 1980 the limit was in-

creased by £164million to take account of pay increases in the civil service. In August 1980 a further £254million was added to the defence budget — £54million went to increased pay in the armed forces and the other £200million was a general gift for, as the White Paper put it, 'the priority attached to defence'. Despite this increase the defence budget hit severe problems later in the year and in a spring supplementary estimate, another £376million was given to arms procurement.

Equipment

So in just one financial year, the increase in cash limits amounted to £743million, a rise of 7.5%. Parliamentary procedures meant that no discussion was allowed on most of these increases. In fact, less than 2% of the entire military budget was subject to any sort of detailed parliamentary scrutiny before being approved.

The escalation of spending does not stop there. In November 1981 it was announced that the 1981/2 cash limit was being raised by £319million to

Main areas of production spending

| |
|-----------------------------|
| Sea equipment (32%) £1,343m |
| Land equipment (20%) £820m |
| Air equipment (40%) £1,689m |
| General support (8%) £316m |

Equipment procurement: where the money goes 1981/2

| |
|--------------------------------------|
| Budget overrun (estimate 10%) £585m |
| Research & development (26%) £1,683m |
| Development (22%) £1,419m |
| Research (4%) £264m |
| Production (65%) £4,167m |
| New equipment (39%) £2,540m |
| Spares (25%) £1,627m |

Military running costs, excluding equipment 1981/2

| |
|--|
| Forces pay and allowances (38%) £2,623m |
| Forces pension (9%) £603m |
| Civilian pay (25%) £1,716m |
| Building and miscellaneous stores and services (29%) £1,980m |

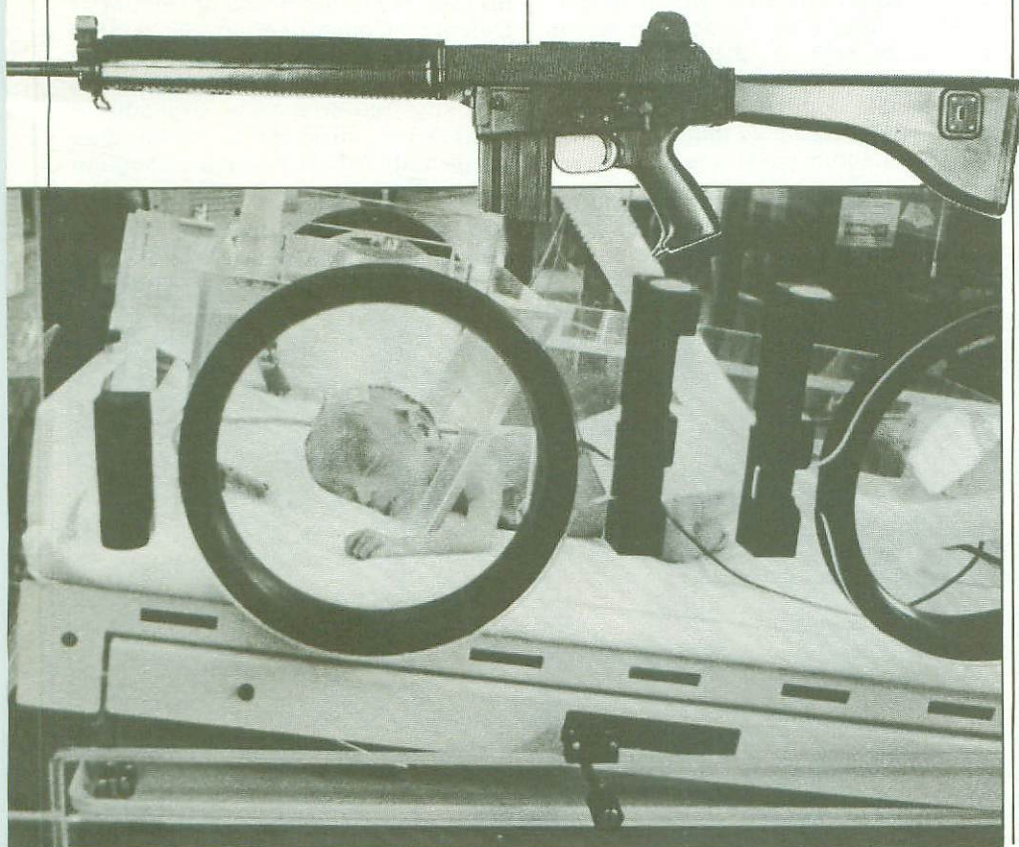
£12.6billion, with the warning of a further increase in the spring. At the same time the 1982/3 budget was increased by £600million to over £14billion. This all meant that in a period of about 18 months, increases in spending totalled well over £1.5billion.

A large part of these huge sums of money is spent on equipment. Equipment procurement covers research, development and production of new equipment and spares for the military. It excludes the purchase of supplies such as petrol and food.

Government financing of R&D, 1979

in MUA (millions of European units of account)

| Objective | Germany | France | UK |
|--|--------------|--------------|--------------|
| Earth & atmosphere, human environment & health, social & sociological, space | 1,291 | 835 | 295 |
| Energy & agriculture | 974 | 530 | 327 |
| Industrial productivity & technology | 606 | 443 | 135 |
| General promotion of knowledge | 2,718 | 1,081 | 648 |
| Defence | 730 | 1,592 | 1,779 |
| Not itemised | — | 19 | 35 |
| Total | 6,318 | 4,500 | 3,220 |



going to the private sector armourers, British Aerospace and the electronics manufacturers and so on, while the more traditional manufacturers of ships and guns, the state owned British Shipbuilders and Royal Ordnance Factories for example, have to accept declining orders and decimate their workforces to compensate. For the private sector the past few years have brought rapid growth and even greater promise for the future. Thatcher's insistence that as much work be placed in the private sector as possible, particularly in terms of research and development, means that many warfare systems of the future are being developed now for production in coming years.

Research Costs

Almost one-third of the equipment budget, about £1.7billion, goes on research and development. This is a vast sum of money compared with the amounts spent elsewhere in industry. Overall Britain spends relatively little on research and development compared to other European countries, yet military research and development is very high.

There has been a phenomenal rise in spending on equipment over the past six years. In 1975/6 it accounted for 34% of total spending. By 1981/2, this is budgeted to rise to 44%. The actual figure will certainly be higher, as the MoD's recent financial problems have been caused by overspending on equipment.

The growth of equipment purchases has been such that these are now by far and away the largest part of military spending. In 1981/2 the MoD plan to spend a total of £6billion on procurement. This compares with less than £5billion spent on pay and pensions for both uniformed and civilian staff.

The emphasis of military spending has been reflecting the structural changes that have been occurring in the arms business. Most of the new business is

British Aerospace and the electronics companies' main arms projects

| Project | Cost (approximate) | Company |
|---------------------------------------|--------------------|----------------------|
| Tornado GR1 & F2 plane | £9,500m | BAe/GEC Marconi |
| AV8B plane ¹ | £1,000m | BAe |
| Sting Ray torpedo | £ 920m | GEC Marconi |
| Type 42 Destroyer equipment | £ 680m | Ferranti/GEC Marconi |
| Heavyweight torpedo ² | £ 500m | GEC Marconi |
| Nimrod planes | £ 360m | GEC Marconi |
| Sea Eagle missile | £ 350m | BAe/GEC Marconi |
| Rapier missile update | £ 320m | GEC Marconi |
| New sonar systems | £ 240m | Plessey |
| Sea Skua missile ² | £ 200m | BAe |
| Blow Pipe missile | £ 200m | Shorts |
| Ptarmigan communications ³ | £ 150m | Plessey |

Notes

- 1 Estimated value of work going to UK.
- 2 Total development and initial production costs.
- 3 First phase only.

What the MoD buys — 1979/80

| | £ million |
|---|--------------|
| Total | 3,876 |
| Food | 93 |
| Solid Fuels | 6 |
| Petroleum products | 382 |
| Chemicals, including explosives | 34 |
| Metal manufacture | 9 |
| Ordnance and small arms | 224 |
| Other mechanical engineering | 114 |
| Instrument engineering | 93 |
| Radio and electronic components | 84 |
| Radio, radar and electronic capital goods | 540 |
| Other electrical engineering | 145 |
| Shipbuildings and marine engineering | 409 |
| Aerospace equipment | 1,239 |
| Other vehicles | 107 |
| Metal goods not elsewhere specified | 19 |
| Textiles and clothing | 60 |
| Other manufacturing industry | 42 |
| Gas, electricity and water supply | 101 |
| Professional and scientific services | 47 |
| Other industries and services | 128 |

Source: Defence Estimates 1981.

The MoD estimates that, of the money spent on buying equipment, 60% goes on major projects. These are substantial programmes which take several years to deliver. Because of this it is difficult to tell what the MoD actually buys each year. Official figures give total costs and major commitments — they do not give specific details of what is bought in any one year.

An order for a major project commits the defence budget to heavy expenditure in the future. The Tornado air-

craft programme, for example, was started in the 1970s and will only be finally completed by the end of this decade. Because of budget pressures deliveries of the planes, which cost around £15million each, have been regularly slowed down: despite this the MoD will spend about £1billion on Tornado in 1982/3.

Overspending

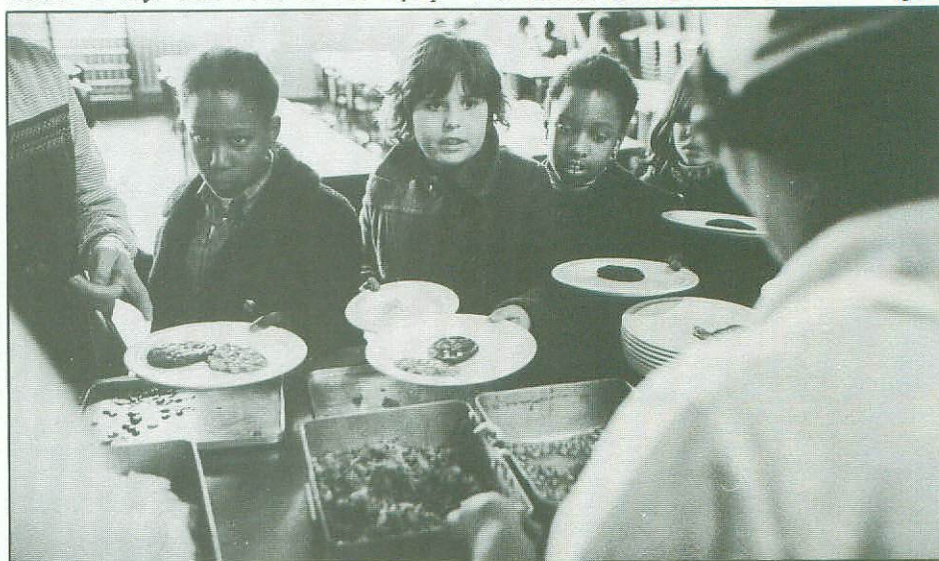
Past commitments to buy expensive equipment are causing severe problems for the MoD. In March 1977 they were contracted to buy £2.85billion worth: by March 1980 it was £6.5billion, a real increase of 51%. As the MoD inquiry into cost overruns points out, these contractual commitments were the result of decisions made by the previous Labour government.

The MoD claims that its overspending is the inevitable result of previous decisions. It says that 90% of the equip-

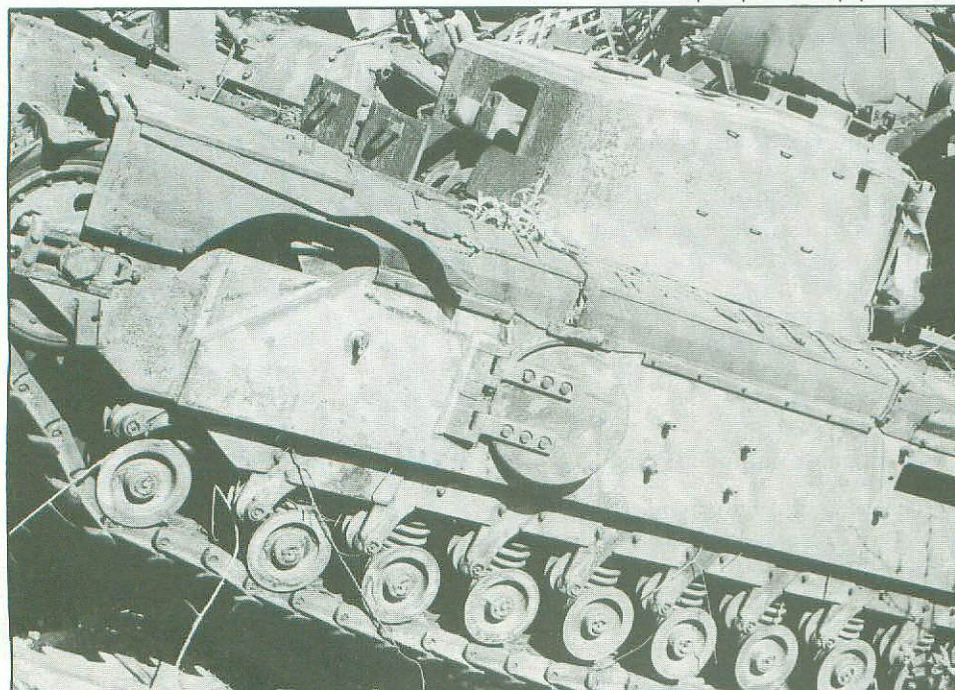
ment budget set aside for major projects in any year is the product of previous commitments, leaving very little room for manoeuvre. This means that the impact of Tory decisions to spend more on equipment will only be felt in the future.

Defence spending is planned on a ten-year basis (the Long Term Costing) the details of which are not normally published. But in 1980 the government broke with this tradition when it revealed that defence spending would go up by 3% a year in real terms until 1986 and by 1% a year thereafter. In his evidence to the House of Commons Defence Committee in November 1980, Mr Quinlan, Deputy Under Secretary of State at the MoD, said that the government's expenditure plans were sufficient to more than compensate for the estimated £5billion cost of Trident.

The Defence Committee disagreed. Its comment on the Defence White Paper



More and more money is spent on equipment which rapidly becomes obsolete.



was that '... the government commitments to spend money on defence have outstripped the availability of funds in the defence budget despite the fact that ... the budget will have increased in real terms by more than 8%'. The government's commitment to the Trident programme can only exacerbate these problems.

Spending on Trident is expected to follow a ten-year profile. It will be at its highest between 1985 and 1990, when it will absorb between 15% and 20% of the yearly budget for new equipment. At the same time a number of other major programmes will be reaching fruition.

There is already a military budget crisis, even without heavy spending on Trident. A number of projects including Tornado and the European Combat Aircraft have been delayed, the navy has a moratorium on ordering any further ships imposed on it and plans to build a new tank, the MBT 80, have been cancelled.

Such cancellations are already occurring even though the government has stated its intention to make military spending 21% higher in real terms in 1985/6 than it was in 1978/9. They may not be able to sustain that increase, given the destruction they have wrought in the rest of the economy.

One thing is clear. Past decisions on arms spending have locked the military and government into a spiral of expenditure that cannot be easily rolled back. For the private armourers this cycle of growth will ensure that their profits are sustained. This will certainly mean fewer jobs, alongside cuts in social services and worsening living standards. But this is the price this government tells us we must pay for security.

WAR DOGS



James Blyth

As the head of the MoD's Defence Sales Organisation he is the UK's top arms dealer. He is one of many private industrialists who hold top positions in the 'defence' establishment.

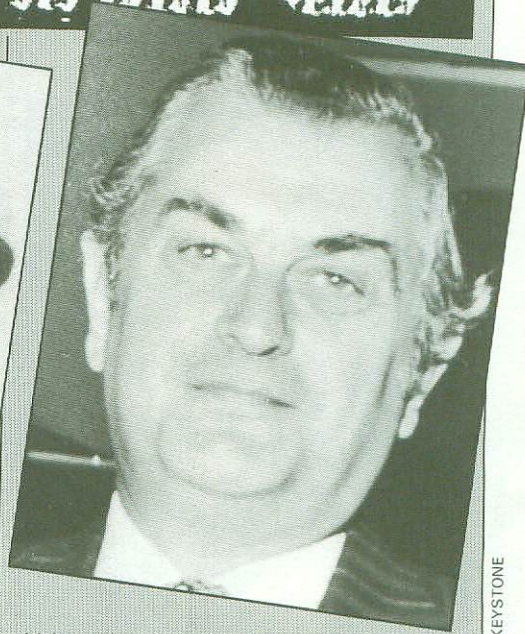
Formerly a director of Lucas Aerospace he has had a long and close relationship with the MoD. As head of DSO he is responsible for promoting British arms overseas. He works closely with Carrington, Thatcher and the Royal Family, 'softening up' overseas rulers for UK arms purchases.

The previous incumbent of this post received a knighthood for 'positive' arms sales work.

Sir John Cuckney

Chairman of International Military Services (the old Millbank Technical Services — the government owned undercover arms sales organisation). Until recently the main work was servicing the massive arms shipments to Iran.

Today, the IMS is the sole overseas rep for the weapons manufactured by the Royal Ordnance factories.



Although Cuckney has spent most of his life-time in the military and arms business he also sits on the boards of a number of merchant banks and finance houses. When Thatcher declared that overseas arms sales were 'not enough', Cuckney was delegated to lead the export drive.

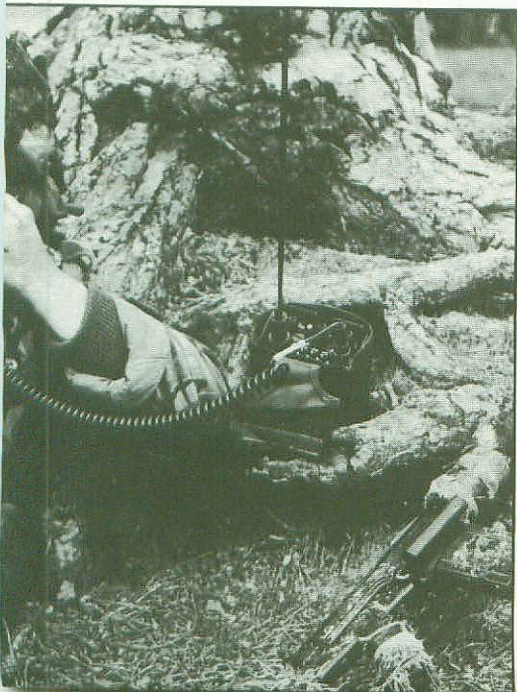
Sir Frank Cooper

The permanent under secretary at the MoD and 'the most powerful constant factor in the Defence establishment' (*Engineering Today*). He 'advises' government ministers over the whole field of weapons policy. Theoretically he could withhold information when it suited his purposes or when faced with a 'pacifist administration'.

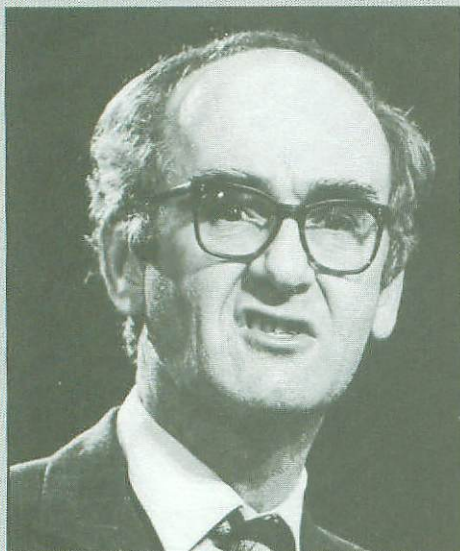
No Defence Minister could function without his co-operation. Apart from a brief period in the Northern Ireland Office (1973-6) he has spent a lifetime serving the UK war machine.

Sir Arnold Weinstock

Although GEC is a huge industrial conglomerate, it is controlled from a small head office with some 70 staff. With



the subsidiaries rigidly controlled on a profit centre basis, and with well over half a million pounds of cash at its disposal, 1 Stanhope Gate is fashioned more in the form of a merchant bank than anything else. The chief banker, Sir Arnold Weinstock has made sure to look after his own account above all. Up until 1971, when the shareholdings were adjusted, he had an interest in 4.6million GEC shares. His family probably still has that interest, though at such a remove that he only has to declare 2.8million. At today's prices, 4.6million shares are worth £38million.



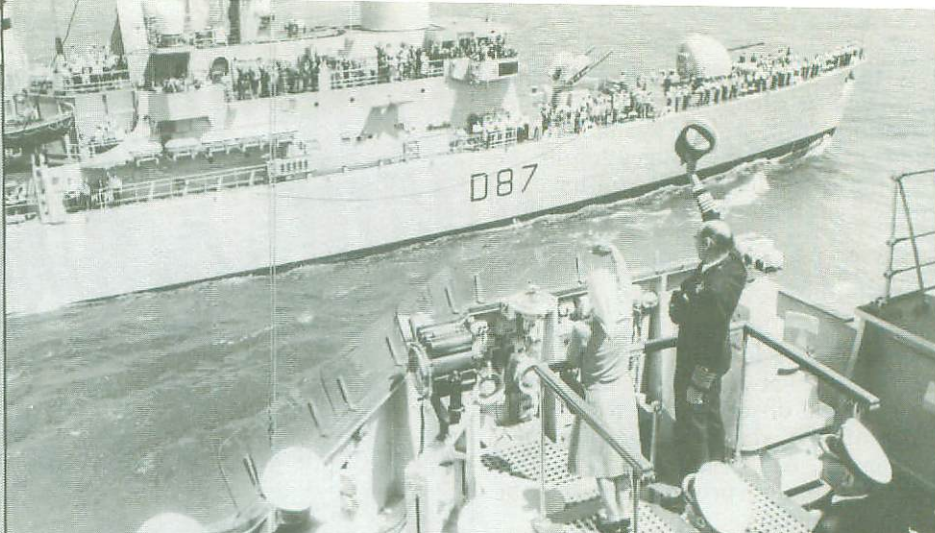
John Nott

Defence Secretary; a merchant banker with a brief to turn the 'defence' industry into a spearhead of Britain's economic recovery. Significantly Nott was moved from Trade and Industry to Defence as arms spending began to front Thatcher's strategic economic policy.

Nott has a job at the merchant bankers Warburg, when not in office, and has made his name in the Tory party as a spokesman on economic affairs and as Treasury Minister (1972-74).

Ernest Harrison and the de Ferrantis

The arms business has a long history of overcharging, bribery and corruption which certainly seems to pay well. After the Ferranti overcharging scandal of the 1960s, the firm has bounced back (with government funding) to the point where it is now an institutional investor's favourite. That is great for the two de Ferranti brothers, Basil and Sebastian, who are still running the show. Their personal share interests



Sir Terence Lewin, Chief of Defence Staff waves goodbye to the Navy.

are now worth £39million. Racal and its chairman Ernest Harrison were similarly untouched by the storm aroused by exposure of bribery and corruption. Two of Racal's junior staffers were found guilty and one was sent down for 18 months, having alleged that 'in virtually all matters of any significance one had to refer matters to Harrison, and he would make decisions . . . He took an absolute and total interest in the contract' (*Times* 13.12.77). Despite all this, Racal's and Harrison's fortunes have continued to rise. The firm now has copious and very profitable MoD contracts and a surfeit of Queen's Awards to industry — 24 so far. And Ernie, with a touch of the Queen's rapier, is now Sir Ernest.

Sir Terence Thornton Lewin

Admiral Sir Terence Thornton Lewin, the most powerful person in Britain's armed forces, is 'Lord' of all three services. A public school background together with a period as commander of the Queen's ship *Britannia* mean that he is well grounded in ruling class etiquette. Under Nott, the government have been trying to strengthen 'the centre' of the military: Lewin, in his position as Chief of Defence staff, is at the fulcrum.

Sir John Clark

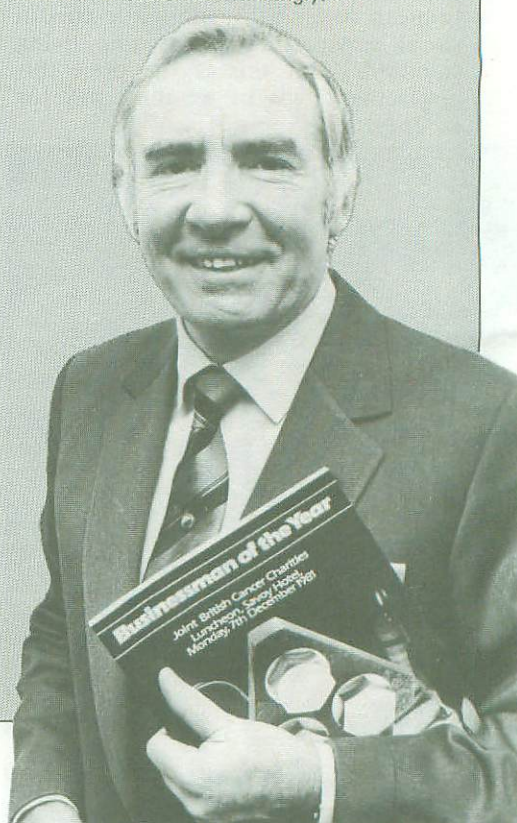
That Harrow education, while not quite up to Eton, usually works even for people like Sir John Clark. A commission during the Second World War, a year in the US and then it's straight into Plessey as assistant to the General Manager, the first step on a ladder that leads to control of the entire company. For guiding Plessey in building its murderous weapons more efficiently, Sir John is paid £105,000 per year plus

perks. And if he does want to retire, there is always his interest in £1.8million worth of the company's shares to fall back on.

Sir Austin Pearce

From an inauspicious start with the Agwi Petroleum Corporation in 1945, Austin William Pearce CBE's destructive powers have blossomed with maturity. Agwi became Esso, and Pearce became refinery manager and eventually chairman of the board. With a powerful position such as that come fingers in many pies, with British Aerospace not the least of them. Austin Pearce succeeded Lord Beswick as chairman of Britain's leading arms manufacturer in March 1980.

Ernest Harrison smiles winningly.



THE INDUSTRIAL CONNECTION

Behind closed doors, who needs who?

In December 1980 it became apparent that the MoD was in the midst of a cash crisis so severe that a special inquiry was hurriedly convened to investigate the causes. The inquiry concentrated on Vote 2 — procurement — since it had been at the heart of the budget overruns. Its findings go a long way to explain how the arms companies do so well out of defence money.

Many commentators, including the Ministry itself, had tried to explain the overspending by the fact that the industry had delivered weapons too soon and had thus caused MoD accounting problems. In one instance — the early delivery of a warship by British Shipbuilders — this was true. But the real reason for the crisis was found to be the fact that manufacturers were delivering on time. In other words they were meeting their contractual re-

quirements and the Ministry couldn't cope.

Slow delivery is so common that the MoD adjusts its budgets to allow for it. In the 1980/81 estimates, 20% was knocked off the equipment budget in the expectation of late deliveries. As a result, when the arms companies produced on time the MoD budget forecasts were seen to be drastically low.

Cushion

The armourers had delivered on time because, with their other orders hit by recession, they were concentrating on the MoD financed work. If other work had been available these same companies would have let the MoD work drag on. The companies know the MoD will not object since, as the inquiry said, MoD managers have a

'tolerant attitude towards substantial slippage in delivery dates'.

This tolerance leaves the arms companies in the enviable position of having its major customer cushioning it from economic problems. And in addition to the obvious benefits this brings the companies, the MoD is prepared to pay for the delays.

At the time of the 1st World War, the industrial connection was producing huge profits.



The cost escalation of the VC10 tanker is a case in point. In 1974 the MoD decided that they needed the tankers to refuel fighter planes in the air. Originally BAe estimated the conversion would cost £40million spread over the 1978, 1979 and 1980 budgets. But it was only in 1978 that BAe had completed its feasibility study to convert nine VC10 airliners into flight refuelling tankers.

Evasion

By 1981 the estimate had increased to £100million for delivery in 1983. The reason for the delay and cost increase was that BAe gave the job low priority and put it after its civil work. 'It was a lunch hour job as far as they were concerned' was one comment made to *Engineering Today* in 1981.

It's not only BAe which benefits in this way. The initial development of Stingray, for example, a sophisticated torpedo which was eventually built by GEC-Marconi, was started in 1969.

But Marconi who started work on it in 1973 did not commit themselves fully until 1977.

Right from the start, Marconi wanted to take control of the project but the MoD would not agree to this. So the company refused to commit themselves fully to it and would not accept tight cost controls. The result was a massive escalation in the project's costs, which only slowed when the MoD conceded prime contractor status to GEC-Marconi, assured them that the project would not be cancelled, and agreed a clear 'fixed price' incentive contract. GEC-Marconi had won themselves what is set to be well over a billion pound contract.

Insulated by the flexible attitude of the MoD towards delivery dates, the armourers are happy. They deliver what they want, when they want. And the beauty of it is that, when they are working on 'cost plus' contracts, they can also bill more or less what they want. The MoD just coughs up the cash.

So once won, a large cost plus MoD contract is very valuable. Its not only flexible in terms of delivery, but also in terms of the amount of resources which can be put into it. Its not surprising that in the past such contracts took longer to complete and cost a great deal more than the original estimates. From the companies' point of view, once they had won such a contract it was in their interest to find problems which both dragged it out and escalated the cost; an MoD 'cost plus' contract in the hand is definitely worth two in the bush.

In theory, of course, there are strict controls on the profits to be earned on such contracts. Dragging out and escalating the project only helps to evade those controls. But they are not properly applied anyway. Despite a ruling by the House of Commons Committee on Public Accounts that non-competitive military contracts should only yield profits equal to the



The procurement executive



The Procurement Executive is a department of the Ministry of Defence. It is responsible via the MoD management board for all major decisions about equipment purchase. Within the Procurement Executive, the Defence Policy Equipment Committee decides on major projects to be included in the MoD's long term development programme and assesses the progress of the projects in the light of significant changes in cost.

The large numbers of representatives on this committee is an indication of how many different influences are brought to bear on decisions about arms. Included in the committee are the Deputy Under Secretaries for Procurement, Policy and Programmes, the Chief of Defence Sales, the Deputy Chief Adviser for Projects, and the Nuclear and Systems Controllers who represent each branch of the military. But the list doesn't stop there. The Department of Industry, the Treasury and the Foreign Office all have the right to send representatives to the committee. It is this committee which advises the Cabinet on various procurement decisions. In theory the Treasury itself plays a major role in budgeting for arms. It is closely involved in formulating the rolling ten-year plan of expenditure and the annual estimates produced by the MoD. Some thirty analysts from the Treasury's Office of Defence Planning and Materiel oversee the

preparation of the MoD budget application to the Cabinet and are intimately involved with the formulation of spending.

In a climate of ever-rising costs, overseas sales are of growing importance. The Defence Sales Organisation, headed by the industrialist James Blyth, handles sales to foreign governments. In this it is aided by International Military Services, an arms sales promotion company which is wholly owned by the government. It is chaired by Sir John Cuckney. Staff weapons requirements are fed into the Defence Sales Organisation, and are also circulated directly to firms as well, so that the firms' representatives themselves can talk to Project Managers inside the MoD, and to operational requirements staff.

The procurement and sales sides of the MoD are constantly being reinforced. In the 1981 reorganisation of the MoD, procurement was strengthened by the appointment of a Minister of State for Defence, Lord Trenchard, to be responsible for this area in addition to the Under Secretary of State. In contrast to this the ministerial structure backing the armed forces was weakened. In the end, the MoD via the Procurement Executive is where the military and industrial interests are merged to become indistinguishable from each other.



average rate of return on capital for the whole of manufacturing industry, the MoD admit that they earn at least 3% above that rate.

Since October 1977 arms contractors have been paid a guaranteed profit target rate of 20% even though the average industrial return on capital employed between 1973 and 1977 was only 17.2% and a sharper profits

decline was forecast after 1977. Accounting is so lax that one contractor recently got up to 176% profit on 19 contracts worth £43million (*The Times* 13.1.82). In a case of such blatant excesses the Ministry does ask for a refund, but the fact remains that arms companies make profits consistently higher than 20% from the MoD.

Industry

The arms companies can get away with these profits because they are considered vital to Britain's 'defence' capability. The MoD is in business both to buy military goods and to preserve Britain's military industry. As the 1981 Defence White Paper puts it '... the Government will use the purchasing power of the defence budget to give the maximum practicable support to British industry ... It will be our abiding aim to secure, through our decisions in the procurement field, the maintenance of those vital areas of British expertise which best serve our Forces' interests ...'.

Seventy-five per cent of all MoD contracts are placed with British industry. Since the last 20 years has seen a major rationalisation of the weapons industry

the few giant firms that now remain have considerable lobbying power to grab their portion of the equipment budget.

The industry is in the powerful position of having its survival counted as part of British military strategy. It can and does use this to blackmail the MoD into lucrative contracts.

In September 1981 Marconi won a £500million deal to supply a heavy weight torpedo (labelled the 7525) to the navy. The buildup to winning the contract was a massive lobbying effort by GEC to ensure that Marconi got the job. They threatened imminent closure of their Neston factory if they didn't get the torpedo deal.

On the face of it, this threat was preposterous. GEC was already using the factory to manufacture Stingray — the torpedo which cost about £1billion to develop — and another torpedo. Yet GEC did not hesitate to use the factory as ammunition in its fight for contracts.

Threats

The MoD knew how seriously to take this threat. When asked by the House of Commons Defence Committee if he thought Neston was viable without the extra contract, Rear Admiral Murphy said 'Yes . . . otherwise I do not believe Lord Weinstock would have allowed MSDS (Marconi Space and

Defence Systems) to invest their money in that enterprise'.

But as a former Labour government Minister in the MoD, Dr Gilbert, pointed out to the Defence Committee, lobbying tactics reinforce the dilemmas in a Procurement Executive which is trapped by its past decisions: 'You cannot create an industry and then wipe it out after one contract. You are absolutely bound hand and foot to Lord Weinstock. If you do not go for the 7525 the row that is going to go on in this place and outside is going to be marvellous to behold'.

The behind the scenes deals that dogged the acquisition of an airborne early warning system give further insight into the arguments that the arms companies use to pressurise the MoD. Marconi and Hawker Siddley (which merged with the British Aircraft Corporation to form BAe) joined forces to prevent the MoD from buying modified Boeing aircrafts which were to have been the base of the system. They argued that the newly comprised BAe needed the work and that the use of BAe Nimrod airframes would keep a design, development and production capability that the UK could ill afford to lose. Despite the fact that the Boeing plane was being suggested for a common NATO design, the British firms won out.



Nimrod, and the Chieftain tank. The plane and the tank's replacement needed some quick thinking.



What price a safe return home?



survivability

The survivability of a combat aircraft is therefore its safe return home. It can be easily based on the efficiency of its fire and overhead protection systems. And the cost of such systems is insignificant compared with the value you place on the lives of the crew, the total cost of the training and that of the advanced aircraft itself.

Graviner fire and overhead protection systems are fitted to over 150 different types of aircraft in service around the world. Graviner systems - fast and sure - are effective and dependable, tested and proven. A small price to pay for a safe return.

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Graviner Ltd, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200.

As projects become more expensive the MoD is forced to balance a number of often contradictory considerations. The justification for an arms industry is expressed in terms of national security. Yet the manipulations within the MoD often make nonsense of military thinking.

The Tornado aircraft is an example of what can happen when a compromise is made between economic considerations and military demands. Currently

being delivered to the RAF it is intended to replace a whole number of different aircraft.

The RAF originally asked for a new bomber as well as a new high altitude fighter plane. In the 1960s the government had cancelled the TSR2 bomber because of its enormous cost. The Tornado was then conceived as a project which would be jointly manufactured in three countries to help reduce costs. The other countries, Germany and Italy, didn't need a fighter, but Tornado was designed to fill this role, as well as meet Britain's other needs.

Because the production was spread to satisfy each country's manufacturing needs and because of the confusion over its functions, each plane eventually cost around £14million. This made them too expensive for any country to buy in the period originally allocated for purchasing the aircraft.

Fantasy

The story doesn't end there. In the 1981 Defence Review it was proposed that Tornado should fulfill another role — that of ground attack and close support. To send a £14million plane into a highly hostile ground attack environment borders on the ludicrous.

Sometimes the assessed security threat conveniently changes to fit industrial capacity. There have long been plans for a new tank called MBT80 to replace the Chieftain in service in West Germany. While the contract to supply the Shah of Iran with 1,000 Shir tanks occupied Vickers and the ROFs, research and development on MBT80 was allowed to drag on partly in the hope of getting collaboration from other countries. With the fall of the Shah the Iranian tank contract was cancelled, causing severe problems to Vickers and the ROFs. MBT80 was not ready for production so the MoD cancelled it and proposed instead to replace just half the Chieftain tanks with Challenger — a tank which has similarities to the Iranian one.

The MoD had placed great emphasis on the growing gap between NATO and Warsaw Pact tank forces in Europe yet suddenly this has supposedly been solved: when MBT80 was cancelled the 'threat' was 'reassessed'. When the Assistant Under-Secretary of State (General Staff) was asked: 'What has changed in your assessment of the threat that makes you think you need a sort of half generation tank rather than MBT80?' he replied: 'The new development was not in the threat . . . but rather in the fortuitous availability of interim replacement for some of the

Chieftains in the form of Challenger . . . Challenger was to some extent a fortuitous opportunity and one that we wished to seize'.

The problem for the MoD is that in effect it cannot pay for the industrial capacity that is required to support Britain's arms programme. The demands of the industry, combined with constraints on the budget, mean that the department is increasingly looking for exports which would help out domestic costs and keep the companies' order books full.

Subsidy

The strategic and tactical implications of these have been made clear by Thatcher when she said 'The prospect for overseas orders will be a factor deciding our own operational requirements'. Admiral Lygo, chairman of British Aerospace Dynamics, put it more bluntly: 'It is no good our producing expensive missiles that we can't sell'. The possibilities of arms sales clearly influences the whole procurement process. The military will increasingly have to reassess their 'threat' accordingly.

When the Navy asked for a submarine of 2,200 tons, dissenters in the MoD and industry immediately protested that the market was for submarines of 2,600 tons. The Navy compromised and eventually the contract was based on a vessel of 2,400 tons. As the Assistant Under-secretary of State for the Navy commented: 'So that is a good example of how we had a great deal of discussion with defence sales and with

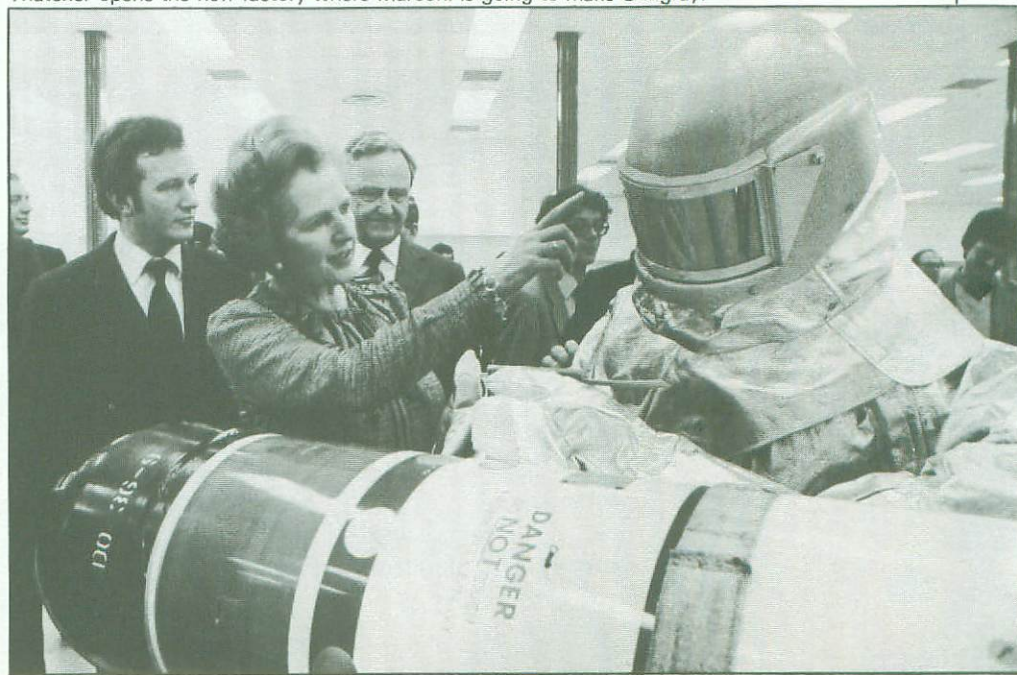
the firm concerned, namely Vickers, and (we were) . . . forced to increase (our request)'.

Despite all the problems building up over the costs of procurement, the MoD is still taking decisions that fly in the face of financial restraints. The recent manipulations over a new communications satellite are a case in point.

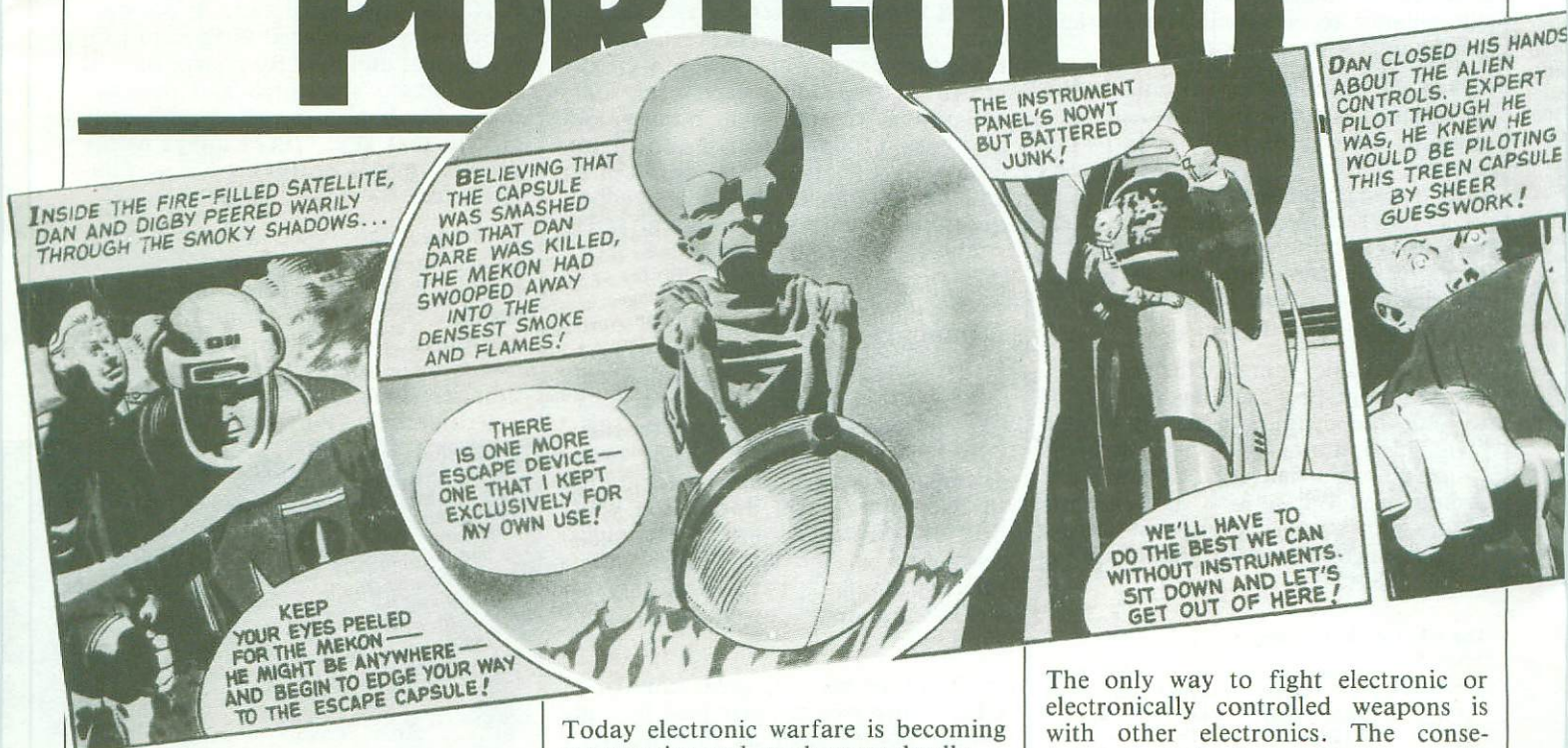
Two bids were tendered, both of which were collaborations, one between British Aerospace and a US firm called TRW, the other GEC-Marconi with Ford Aerospace. The MoD rejected both bids and requested Marconi and BAe to put in a joint bid, and they happily complied. Along with the by now traditional threat by Marconi that it would have to get out of the satellite business if it didn't get this contract, was the unsurprising revelation that the joint bids would cost more than either of the previous ones. What was surprising was that the extra cost was to be met by the Department of Industry, though the extent of this support was being kept secret. Whether this money will appear in the government accounts under defence spending or aid to industry is also not being revealed.

This decision, which means that the Department of Industry will fund a purely military project, is perhaps some recognition that the vast amount of money being spent on arms must also support industry and its profits. Despite the continual cash crisis within the MoD it is obvious that it will have to continue funnelling more and more funds into the ever open mouths of the arms manufacturers.

Thatcher opens the new factory where Marconi is going to make Stingray.



ARMAGEDDON PORTFOLIO



Military electronics is a booming business. It takes the lion's share of rising defence budgets in industrialised countries, a fact which is reflected in the phenomenal sales and profits growth of its manufacturers. Military requirements stimulated and paid for the development of the micro-processors which lie at the heart of the electronic revolution in industry, and military requirements stimulate the rapid development of their use.

The combination of electronics and nuclear power has radically changed the nature of armaments and warfare. Practically unlimited destructive power, courtesy nuclear fission, can be delivered anywhere accurately, courtesy microelectronics. The impact of this is being felt across the whole gamut of military weapons and systems. For decades most weapons have been dependent on electronics: now, with miniaturisation, the electronics are becoming dominant.

Traditionally the term 'electronic warfare' is used to describe activities such as jamming an opponent's communications, or broadcasting misleading signals to confuse them.

Today electronic warfare is becoming more active and much more deadly.

It is becoming impossible to distinguish between traditional electronic warfare and the wider use of electronics in the 'battlefield', or between it and the electronically controlled missile. Sensing systems such as radar, sonar and satellite surveillance provide critical information and identify and mark targets. Coupled with avionics, they guide missiles to those targets. 'Counter Measures' disrupt and destroy an opponent's communications and sensors; 'Counter Counter Measures' deal with the opponent's Counter Measures — a circle that can progress to eternity.

Smart

All of a sudden the people with their fingers on the button are totally dependent on electronic inputs. At a time when the superpowers have a massive mutual 'overkill' capacity, electronic warfare gives justification to the nuclear strategists' ideas that a 'limited' nuclear war is a possibility. It is this that is perhaps the most dangerous outcome of electronic warfare.

The only way to fight electronic or electronically controlled weapons is with other electronics. The consequences can be far reaching as can be shown by the use of electronically guided missiles in the two Arab-Israeli wars. In 1967 two Israeli ships were sunk by Styx missiles. By 1973 the Israelis had fitted warning sensors and decoy rockets to their boats and the same missiles missed them at least 50 times.

Because the electronics are becoming smaller as fast as they are becoming more sophisticated, they can be fitted ('retrofitted') to existing 'hardware' to prevent obsolescence. As one broker said, 'it is possible that the retrofit market will become of greater importance than the original equipment market, since the pace of change in electronics is faster than the improvements (sic) to the other aspects of weapon systems (airframe, armaments, engine etc.). Thus new generations of warships and aircraft can be developed using existing ships and planes merely by updating the on-board equipment' (Laurie Milbank).

The retrofit can take several forms. The MoD, for instance, considers that 'in some areas, British forces are already underbalanced with too many resources tied up in weapons platforms

and not enough in the weapons themselves' (Defence Committee Third Report 1980-81). That means developing and retrofitting new weapons ranging from smart guided missiles to new guns on to existing aircraft, ships and tanks. The platforms can also be updated in terms of both self defensive and operational capabilities by being retrofitted with new or updated systems to handle everything from surveillance to electronic warfare and mechanical systems controls.

Given the economic constraints on the government's arms procurement programme, and especially the growing burden that the nuclear 'modernisation' programme is putting on it, it is likely that retrofitting will be seen as an increasingly important way of modernising weapons systems and satisfying the demands of the industry without overloading the budget.

The electronic manufacturers aren't complaining. Because they are careful to blur the distinction between their civil and military markets, it is difficult to get an exact figure for profits from armaments. But a look at the companies shows just how important arms spending is to private capital in Britain in the 1980s.

The UK's electronics majors

| | Sales £m | | Profits* £m | Business with MoD £m |
|-----------|----------|---------------|----------------|----------------------------|
| | Total | Arms (est) | | |
| GEC | 4,129 | 750 | 476 | |
| Racal | 536 | 300 | 73 | 70 |
| Plessey | 844 | 300 | 85 | 152 (175*) |
| Ferranti | 272 | 170 | 18 | 122 |
| Thorn-EMI | 2,228 | 130 | 94 | |

* "HM Gov't Depts".

GEC and Racal regard themselves as the first and second force respectively in electronics in Britain. Together with Plessey, Ferranti and Thorn-EMI they make up the bulk of the electronics industry. The companies are tiny when compared to the US and Japanese giants of the industry but there is no doubt that they would not even have got this far without their lucrative military contracts.

The pace of technological change in the electronics industry makes it vital for a company like GEC to put a great deal of its resources into research and development. The MoD spends a vast sum each year on research and development, yet it has a very limited in-house electronic capacity. So it comes as no surprise to discover that the defence budget is paying for GEC's faltering steps into the era of new technology.

In one subsidiary, Marconi Space and Defence Systems, externally (mainly

MoD) funded long term development contracts make up 45% of turnover. The work, guaranteed to be profitable, brings the near certainty of much larger production contracts in the future and provides GEC with copious research and development information.

GEC's main armaments division is GEC-Marconi. It has become 'what one stockbroker describes as Europe's most powerful defence electronics manufacturer and the jewel in GEC's crown . . . spending each year some £50million of its own money and another £100million or so from customers (i.e. the MoD) on research and development of new radars, defence, weapons and missiles systems'. (*Sunday Times* 13.9.81.)

Monopoly

GEC and its chief executive Arnold Weinstock proclaim the virtues of private capital and the entrepreneurial spirit, citing themselves as the prime example. Yet ever since its formation in its present form during the white heat of Harold Wilson's technological revolution in the late 1960s, GEC's greatest strengths have been its sheer size, its monopoly power and its public funding.

In its other sectors, great chunks of GEC's turnover are provided by state owned bodies such as the electricity and gas boards, the Post Office and British Telecom, British Rail and other transport authorities, and so on. But it's in the arms business that the relationship is clearest.

GEC-Marconi is, for instance, the sole UK developer and supplier of torpedos. In theory the MoD could buy overseas, but in practice, as the 1981 decision on the heavyweight torpedo shows, GEC is quite prepared to use its very considerable weight to make sure that it gets the business.

That torpedo decision was the culmination of two years forceful political lobbying by the company to ensure that the Thatcher government would not let its enthusiasm for 'free market forces' go so far as to be harmful to GEC's business. In 1980 GEC lost one significant contract — for radars for the UKADGE system — to GE of the US. GEC complained long and loud about the damage to jobs and its business prospects, and by April 1981 stockbrokers Simon & Coates were able to report that 'this decision was made in the first flush of the new Conservative administration's market idealism, and it is fair to say that subse-

quently the MoD appears to have begun to take a more protectionist attitude to other contracts'. By July 1981 they said that 'it is now becoming apparent that much of the company's publicly expressed concern may have been "politically" motivated, and in fact the order intake in 1980-81 was higher than in 1979-80'.

The arms business has been great for GEC over the past decade. It not only provided a guaranteed 20% return on investment and paid for a large part of the company's research and development, but it also provided the steady growth that kept GEC's image as the success story of British big business untarnished.

A decade ago, GEC was still being carved up in the aftermath of its formation from three substantial public companies. Its arms business scarcely warranted a mention in the annual report. The main arms selling subsidiaries came within the Electronics, Telecommunications and Automation



division of the company. In 1971 this accounted for 30% of GEC's turnover and 35% of profits. By 1981 it had 36% of sales, but 54% of profits. It was the growth of the arms business, under the aegis of the GEC-Marconi subsidiaries, that gave the profits leap. In 1979 electronics only accounted for about 36% of the division's sales; by 1978/9 the figure was nearer 80%. Throughout the decade Marconi was without doubt the fastest growing part of GEC, and it was the government arms contracts that paid for that growth. Without them, GEC would be at least one-fifth smaller today.

The bulk of GEC's business is in major systems but these projects are only one side of the huge military market available to electronics companies. Increasingly sophisticated electronic equipment is considered an essential part of a soldier's basic necessities.

One in every four US soldiers will carry a complex 'frequency hopping' personal radio in the mid 1990s ensuring

that the radios are set to become tomorrow's big moneyspinners. Simon and Coates, the stockbrokers, have estimated that there is over \$5 billion worth of business to be made from these alone. The major electronic companies are already fighting for the initial US contract, but it's not only this first order that matters. As soon as the radios go into service, the manufacturers will start looking for ways to first discredit and then update each individual module, to generate follow-on 'upgrading' business.

Bandwagon

This situation can leave the door open for relatively small companies who have access to the military network to jump on the bandwagon. This is precisely the way in which Racal Electronics began its climb to fame and fortune as the UK's second ranking electronics manufacturer.

At the beginning of the 1950s Racal was just a consultancy partnership between its two founders. The business was built mainly on their military connections. The keystone of their growth was when those connections led them to identify the potential for an upgraded communications receiver, based on a South African patent. They found a market for it in the UK military and, with their help, throughout the world.

So began Racal's transformation from little more than the twinkle in an ex-officer's eye. Within 15 years the ex-officer was being invited to 'leave' the company to take up the job of Head of Defence Sales in the MoD. He was subsequently awarded a knighthood for his services to the country. The company, despite scandals as high level employees were charged with bribery and corruption, continued to prosper.

By 1981 sales had reached £534 million and pre-tax profits £73 million. And with the takeover of Decca in 1980, Racal was finally confirmed as one of the mainstream suppliers of major systems to the UK military.

Racal now has three main areas of business. Racal-Decca, formed from the 'capital goods' division of Decca after the merger, is the largest with a turnover of £154 million. Its main subsidiaries specialise in navigation aids; defence radar and electronic warfare, marine radar etc. The importance of military work can be gauged from the fact that, despite the world slump in merchant shipping, Racal are looking forward to 'significant profits from Racal-Decca in the current year and substantial profits thereafter' (Annual Report 1981).

Radio Communications is the next largest division in terms of turnover, and is currently the most important in terms of profits, selling £142 million worth of equipment in 1980-81. Tactical radio communications accounted for 70% of this, the remainder being mainly strategic, paramilitary or police radio equipment.

Climbing

Racal's third major division, with a turnover of £135 million, is Data Communications. Centred in the US, this supplies equipment to link electronic systems such as computers, for both military and civil uses. Just two of the US subsidiaries in this division, Milgo and Vadic, account for \$230 million of the \$300 million of business that all Racal's US subsidiaries do.

Racal has continued to grow rapidly until very recently. Over the last decade its turnover has risen 2,600% and its

The micro technology boom means radios for Beefeaters and profits for electronics companies.



profits by 2,300%. This has meant juicy capital gains for shareholders, on top of dividends. Over the five years from mid-1976 to mid-1981, its share price rose 675%. But investors expect that rate of growth to be continued into the future, and Racal is finding this more difficult to achieve.

With overseas sales amounting to 70% of the total, and a large US manufacturing operation and sales, Racal is vulnerable to market setbacks around the world. At present it is having trouble selling its data communications equipment in competition with firms like AT&T, the US telecommunications giant. To maintain growth, it is essential that profits elsewhere keep climbing. So as far as Racal is concerned the British government has got to keep buying more of its equipment and has got to help ensure the US military does the same.

Pressure

All the electronics companies are under similar sorts of pressure. Plessey, with its big military communications, sensing and aviation equipment projects for the MoD, has recovered its glamour rating after the profit setbacks of the mid-1970s. At their current price its shares yield 3.4% which, when compared with current interest rates of 16%, gives some measure of the extent to which investors presume they will see profits (and hence dividends and share price) growth in the future. HM Government Departments (mainly the MoD) and British Telecom (also HM Government owned) together provide over three-quarters of Plessey's UK business.

These contracts provide the core of Plessey's activities. A large part plays for the research and product development that are vital in what Plessey describe as the 'fierce competitive environment of high technology electronics' (Annual Report 1981). It's from this base that Plessey put together products to sell in civil and export markets.

With their government business all these companies — Plessey, GEC, Racal, Thorn-EMI and Ferranti — are credible as high technology companies. Without it, they could not survive in the business but would be quickly trampled underfoot by the international giants of the industry, as has already happened in the consumer electronics market. But that means more than just continuing support at its present level. To meet the industry's needs and demands, the contracts have to grow ever larger. The pressure is on the MoD to provide them.

PIE IN THE SKY

British Aerospace (BAe) is the company at the heart of Britain's weapons programme. It stands as one of the largest aerospace manufacturers in the West. Its board of directors reads like a page from a 'Who's Who' of the military establishment.

The company as it is today is the outcome of a 70 year history of takeovers and mergers which involved the amalgamation of the most famous names in British aviation history. The company's growth reflects the close involvement of a weapons manufacturer with the government. In 1977, an obese and inefficient cluster of aerospace firms, including BAC, Hawker Siddeley and Scottish Aviation, were taken into state ownership as part of the Labour government's grand programme of nationalisation and British Aerospace was born.

Significantly, the early campaign against nationalisation which was mounted by the industry, lost its intensity once it was realised what benefits 'unification' and 'rationalisation' would bring. Compensation too was more than generous.

In February 1981, a newly elected Conservative government committed itself to a policy of denationalisation. British Aerospace turned out to be one of the few companies profitable enough and so the Tories returned more than half of it to private hands. The *Financial Weekly* commented at the time, 'Four years in the grip of the state has obviously done the various companies of British Aerospace no harm' (6.2.81.). Investors agreed and scooped up the 48.3% of the shares sold. The government retained 48.3% holding, with the balance of 3.27% being bought by company employees.

The privatisation of BAe has reinforced government commitment to the arms industry. Those individual and institutional investors that took up the

offer to buy shares are now going to demand growth from BAe and a worthwhile return on their investment. The government and the BAe board promised growth and now they have to deliver.

The government's involvement in the deal will more than likely mean further favoured treatment for BAe and ensured profits growth. This reinforces the pressure on the government to increase arms spending, as well as increasing the demand for state negotiated 'offset' and export deals.

The importance of BAe stems from its strategic position as a weapons manufacturer. Seventy seven per cent of its business is in weapons with the lion's share being done with the British government. It is the single largest contractor to the MoD and accounts directly for something like one-eighth of all state spending on arms.

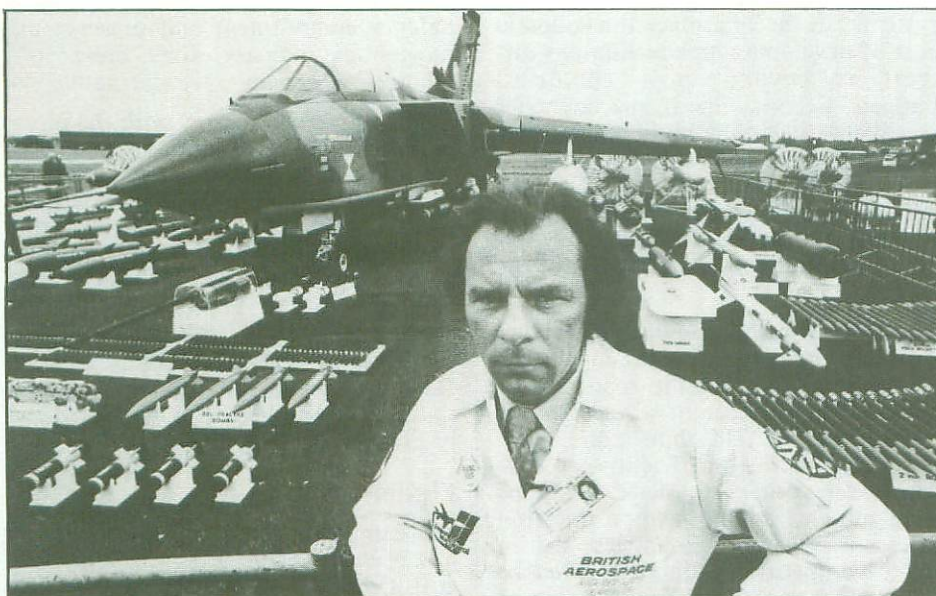
The fact that the bulk of the business is in weapons has ensured that BAe's sales and profits record is outstanding. Sales for year ending 1980 were over £1.3billion and trading profits amounted to £92million. Weapons manufacture accounted for more than £1billion of these sales and a cool £80million of profits.

Missiles

The company operates in two parts: the 'Aircraft Group' which is generally concerned with the design, development and production of military and civil aircraft, but with airframe manufacture being its primary concern, and the 'Dynamics Group' which is principally involved in the manufacture of guided missiles and space systems.

Military aircraft production makes up the bulk of BAe's business and although not separated out in the company accounts, on the company's own

Is there a future for Aerospace?



Tornado, British Aerospace's expensive contribution to European collaboration.

WEAPONS SOLD AND PROFITS MADE

Aircraft Group

| Year Ending | Military aircraft sales | Civil aircraft sales | Trading profit ¹ | Outstanding military orders |
|-------------|-------------------------|----------------------|-----------------------------|-----------------------------|
| 31 December | £m | £m | £m | £m |
| 1975 | 267 | 127 | 27 | 640 |
| 1979 | 450 | 195 | 55 | 1,813 |
| 1980 | 613 | 292 | 63 | 1,703 ² |

1. Excluding launch costs.

2. To 14 June 1980.

Dynamics Group

| Year Ending | Sales | Trading profit | Orders outstanding |
|-------------|-------|----------------|--------------------|
| 31 December | £m | £m | £m |
| 1975 | 141 | 15 | 430 |
| 1979 | 344 | 23 | 978 |
| 1980 | 406 | 29 | 1,337 |

admission 'is the largest contribution to trading profits'.

Although less important than the aircraft side, BAe's guided missiles form a substantial proportion of company business. The company offers the widest range of tactical guided missile systems of any manufacturer in western Europe and today its weapons make up around half of the European missiles capability.

One of the most profitable sides of BAe business derives from the Defence Support Services. Although small in relation to other sectors the service and technological advice that BAe gives, particularly to middle eastern and third world countries, is highly lucrative.

Since the re-organisation brought about by nationalisation, orders for the Aircraft Group have increased by a third, while the Dynamics Group has almost trebled its order books since 1977.

British Aerospace's orders outstanding on 31 December 1980 were estimated at £1,551million of which 31% represented sales to the MoD. For the same date, the Dynamics Group had orders worth £1,345million of which 66% represented MoD contracts.

At the time of the de-nationalisation of BAe, Messels, the stock brokers, estimated that British Aerospace's future performance in the terms of sales and profits would be:

| | |
|------|---|
| 1981 | Profits of £87million arising from sales of £1,700million. Anticipated income from military sales £840million. |
| 1982 | Profits of £103million arising from sales of £1,880million. Anticipated income from military sales £893million. |
| 1983 | Profits of £124million arising from sales of £2,080million. Anticipated income from military sales £968million. |

The third world arms bazaar

A little over half the arms BAe produces are sold overseas. In 1980 the export sales of the company reached £789million — an all time record. Two thirds of the military aircraft that BAe builds find their way overseas and about half of the missiles are sold abroad.

Given the extensive collaboration between the company and its European and American partners, it is not surprising that a proportion of those sales were to Europe and the USA. But an equal amount of BAe manufactured weapons and 'know how' are sold in middle eastern and third world countries. In 1980 these deals were worth £387million.

BAe sales to the third world

| | 1979 | 1980 |
|-----------------------|-------|-------|
| Middle East | £187m | £164m |
| Far East | £29m | £99m |
| Africa | £29m | £87m |
| Asia Pacific | £25m | £19m |
| Central/South America | £35m | £18m |

Jam Today

This business is by no means peripheral to BAe operations. The possibility of sales of weapons to third world countries is often a determining factor in whether a BAe weapons programme will go ahead at all. For in these deals, the company is able to raise its prices. Because of this these exports have been described as the 'cream' of the weapons trade and represent about 27% of BAe's total turnover and an undisclosed percentage of its profits.

One category of exports that BAe has been unable to keep quiet about and which consistently contributes to profits is its 'Defence Support Services' — the supply of personnel and equipment as well as training to those countries purchasing BAe aircraft. The two most profitable are 'services' provided to the Royal Saudi Air Force since 1973 and a similar programme for the Sultan of Oman. The latter is part of an extensive 'defence' facility supplied to Oman by the British government, and involving British troops and security services. BAe recognises how profitable this can be and acknowledges that, 'In 1980, military aircraft business continued to provide the largest share of trading profit for BAe, the most significant contributors being Jaguar, Harrier and defence support services'. (*BAe — Offer for Sale 1981.*)

It is the close bond BAe has with the British government that underwrites the company's profitability. In most of the deals BAe does with third world

countries the government is acting as the broker. The government too may benefit, for in the final analysis a lucrative deal with a third world country may help to reduce the cost of the equipment to the British government. The export order can act as a hidden subsidy in this case, benefiting both BAe and the government.

The fact that Saudi Arabia spends £14billion each year on weapons was enough to attract a whole stream of British dignitaries including the Queen, Margaret Thatcher and sundry Lords and Ladies as well as bands of weapons salesmen and the RAF Red Arrows aerobatic display team. As a result of this sales push, negotiations are going on with BAe over the possible purchase of Hawks for training and defence.

More significant for BAe is the Saudi's intention to replace its ageing 'front line fighters'. BAe has offered the P 110, a single seat fighter to be entirely built in the UK. Such an aircraft would be inconceivable without the special sponsorship of the Saudis.

There was a time when this type of business done overseas was an intimate part of the power politics indulged in by Britain as a dominant imperial power. Supplying weapons was part of establishing patterns of dependency across the world so that in the event of a threatened defection by a subordinate power the British government could exercise 'spare parts' diplomacy by withdrawing replacements and backup.

With Britain no longer a world power and its arms companies experiencing some difficulty in adapting to the reduction in status, the importance of dictatorial regimes hungry for military hardware is enhanced. Just what a regime wants the weapons for becomes subordinate to the desire to do the deal and get governments hooked into a weapons system, before the Americans or French get in there first.

Collaboration

Any interest the UK government might have in a reduction of belligerency becomes subordinate to the desire to sell arms or subsidise its own arms expenditure by a weapons deal involving a third world country. The trouble and uncertainty that have dogged the UK aircraft industry are by no means over. Although money will continue to be made by BAe, there is no clear run yet in sight.

The issue is simple. No country outside the 'superpowers' — the USA and the USSR — can afford the escalating costs of developing aircraft weapons

systems. In the first place the colossal cost of developing high technology aircraft is beyond most countries' budgets. Second, few if any countries are likely to actually build enough aircraft to bring unit costs down to a reasonable level. In addition, US procurement and aerospace companies are so large that individual European competitors find it very hard to get into the market.

The simplest resolution of this problem is for different countries to co-operate on projects, to share the costs and to increase the number of aircraft built. This is easier said than done. Few governments feel sufficiently at ease with each other to share weapons development. It's not only a question of security; many countries are in fierce competition with each other to sell their own weapons in export markets.

But it's now generally accepted that if nation states want to maintain a

defence commitment and preserve an indigenous industry, then these collaborations are the only alternative.

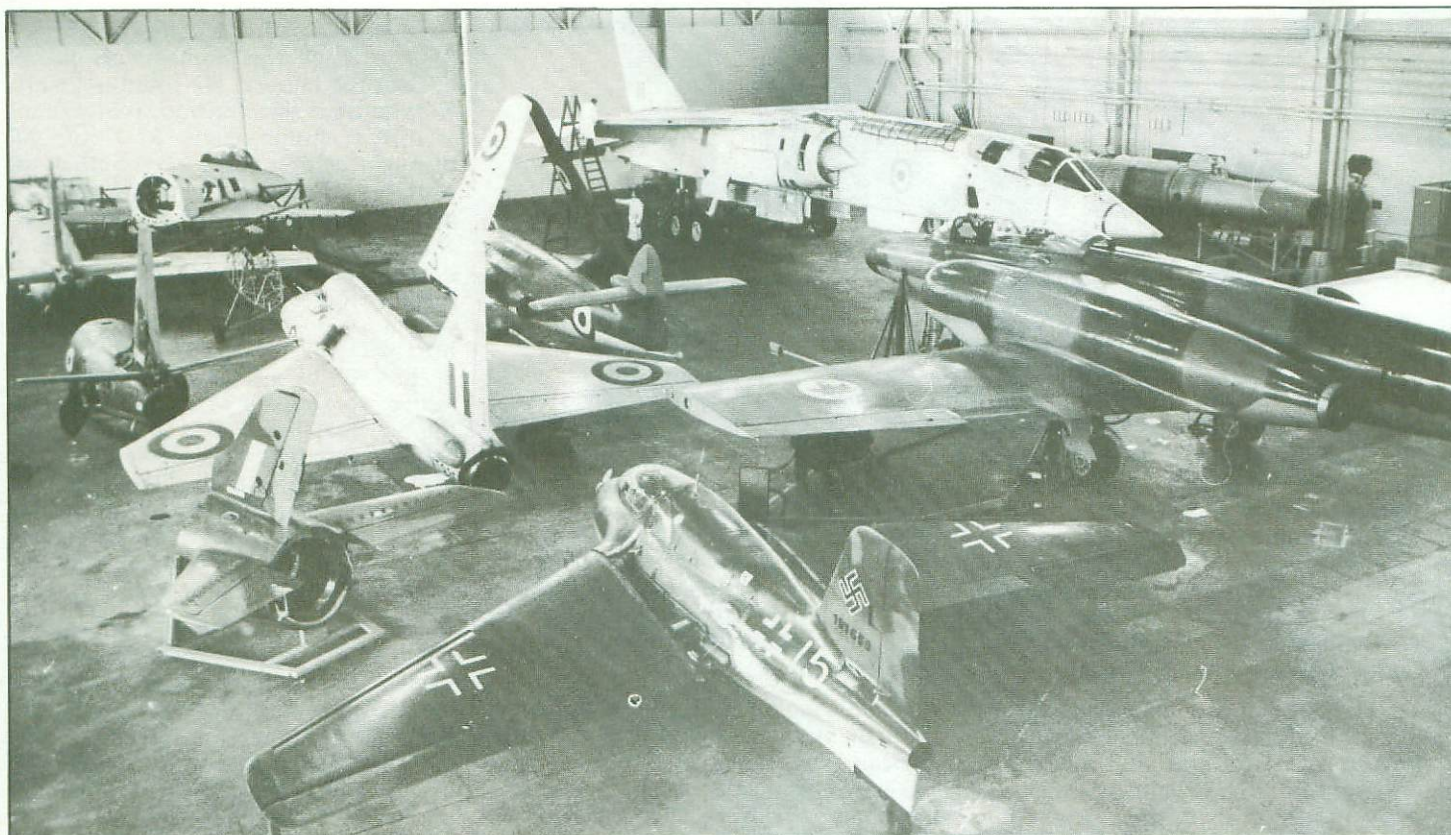
BAe is the UK company with the most experience of these kinds of projects. Although collaboration has provided vast sums of money for BAe, the company is far from satisfied and the number of critics outside the company is growing. When BAe developed the Jaguar with the French, the French company, Dassault-Breguet, were 50% partners in the deal. Subsequently Dassault-Breguet have undercut potential sales of the Jaguar, with the entirely French-sourced Mirage.

Flexible

More important, but no less conclusive has been the Multi-Role Combat Aircraft (MRCA) — the Tornado, the biggest individual military aircraft project in Europe since World War II. At a cost of over £7billion and taking twelve years to achieve, it was outside the UK

The Queen and King Khaled at the start of a major sales pitch.





KEYSTONE

ability to manufacture alone. Indeed a similar weapons project — the TSR 2 reconnaissance strike plane — was scrapped by Harold Wilson in 1965 on grounds of expense.

In 1969, BAe of Britain, MBB of West Germany and Aeritalia of Italy formed a joint company called 'Panavia' in order to produce the plane. The only real alternative was to buy an aircraft off the peg from the USA. Indeed most of the other European countries did just that and filled their weapons gap with the F 16.

The Panavia partners each wanted something cheap and flexible. Both requirements proved to be a problem. The original estimate was that each plane would eventually cost £1.7million, but as the requirements of the three countries became clear and the costs of three production lines rose, the unit price rose to £3.4million. As the project developed, ten years of inflation brought the expected unit cost to £8million. Now that the Tornado is ready for delivery the actual price will be between £11-£15million.

The flexibility demanded by the participants also proved to be just as much of a problem. All wanted a high technology 'flying weapons platform'. Britain wanted a low level strike plane, which the TSR 2 was originally designed as, as well as an interceptor fighter to replace its Lightnings and Phantoms. The Germans wanted a ground

TSR2, Britain's much vaunted bomber languishes in the rear of a museum. It cost nearly £1 billion at today's prices before it was scrapped.

attack aircraft but with a short take-off capacity, while the Italians also wanted an attack reconnaissance plane.

The project threatened to become unmanageable at the start, and Canada, Holland and Belgium pulled out of the project prior to the signing of letters of intent. The Tornado encapsulates all the problems of modern weapons production. TSR 2 was originally planned to be in service in 1975 but Tornado will only be fully delivered by the end of the 1980s. The project was so expensive that the West German government says it is not interested in any future collaborative aeroplanes.

Gaps

British Aerospace is beginning to see gaps in its programme. A new assembly hall was completed at BAe's factory at Warton to assemble the Tornado, and Tornado deliveries have been extended for so long that they should have no trouble keeping this occupied. But plans for the Jaguar replacement have been delayed and delayed, and after the Tornado experience there is no chance of seeing this as a collaborative venture.

The experience of collaboration has not been totally disastrous for everyone concerned. Governments

may complain at the costs, but for the companies involved, there is actually a plane to be manufactured at the end. And that is what is important to the aeroplane constructors like BAe.

They have been working for some years on the studies for an aircraft to replace the Jaguar, the so-called European Combat Aircraft. The company's chairman has been complaining about the delays and expense involved. As an Assistant Under Secretary of State commented, 'I think it was probably an ungrateful remark for the Chief Executive of an aircraft company to make, since the millions of pounds which are being spent are being spent in his company, so to speak'.

So far the new aeroplane, the P 110, is being worked on by BAe, Rolls Royce and Marconi, and discussions are taking place with the RAF as well as Saudi Arabia and other countries.

During the controversy over Tornado BAe insisted that the aeroplane was 'of vital importance to the western world' and a 'worthwhile and successful international project'. Those who criticised it were said to 'cheapen the values in this country' or to be 'Reds who are opposed to the UK's defence policies' (reply in the Granada TV programme *'The Planemakers'*). BAe are now pulling out the same propaganda when they say that the P 110 project is 'vital for the long term future of the industry'.

MISSILE MURDER

The case of Maurice Dick, a British electronics engineer who died a mysterious and violent death in April 1980 in South Africa, illustrates the ease with which South Africa can fill the rosters of its arms concerns as well as the indifference of the British government to the consequent boost to South Africa's military strength.

To make useful modern weapons you need expertise, materials and knowledge of latest technical developments. The South African arms industry has plenty of the last two, but has always suffered from a shortage of people skilled in production methods and development research. Although sanctions have long been in force against the export of military materials to South Africa, no restrictions have been placed on the export of personnel with extensive and up to date experience of the production and the development of the latest NATO military technology. The British is one of many western governments ignoring this trend.

Maurice Dick was one of Marconi Aviation's most experienced workers. He worked on radar systems while serving in the Navy during and after World War Two. By 1974 he had been at Marconi for 14 years. As an expert in inertial guidance systems he had been involved in making equipment for Britain's Nimrod aerial surveillance and electronic warfare aircraft, various missiles and other MoD contract work. This type of work requires signing the Official Secrets Act and submitting to security checks from MI5.

Embargo

In 1974, Maurice Dick decided to go to South Africa to work for the government. This was also the year the United Nations passed its mandatory embargo on weapons to South Africa. But no obstacles were put in Dick's way, even though the company knew where he was going.

Once in South Africa Dick joined

about 30 Britons and other scientists of many nationalities working at the Council for Scientific and Industrial Research, whose missile section has since been renamed Kentron Limited. Kentron is a subsidiary of Armscor, the state-owned corporation which is establishing South Africa's indigenous arms industry.

Kentron's main work is in the development of missiles for use by the South African Navy and Air Force — this was why Dick had been such a find for the South Africans. The skills of the Britons at Kentron were so varied that among themselves they joked about the number of British weapons systems they could build. They were making an indispensable contribution to South Africa's war effort.

Although work in South Africa represented a welcome change for most of them, many found it hard to adjust to the life-style of the white minority, having more trouble with the level of distrust and suspicion than with political objections. This had been one of the problems the Dick family had experienced in South Africa, but they were surprised when Dick decided in August 1976 to return to the UK.

When the Dick family returned to Britain to live once again near the Mar-

coni factory in Rochester Kent, Maurice Dick was immediately taken back at the factory. He could not start work at once since he had six weeks of security vetting from MI5 to go through before being re-admitted to MoD contract work. It was almost as if he had never left. Not only was he re-employed in sensitive weapons related developments, but no interest was taken either in his career in South Africa or in whether he may have breached the terms of the Official Secrets Act by using knowledge he obtained working for Marconi to benefit the South African arms industry. The MoD's apparent lack of interest, as well as that of the authorities responsible for investigating breaches of the Official Secrets Act, was clear, even though signees of the Act are bound by its terms 'wherever they are'.

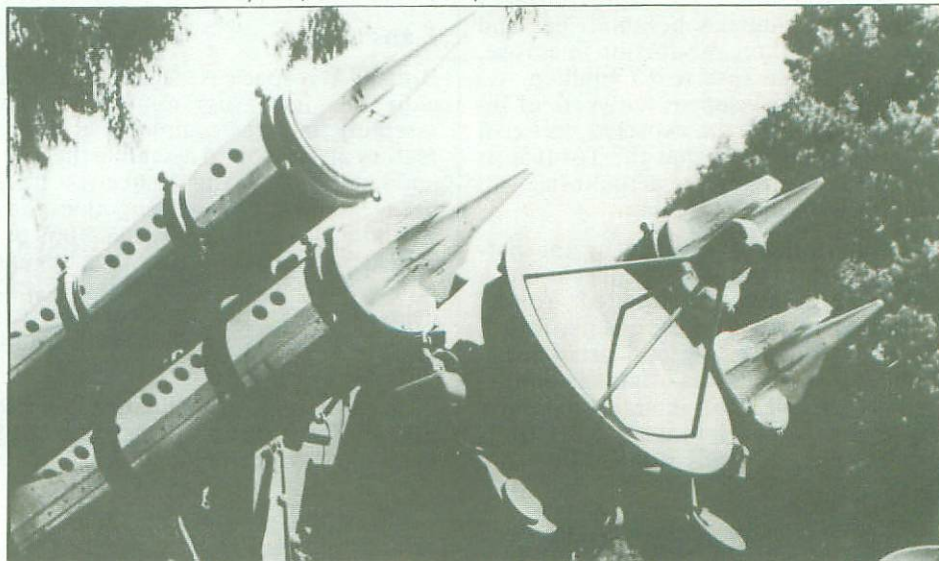
In the summer of 1977, having gone through the security procedures and having started classified work at Marconi, Dick decided to go back to South Africa with his family. Incredibly, the authorities still saw nothing peculiar in his going back to work on weapons for the South African government.

Cover Up

This time, Dick was more interested in his work for Kentron. He was to work in the development section of the missile company, supervising the construction of prototypes and dealing with technical faults as and when they occurred. This work, more rewarding than the mere checking of production practice, appealed to him and from then on he stopped thinking about returning to Britain.

In April 1980 Maurice Dick was found dead inside the lavatory at Kentron with his throat and numerous other parts of the body terribly slashed. He had been working on a missile being

A South African missile system, built with the help of some friends.



tested by the South African air force which was suffering significant technical problems.

His family and colleagues were shocked and horrified by the bizarre and sudden death and were unanimous that he could not have committed suicide. The authorities, however, were anxious to calm the whole affair and attempted to intimidate Mrs Dick into silence over her charge that he must have been murdered. Her suspicions about the business deepened when the inquest recorded a verdict of suicide without hearing evidence from colleagues who contradicted this and whose testimony Mrs Dick knew had been taken by the police. After winning some newspaper support for her case, the inquest was re-opened and the suicide verdict overturned in favour of an 'open' verdict.

The violent death of Maurice Dick remains a mystery, although there is little doubt he was a victim of behind the scenes machinations in a part of the world where paranoia abounds.

The South African government has taken no interest in pursuing investigations into his death and the British Foreign Office has taken no action to evince further information from the South African authorities. Mrs Dick has still not received any explanation from the British government about why they are not interested in the violent death of someone who held British defence secrets.

Marconi was most anxious to point out to CIS that it has no control over where an ex-employee may emigrate, that there are absolutely no commercial, technical or other links with South Africa, and denied that Dick was likely to be in possession of sensitive information.

The MoD, they insisted, would not permit classified information to get into Dick's hands, nor would a foreign power be very interested in Rochester's products. If the Nimrod, Jaguar fighter bomber and about half a dozen top class guided missiles are of no interest to foreign powers then Dick's trouble free emigration makes perfect sense.

The MoD told CIS that any question about British concern over South Africa's possible acquisition of British classified defence information was a political one that they could not answer — the Foreign Office would have to do that.

The Foreign Office is already familiar with the Dick case but none of its pronouncements on the affair have mentioned the question of defence information reaching South Africa.

CHEMICAL DEATH

Other ways of killing

In Pine Bluff, Arkansas, a production line is being prepared. As soon as Ronald Reagan sends Congress a formal message that production should begin it will turn out 70,000, 155mm shells of the nerve gas, GB, each month to be stored as binaries. Additional factories are planned to produce the more deadly nerve gas, VX, in a programme whose total cost may reach \$4billion. And the Tories have implied that they are quite happy to let Britain be the European base for these weapons.

Nerve gases were discovered by German scientists at the eve of the Second World War. They were never used for fear of the existence of US retaliatory capacity, but after the war some of these scientists left Germany and conducted their research in laboratories like those of ICI in Britain. The development of more lethal gases, like the V agents, continued.

All nerve gases are deadly chemicals that kill within seconds, interrupting the mechanism by which impulses are passed through the nervous system. Milligram quantities entering the body by inhalation or skin absorption would cause uncontrollable vomiting and defecation; intense sweating; filling of the lungs with mucus and so difficulty with breathing; blurred vision; uncontrollable convulsions; death by asphyxia.

Stockpile

The graphic horror of chemical weapons in the First World War led to the Geneva Convention of 1925 which prohibits their first use. The USA has always maintained a 'defensive' capacity in the weapons, even after it became the 95th signatory in 1975.

In 1975 the US army decided that its chemical programme was in trouble.



Spending began to grow and in 1979 a school in chemical war was established at Fort McClellan. Although all the nerve gases are cheap to produce, costing only a few dollars a litre, the dangers of storage had, until recently, held against their production. The binary system was developed to solve this problem — a binary shell contains two chemicals, relatively harmless alone, which mix during flight to produce the deadly gas.

Since 1979 US intelligence advisors have pushed for binary production, using as justification allegations that the USSR has a massive stockpile of chemical weapons. It has also been said that the existing US stockpiles have deteriorated. Both assertions are disputed. Frequent claims that the USSR and its surrogates have used chemical weapons in Afghanistan and South-East Asia have never been confirmed, whilst the USA conveniently forgets its own use of herbicides in Vietnam.

The USA is now seeking a European base for chemical weapons. It has an ageing stockpile in West Germany, but the Germans refuse to accept any new weapons. Since the 155mm artillery rounds have a range of only 18-22km the USA has two problems: finding a new base country and a new delivery system. Recently released congressional testimony shows that a number of systems, including the cruise missile, were being considered as carriers of chemical warheads. Furthermore, at the end of December 1981, Amoretta Hoeber, Assistant Deputy Army Secretary, announced that the USA wanted Britain to take chemical weapons.

Plans

Despite government denials, Britain has been giving serious consideration to chemical warfare. Talks between Francis Pym, Minister of Defence, and US officials began in November 1980, and although officially there were no plans to acquire or base weapons in Britain Pym personally favours the development of gas weaponry. He has said: 'Well now how can you deter a potential aggressor? Might it not be a deterrent if we had it ourselves?' His successor, John Nott, has also announced that Britain has no plans to take US chemical weapons, but informed sources suggest that the British government agrees in principle not only to buying and storing weapons, but also to making a component of the binary system.

Experts in chemical war compare binary weapons with theatre nuclear

weapons since clouds of nerve gas drift long distances, and some, particularly VX, can linger for weeks. Maps have been produced of six North-Western European battlefield scenarios. In each attack six tons of nerve gas was used and it was estimated that all unprotected people within 20km would be killed; millions more within a 40km radius would be at least incapacitated. An American computer simulation of such battles suggest a ratio of 20:1 for civilian to military casualties. The adaptation of chemical weapons to a variety of delivery systems increases their range to 2,000km and so the permutations for their deployment similarly increases, but in all cases they would be highly arbitrary in choosing their victims.

Britain, though it has no major store of weapons, is a world leader in production of protective materials. At least 60 companies, many with Ministry of Defence contracts, produce and export such materials and the growth in their numbers reflects the growing military importance of chemical warfare.

Tempting

One company that produces such material is Bondina Ltd of Halifax; they provide chemical and biological warfare (CBW) protective cloth to J. Compton Sons and Webb Ltd. of Newport who, in turn, supply NATO forces with suits. In their promotional material Bondina point to the fact that they have used facilities at the Chemical Defence Establishment (CDE) in Porton Down as well as personnel of the Royal Institute for Aviation Medicine and the Services Clothing Research and Development Establishment.

The CDE at Porton Down, near Salisbury, is the main centre in Britain for research into CBW agents, their development and defence. Facilities include half a square mile for field tests, a Meteorological Office outstation, laboratories and workshops for the small scale production of specialised apparatus. Although there are no official figures it is estimated that between 400 and 500 people are employed at Porton Down.

The use of Porton Down was heavily advertised by companies who, under the sponsorship of the British Embassy, took part in the first ever CBW sales festival in Washington in 1980. Twenty British companies displayed their equipment for American military leaders, private industry and the press. The fair was attended by over 350 people including 18 one and two star generals, mostly from the Marine

Corps and the army. Soon after Bondina received an order for cloth to make 200,000 suits for the US army.

Equipment at the fair included the S6 respirator which is manufactured by the Leyland and Birmingham Rubber Company, part of the large BTR group of companies. BTR also produce environmental packaging material under the name of Export Packing Service which also has a defence contract.



Among others present at the fair were Portals Water Treatment who produce water purification systems, Thorn Automation who have secured a £14million contract to supply the MoD with NAIAD nerve gas detectors. Aircrow Howden, part of the Howden group were there to show their environmental control systems.

Defence contracts can be seen as being the bread and butter lines of these com-



The protection racket: when does protection become offensive?



panies and with military subsidies in research and development, defence related work becomes very tempting. With regular defence contracts Bondina's profits have risen steadily over the past 10 years.

Although defence work is only part of Bondina's operations it can be seen as having a stabilising effect on the company's future plans. Such is the strength of the company they are quoted as having unlimited borrowing powers which must please their parent company, Freudenburg of West Germany.

Denials

The Charcoal Cloth Company (CCL) of Wimborne, Dorset, has more direct links with the MoD. As the name implies their sole product is a fabric composed of 100% pure charcoal fibres which was designed by Dr Fred Maggs while at the CDE, Porton Down. After his retirement he joined CCL as a scientific adviser and the cloth is now produced by the company under licence from the MoD. So far the company has been helped by the National Research Corporation who has invested more than £100,000 in the project. Managing director, Michael Turner estimates that there is a market worth many millions for the cloth.

Like much of defence work there are profitable civilian outlets. In their promotional handout CCL say that uses include air conditioning filters, protection in the form of suits, facemasks and as a heating element.

Leyland and Birmingham Rubber Company who make the S6 respirator also found that there were large military and civilian profits to be made. They have been generous in their praise of the government whose scientists designed the S6 and, with the

help of the army, regularly tested it. Their parent, BTR, in its annual report for 1979, noted that: 'International tension, political and economic, have led many countries to reconsider their defence expenditure. In the UK, sales of the L&B range of personnel protection equipment reflects this trend, with increased interest being expressed by overseas markets'.

Companies like Primary Medical Aid are successfully exploiting foreign sales. Recently they sold £500,000 worth of their Nuclear Biological Protection kits to Iraq. These kits include decontamination agents, detector papers for nerve agents and drugs and self-injecting syringes, effective as nerve antidotes.

Remploy, the government subsidised company employing 8,000 disabled people, is also in the CBW protection business. Under the American-style management of Trevor Owen, ex-ICI executive, they have become in the past two years a major supplier of protective suits to the MoD and to the USAF.

The British Army is already using chemicals. The harassing gases CS and CN, and later the refinement CR were used in Northern Ireland from 1969 onwards. These gases have been developed at Porton Down, and though said to be harmless, have not been subject to stringent and independent medical tests. In fact there is considerable evidence to show that CS has caused fatalities in Northern Ireland.

The government is happy to continue developing chemical and biological weapons and is supporting Reagan's plans to produce and stockpile them. Despite their denials the weapons have already been used by the USA. The fact that they can now put chemical gases into long term storage only enhances the danger that they will be used on a large scale.

THE BATTLE FOR JOBS



The arms industry, and the war machine that it supports, is the single biggest industry in the country, providing somewhere around a million and a half jobs directly and indirectly. The military itself employs 334,000 regular troops with another 55,000 civilians providing direct back-up and support functions. There are reckoned to be 733,000 civilians engaged directly and indirectly in arms manufacture, many of them in private firms but some in the government's own Royal Ordnance Factories (21,000 at the last count).

Arms production, and the jobs that it provides, is a central feature of the UK economy. Most of the high priority research and development carried out in British universities and research establishments is directed towards military objectives, a large tranche of the developments and production of the growing electronics industry has a military application, and many of the tedious assembly jobs carried out in companies with names familiar in any household are for incorporation into

weapons or military back-up systems. On top of this, one-third of all the home civil service is employed by the MoD.

Weapons production has become so much a part of everyday life that most of the people involved in it have the same matter of fact approach to the work as any other. Ironically, few other industries provide the opportunities and challenges found in arms manufacture. It is ironic too that the stability of employment traditionally found in the weapons industry arises from that same 'comfy' relationship with governments that has been so profitable to the companies.

Many, largely unsuccessful attempts have been made to relate the level of spending on 'defence' to the number of jobs supported. The kind of figures bandied around on this, particularly in the House of Commons Defence Committee, are notoriously unreliable. Roy Mason reckoned in 1974 that £1 billion of cuts in defence would remove 350,000 jobs. More recently, Professor David Greenwood has put the figure at 180,000. In the 1980/81 Defence Committee report, the MoD's Mr Bourn reckoned that the £5.3 billion his ministry spent on military equipment sustained around 450,000 direct and indirect jobs.

Hard Sell

All these calculations are shaky in the extreme but serve to point up how important the jobs argument has become in weapons politicking. And it works at all levels.

Chancellor Howe, accused on TV's *Panorama* of running a deflationary economic programme and causing heavy unemployment, replied that in fact his policy was reflationary. He argued that increased spending on defence was a boost to the economy and jobs (*Panorama*, December 1981).

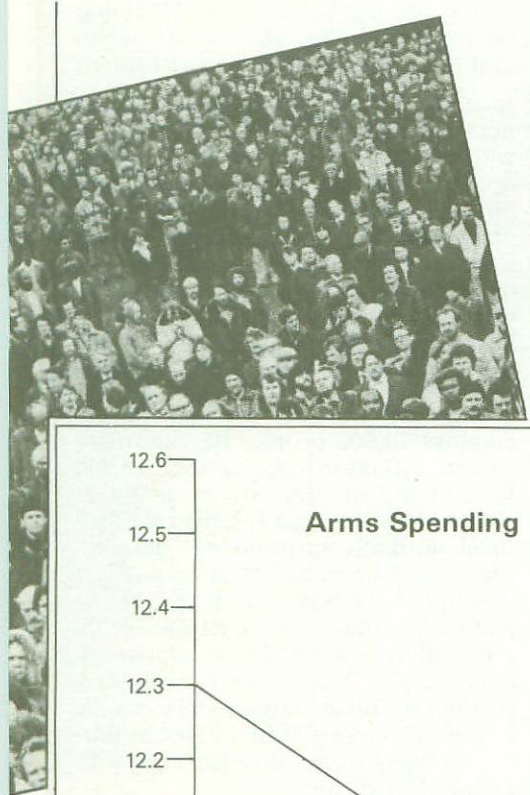
Some of the loudest voices raised in protest against 'defence' spending cuts

have come from trade unions, many of whom have constitutions opposed to weapons production, but who have a first duty to defend the jobs of their members.

This situation has been seized upon by the arms companies and the 'hawks' in the MoD to such an extent that no arms project is publicised without extensive reference to the jobs that would be created as a result or, in some cases, lost if the contract is cancelled.

In this way the BAe Dynamics Group arguing for the go ahead from the government for the Sea Eagle anti-ship missile, claimed that 'this would ensure continued employment for skilled engineers at Hatfield and Stevenage'. GEC-Marconi successfully used the 'jobs argument' in their case to the MoD for the production of the Sting Ray lightweight torpedo. In the Commons Defence Committee hearing the claim that the project would 'eventually lead to 1,000 jobs at Neston (GEC's factory)' was very sympathetically received.

In fact it has become an unwritten assumption of the Defence Committee that jobs spin-off makes arms production acceptable. This contorted logic led the chairman of the Defence Committee to assert that 'The more defence sales can be achieved, the more job op-



portunities it will create' (Second Report 1980-81).

Despite the hard sell, the jobs argument does not hold up. Invariably it is special pleading that only works if the narrowest of perspectives is adopted. In overall terms and even in sectoral terms, increased spending on defence does not and will not lead to a jobs increase. Consequently, when temporary respite is provided for a threatened group of workers or when new jobs are created, it is nearly always at the expense of other groups.

Weapons spending does not create jobs

in the way that is claimed and employment in the arms industry is falling overall. High technology in the weapons themselves and in the methods of producing weapons have left their toll. Whole sectors such as warship building and tanks production are in decline. But the shift in spending to other types of weapons does not make up for the jobs that have been lost.

Jobs in the defence sector have fallen at the same time as defence spending has increased in real terms. The money spent on weapons has increased dramatically since the Tories came to power but only military service personnel have increased as a result. Civilian jobs in the MoD and related production have fallen rapidly.

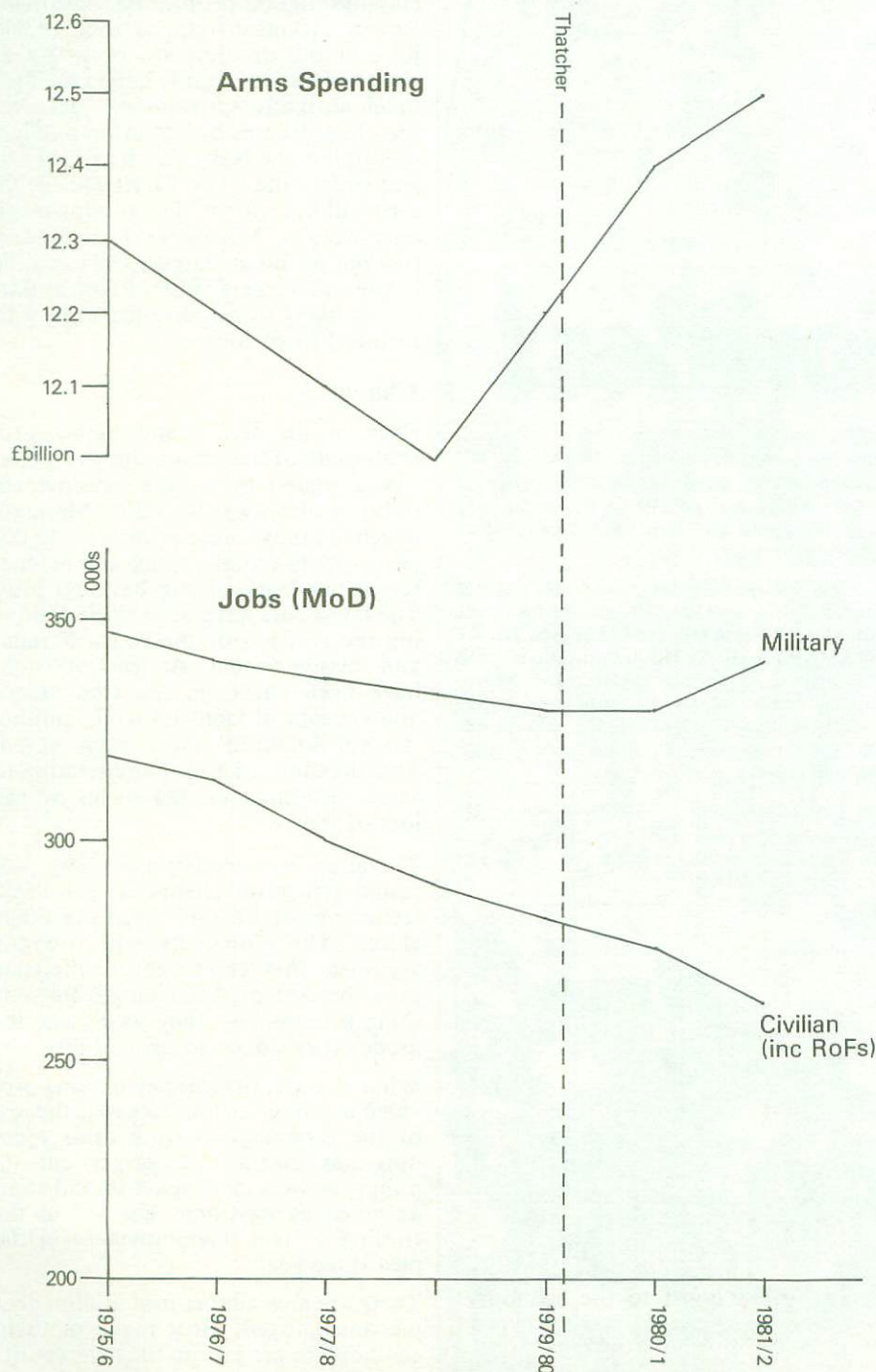
The MoD has committed itself to cutting the number of UK based civilians that it employs from a 1979 total of 247,600 to 200,000 by 1984. It is well on the way to achieving this. It has cut half of the naval dockyards by closing Chatham and Portsmouth with the loss of 13,000 jobs. The MoD also intend to reduce the number of civil servants involved in the work of monitoring and processing the work of outside private contractors. 'Quality assurance' arrangements will for example be reduced and so will procedures for processing contractors' bills.

Given the power of the military lobby, many of the cuts will be cosmetic as far as the industry is concerned. Contracts are, for example to be shifted from government factories into facilities owned by the private companies and in this way direct employment will be reduced. Industrial cleaning of MoD establishments, employing perhaps 5,000 people will be handed over to private contractors. And of course in line with the government privatisation programme, some of the profitable arms production facilities of the MoD will be 'hived off' to the private sector.

Joke

Three quarters of MoD expenditure on equipment goes to outside contractors. These include the Royal Ordnance Factories, British Aerospace, British Shipbuilders, GEC and Lucas. The MoD claims that something like 200,000 people are employed fulfilling these arms contracts. Once again, overall job numbers are in decline.

The Royal Ordnance Factories which have a semi-independent status with respect to the MoD, employ 21,000 people at the 13 plants across the country. Since 1979, 2,600 jobs have been lost mostly from the tank production



Profits bonus for defence manufacture

By Anthony Bevins, Political Correspondent

Defence equipment manufacturers have been awarded a guaranteed profits bonus by the Treasury, in direct breach of an official commitment given to the Commons Committee of Public Accounts.

Non-competitive defence contracts, worth more than £4,000m in 1979-80, should be drawn up on the basis of a profits formula that would match the average return on capital for manufacturing industry as a whole.

would not be applied when industry is facing abnormally fits."

An independent board, which recognises the retention of the cent return, said in its for 1980 that the profits of some contractors had fallen below the target between 1975 and 1978.

Mr Downey, however, reported that the

NEWS IN SUMMARY

£500m deal for new torpedoes

By Henry Stanhope, Defence Correspondent

A £500m torpedo contract has been agreed between the Government and Marconi Space and Defence Systems after three months of negotiations. More than 2,500 jobs will be involved.

It covers development and production of a heavy

facility at Leeds, and the MoD has warned in the 1981 Defence Estimates that more jobs must go in the future.

In shipbuilding, the jobs argument has been reduced to little more than a joke with threat and counter threat being openly made between British Shipbuilders (BS), the state holding company, and the Navy. Warships vie with merchant ships for reduced resources in its yards. Many of the well known warship builders like Swan Hunter Ltd have transferred progressively to civil work as arms contracts have been cut.

Today the warship division of BS employs 30,000 people. BS chairman, Robert Atkinson, claims that 13,000 jobs in the division are presently at risk, and he has recently defied the protocol normally surrounding 'defence' spending debates by declaring publicly that unless the Navy gets its finger out and orders the Type 23 frigate, 2,700 jobs will have to go. The rundown can only worsen. Missile work being carried out by BS at Barclay Curle on the Clyde and Vickers Shipbuilding at Barrow is likely to be curtailed soon with further loss of jobs.

Change

Even in the secure and highly profitable end of the arms industry — electronic weaponry — the employment trend is downwards. GEC Marconi, which employs approximately 40,000 people in its avionic, space and defence sector has been cutting back on jobs. The latest cuts have been made following the revision of the Seawolf radar and missile system. At least 900 jobs have been cut from the Chelmsford and Gateshead factories while another 'several hundred' have been saved. This decision, like so many relating to arms spending, has led to an overall loss of jobs.

The arms industry is undergoing profound structural change as the rapid technological shifts of recent years take effect. The employers will use any argument they can to ensure the state pays the cost of that change. But one thing is certain — they won't use the money they do get to protect jobs.

What is more, that money is being provided at a huge cost in terms of the rest of the economy. Soaring arms spending has meant even larger cuts in public services and benefits and that, as much as anything, has led to the tripling of real unemployment in the past three years.

There are now almost four million people unemployed. How many of them can hope to get jobs in the high profits growth sectors of the arms industry?

Whose priorities?

'We are doing something to help the country', Sir Geoffrey Howe protested after introducing the November 1981 mini-budget to parliament. 'We are spending more money on defence'.

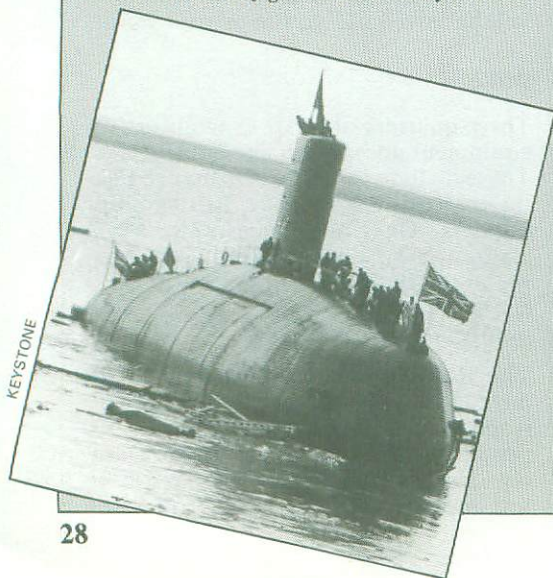
If you want to help the economy, giving money to the armourers is the last thing to do. It will just be eaten up by a project such as GEC-Marconi's new multi-million pound electronic warfare centre at Stanmore in Middlesex — 'Europe's largest and most advanced', according to stockbrokers Simon & Coates. The owners of the arms companies will be the only ones to see any 'economic' benefits.

You can count the cost of the government's military spending by comparing two examples. The MoD are currently paying over £200million for one nuclear powered 'hunter-killer' submarine, which is being built at Vickers Shipyard at Barrow. All they get for their money is a sub-

marine that can chase other submarines which, most likely, will be chasing it. The MoD won't reveal how many people are employed making it but the whole shipyard, which is also building large ships, guns and so on, only employs some 8,000 people in all.

For less money the government could support London Transport's low fares scheme for nearly two years. It would save the 18,000 jobs that LT will be trying to cut directly in the next few years. It would save jobs at Leyland and Metro-Cammell which supply LT buses and rolling stock. And it would save the 10million people who use the system £150million in fares while allowing them to use it much more.

But that is not what Sir Geoffrey wants. He prefers the economic suicide of the arms race. His economics are only about a very small part of Britain's population.

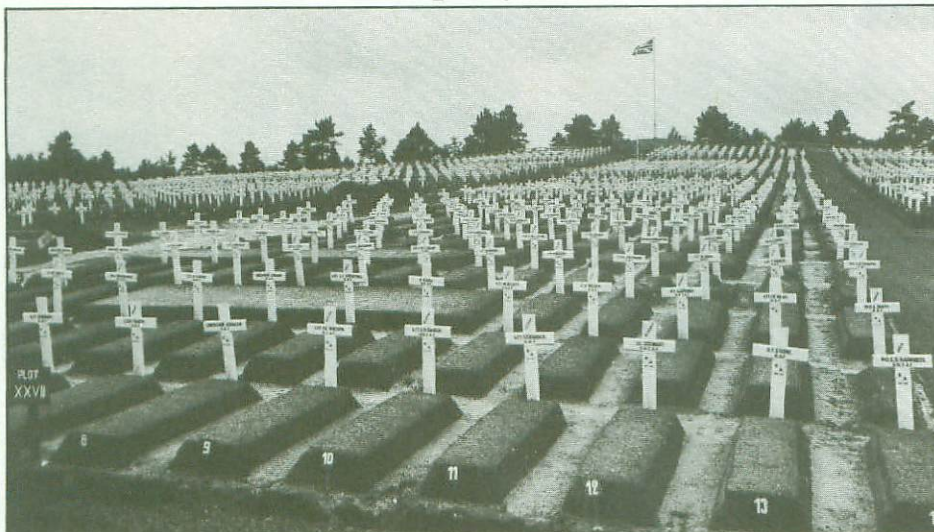


KEYSTONE

GINA GLOVER

COLD WAR

Who profits?



Death and destruction. The human and economic cost of arms and arms spending.



A lot has changed since the first Strategic Arms Limitation Treaty was signed in May 1972. Just a few years ago the US Senate could debate whether to raise or reduce military spending. In 1978 the debate was over whether to increase it by 1% or 3%. In 1979 it was over whether to go for 4% or 5% real growth. And by 1982 Reagan was asking for a massive 15% hike in spending on arms. At the same time the press regularly promulgates the idea that the Soviet Union is bent on expanding its missile and nuclear capability.

It would be simple to point to the Russian invasion of Afghanistan and the military coup in Poland as reasons for the increase in international tension. But in 1972, when SALT I was signed, US armed forces were engaged in a bloody war against supposedly Russian backed forces in Vietnam, were about to embark on the mining of Haiphong, and had yet to reach any rapprochement with Communist China. Real conflict did not generate a climate of international tension that stood in the way of a treaty between the US and USSR to limit their nuclear arsenals.

In 1972 the world economy was still growing and was headed towards its biggest, if shortlived, boom in output and investment that peaked in 1973. The slump that followed was the most serious since the 1930s, and it exposed only too clearly the real decline of US profitability that had been occurring beneath the surface of the post war boom.

Growth rate per annum in GNP per employed worker

| | 1963-1973 | 1973-1979 |
|---------------|-----------|-----------|
| United States | 1.9 | 0.1 |
| Japan | 8.7 | 3.4 |
| West Germany | 4.6 | 3.2 |
| France | 4.6 | 2.7 |

Source: Economic Report of the President, 1980.

This was reflected in a declining share of world trade. The US share of world manufacturing exports, for instance, has declined from 29% in 1958 to 19% in 1978. This is partly due to the multinationalisation of the large US companies, but in recent years even this has not been sufficient to ensure profitability. Major components of the US economy, such as the auto industry, have been in increasing difficulties as competition in the world has grown. The impact this decline was having on US military postures started to be made very explicit towards the

end of the 1970s.

US administrations always describe the interests of US multinationals in the world as being one of dependence on raw materials, but the end result is the same — a justification for increased intervention. 'The United States has become irreversibly involved in world issues' the then Secretary of Defense, Harold Brown, told Congress on January 1979. 'Our economy has come to depend heavily on imports of energy supplies and raw materials, and the sale of US goods and services. To protect these interests and to ensure the survival of pro US governments abroad we are bound to have a strategic stake in such distant places as the sea of Japan, the Straits of Malacca, the Persian Gulf, the Dardanelles, the Baltic and the Barents sea'. This stance was formally enunciated in President Carter's 1980 State of the Union address when he declared that any attempt to block access to Persian Gulf oil 'will be regarded as an assault on the vital interests of the United States and would therefore be repelled by any means necessary, including military force'.

The foundations for increasing military intervention, and the climate for a renewed cold war were laid prior to Reagan's election. It was the Carter administration which established the Rapid Deployment Force as an interventionary arm of American power.



Russian tanks guard the Danube bridge in Budapest during the uprising in 1956.

The proposals to step up the arms race by siting Cruise missiles in Europe and the deployment of the neutron bomb were also initiated in the period before Reagan took office. What sets Reagan apart from his predecessors is that, behind his rhetoric, his violent anti-communism and his proposals for a massive increase in defence spending, stand his domestic policies.

In February 1982 Caspar Weinberger, the Secretary of Defense, provided the

keynote to Reagan's budget when he said 'The greatest social service that any government can render its people is to keep its borders secure'. The cold war rhetoric provides a justification for a programme which massively redistributes wealth back into the profits of industry. As in the UK, big increases in defence spending accompany major cuts in government expenditure on health, education and welfare.

As far as the domestic economy is concerned, the impact of Reagan's defence spending will be to boost certain arms related industries. Aircraft companies like McDonnell Douglas, Boeing and Lockheed see increased defence spending as a method of making profits. Alcoa, the giant US based aluminium producer, stated in February 1982: 'We want defence orders right now, we're far below our capacity and are looking for increased defence expenditures ...'

Acceptable

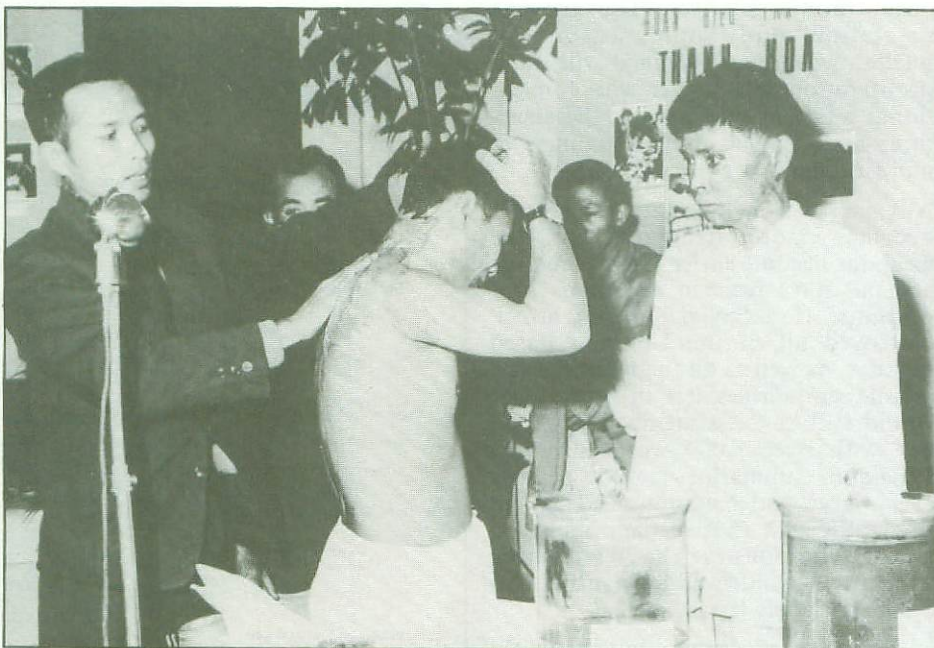
In fact the Department of Defense in the US has produced figures that show that because of Reagan's policies, defence is the only growth business left. Ignoring the obvious candidates such as electronics and aerospace, there will be other major discrepancies in growth. In the crude oil and natural gas industry, for example, annual growth up to 1987 is forecast at 7.7% for the defence business as opposed to 0.7% for non defence business. Despite this, defence spending will not pull the US economy out of the recession.

Massive defence expenditure is an ideologically acceptable way of sub-

The 20 leading industries in the US defence business

| Industry | Defence business (Billions of 1980 dollars) | | Estimated average annual growth (per cent) 1981-87 | |
|--|---|--------|---|-------------------------|
| | 1981 | 1987 | Defence business | Non-defence business |
| Radio, TV equipment | \$12.1 | \$25.2 | 13.0 | 4.1 |
| Petroleum products | 7.8 | 12.3 | 8.0 | 0.9 |
| Aircraft | 7.8 | 16.4 | 13.2 | 5.0 |
| Aircraft parts, equipment | 6.8 | 13.5 | 12.0 | 3.9 |
| Aircraft engines, parts | 6.4 | 13.2 | 12.7 | 4.1 |
| Guided missiles | 6.2 | 12.8 | 12.9 | 0.4 |
| Shipbuilding, repairs | 4.9 | 7.6 | 7.5 | 3.8 |
| Misc. business services | 4.8 | 9.1 | 11.3 | 4.8 |
| Crude oil, natural gas | 3.2 | 5.1 | 7.7 | 0.7 |
| Steel | 2.9 | 5.3 | 10.4 | 3.6 |
| Truck transport | 2.9 | 4.6 | 8.3 | 4.5 |
| Electric power | 2.8 | 5.0 | 10.1 | 2.7 |
| Electronic components | 2.6 | 6.0 | 14.9 | 8.2 |
| Ammunition (excluding small arms) | 2.3 | 5.3 | 15.0 | 6.7 |
| Maintenance, repair | 2.3 | 4.0 | 9.6 | 2.6 |
| Professional services | 2.3 | 4.7 | 12.2 | 4.3 |
| Chemicals | 2.1 | 4.0 | 11.3 | 4.4 |
| Ordnance, accessories | 1.8 | 3.7 | 12.6 | 6.7 |
| Communications (excluding radio and TV) | 1.7 | 3.3 | 11.6 | 5.3 |
| Tanks, components | 1.5 | 3.7 | 12.6 | 4.5 |

Source: US Defense Department.



Two victims of US napalm bombing raids in Vietnam 1966.

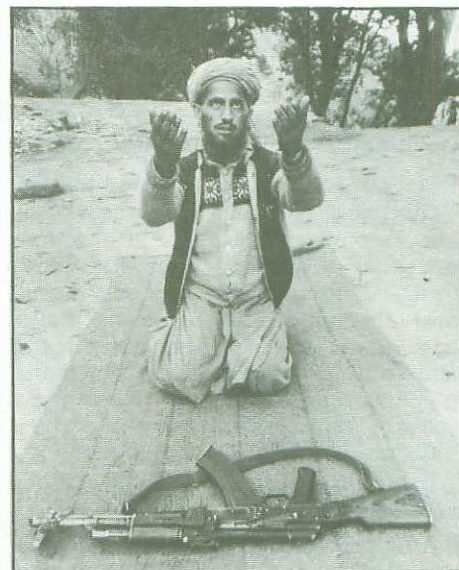


sidising industry at a time when there is a major attack on jobs and productivity, and the economy is squeezed by high interest rates. The overall effect is that in the squeeze it is easier to shed labour, raise productivity, and hold down wages, while ensuring that core companies in leading sectors are sup-

ported. This is a strategy which has been followed by Thatcher with some effect.

A degree of collaboration between the two superpowers has always existed.

Each, while formally condemning the belligerence of the other, has recognised separate spheres of interest and has engaged in practical co-operation. Thus in spite of extreme cold war rhetoric, the US tacitly acknowledged Soviet control over Eastern Europe in the 1940s, did not support the Hungarian revolt in the 1950s, and accepted the USSR's drive for nuclear parity in the 1960s and 1970s. Likewise the Russians, in spite of their anti-capitalist ideology, declined to sign a separate peace treaty with East Germany, backed down over Cuba, and agreed not to directly challenge the US



An Afghan guerrilla at evening prayers.

bombings in South East Asia. Indeed, the agreement between the three allies in Yalta in 1944, attended by Churchill, Stalin and Roosevelt, structured the post war world into two major spheres of influence.

The vast armies and weapons of the superpowers have been used continually inside these spheres of interest. US intervention in Greece and the Lebanon in the 1940's and 1950's, in Vietnam, Cambodia, Panama and other Latin American countries leading up to the current role of US forces in Egypt and El Salvador show that in fact the point has been to maintain order and impose government's sympathetic to US interests. The role of USSR forces tell a similar story with their deployment in East Germany, Hungary, Czechoslovakia and Afghanistan all propping up sympathetic communist party regimes and maintaining the Soviet grip on the Warsaw Pact. The extent to which rights and civil liberties play absolutely no role in the real interests of the power blocs is clear in all these cases.

But this is not to underestimate the possibility of conflict between the

superpowers. Reagan has made no secret of his bellicose anti-Sovietism. He leads a vocal section in his own administration that would like to see an end to detente and a 'rolling back of the iron curtain'.

His rhetoric over Poland and the imposition of some sanctions against Russia are means towards this end. Exports from western Europe to Warsaw Pact countries in 1981 reached £20 billion with more than £23 billion worth of business coming the other way. On top of this the eastern bloc owes the west a cool £80 billion. The Americans are making sure they embroil the Europeans in sanctions with the aim of cutting their economic ties with Eastern Europe and increasing their dependence on the US. Europe is offered the threat of an increasingly isolationist USA if it doesn't comply.

It is no accident that the £14 billion Yamal gas pipeline from the Soviet Union to Western Europe has become the focus of Reagan's attempt at sanctions on Russia. The pipeline means more than gas to the Europeans, it also has implications for long term trade and jobs. But the US has turned the pipeline into a symbol of Europe's growing relationship with the eastern bloc and is trying to force the issue.

Reagan is looking for allies to support his position on the Soviet Union. He has found such an ally in Thatcher who personally supports him and has shown herself in favour of close military collaboration. But the shape of world affairs prevents any but the most dogmatic from lining up behind Reagan. As the US ambassador in West Germany has said, America's belligerent new foreign policy against the Soviets risks America losing 'the battle for the soul of Europe' (*Business Week* 22.2.82).

Threat

Any alteration in the world balance increases the possibility of a head-on confrontation between the superpowers. An America with Reagan behaving like a smitten bear at its head, is likely to be a significant threat to world stability.

The nuclear arsenals and conventional weapons accumulated around the world are incapable of providing security for ordinary people, or of preserving freedom and civil liberties. In fact they provide a cover behind which internal repression and economic transformations can take place.

Yet this is not a justification for ignoring the real threat that the cold war

poses to our survival. The growing escalation and sophistication of nuclear weapons, combined with their proliferation and merger with conventional weapons, means that the structures and controls are becoming ever more fragile.

Any increase in international tension becomes more dangerous as the weapons become easier to use. And the arsenals have reached enormous proportions. If a Soviet surprise attack destroyed all of the US land based missiles, as well as all the bombers and missile submarines left in port, there would still be 21 strategic submarines left with over 3,000 warheads. One Poseidon submarine could destroy every large and medium sized city in the USSR with 15% of the population and 30% of industry. The 20 remaining submarines would still have more than 2,800 warheads left.

The arms race is insane, but the world structures that justify it ensure that we pay for it in every aspect of our economic and political lives. It is this that needs to be opposed.

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Appendix

British Aerospace Plant Locations and Principal Activities

| Location | Principal Activities |
|--|---|
| Aircraft Group | |
| Warton Division: Warton, Preston, Lancashire | R&D, final assembly and flight testing of Tornado, and Jaguar, and Saudi Arabia support |
| Preston, Lancashire | Parts manufacture for Tornado and Jaguar |
| Blackburn, Lancashire | Sub-assemblies of Tornado, Canberra refurbishing and spares |
| Kingston-Brough Division: Kingston-upon-Thames, Surrey | Group headquarters and production of Hawk and Harrier |
| Brough, North Humberside | Parts manufacture and sub-assemblies of Hawk and Harrier |
| Lutterworth, Leicestershire Godalming, Surrey | Sub-assemblies for Hawk Final assembly of Hawk and Harrier and flight testing |
| Holme-on-Spalding Moor, North Humberside | Repairs |
| Manchester Division: Middleton, Chadderton | Parts manufacture for NS748 and Nimrod |
| Woodford, Cheshire | Final assembly of HS748, Nimrod conversion and flight testing |
| Weybridge-Bristol Division: Weybridge, Surrey | Parts manufacturing and sub-assemblies for civil aircraft |
| Filton, Bristol | Parts manufacturing and sub-assemblies for civil and military projects |
| Scottish Division: Ayrshire, Scotland | Production of Jetstream and Bulldog |
| Dynamics Group | |
| Hatfield Division: Hatfield, Hertfordshire | Research and development |
| Space and Communications Division: Stevenage "B" Site, Stevenage, Herts | Group administration and R&D and production of space systems |
| Stevenage Division: Stevenage "A" Site, Stevenage, Herts | R&D and production of missile systems |
| Bristol Division: Filton, Bristol | R&D and production of missiles and space systems |
| Lockstock Factory: Lockstock, Bolton | Production of missiles, propellers and other equipment |

GEC Marconi Locations and Principal Activities

| Location | Principal Activities |
|--|--|
| Marconi Radar Systems (MRSI) | |
| Chelmsford | GWS25 radars for Royal Navy related to Seadart & Sea Wolf missiles |
| Leicester, New Parks Gateshead | 1800/800 air defence radar: share of UKADGE contract command and control system |
| Watford | Control engineering |
| Marconi Space and Defence Systems (MSDLS) | |
| Stannmore, Warren Lane, Fife, Scotland | Missile guidance and counter measures for Blindfire, Rapier, and Skyflash missiles. Fire control systems. |
| Frimley, Surrey (also Essams Ltd) | 'Frequency hopping' and Clansman army vehicle radio. Prime contractor for Skynet II including 'Scot' earth terminal for military use |
| Portsmouth | Assembly and test of Sting Ray torpedo |
| Neston, Cheshire | |
| Marconi Communications System Ltd | |
| Chelmsford | Naval HF communication equipment and ICS3 for navy ships |
| Marconi Avionics | |
| Rochester, Kent | Head up displays for fighter aircraft. |
| Basilidon, Essex | Laser range finding equipment. |
| Stannmore, Middlesex | Tornado air interception radar. |

Other GEC Plants

| Location | Principal Activity |
|---|---|
| Esams Ltd, Frimley, Surrey | Avionics systems for Tornado |
| McMichael Ltd, Slough, Berks | Sonobuoys for military aircraft e.g. Nimrod: autopilot for Sting Ray |
| GEC Computers Ltd, Cowdenbeath | '4000' series computer inc. British Army's 'Wavelet' command and control system |
| Plessey Plant Locations and Principal Activities | |
| Plessey Aerospace Ltd, Fareham, Hampshire | Broadband Chaff rocket decoy systems |
| Plessey Avionics, Ilford, Essex | Military communication and identification equipment |
| Plessey Radar Ltd, Weybridge, Surrey | Search and target indication radar |
| Plessey Radio Systems Ltd, Havant, Hampshire | Military radio systems incl. MODAS. |

Arms Companies paid £5million or more by the MoD 1979/80

Over £100m

- 1 British Aerospace Aircraft Group
- 2 British Aerospace Dynamic Group
- 3 British Shipbuilders
- 4 The General Electric Co Ltd
- 5 The Plessey Co Ltd
- 6 Rolls Royce Ltd
- Royal Ordnance Factories (see key)
- 7 Westland Aircraft Ltd

£50m-£100m

- 8 BL Ltd
- 9 EMI Ltd
- 10 Ferranti Ltd
- 11 Hunting Associated Industries Ltd

£25m-£50m

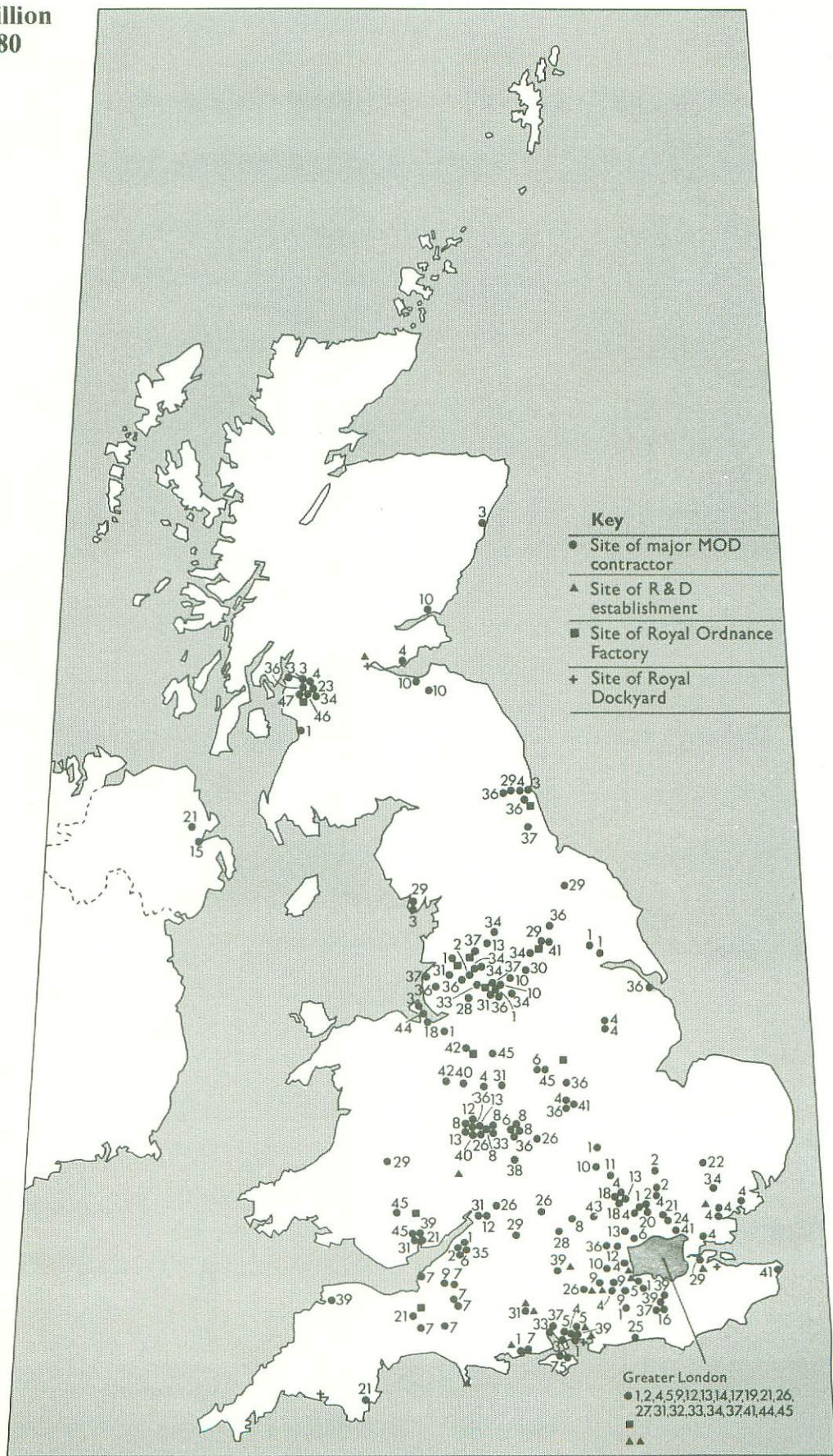
- 12 Dowty Group Ltd
- 13 Lucas Industries Ltd
- 14 Racal Electronics Ltd
- 15 Short Bros. Ltd

£10m-£25m

- 16 British Electric Traction Co Ltd
- 17 Decca Ltd
- 18 Vauxhall Motors Ltd
- 19 Gresham Lion Ltd
- 20 Hawker Siddeley Group Ltd
- 21 Standard Telephones and Cables Ltd
- 22 Marshall of Cambridge (Engineering) Ltd
- 23 Pilkington Bros. Ltd
- 24 Cossor Electronics Ltd
- 25 The Singer Co (UK) Ltd
- 26 Smiths Industries Ltd
- 27 Thorn Electrical Industries Ltd
- 28 UK Atomic Energy Authority
- 29 Vickers Ltd

£5m-£10m

- 30 David Brown Holdings Ltd
- 31 BTR Ltd
- 32 Cable and Wireless Ltd
- 33 Chloride Group Ltd
- 34 Courtaulds Ltd
- 35 Dickinson Robinson Group Ltd
- 36 Dunlop Holdings Ltd
- 37 Philips Electronic & Associated Industries Ltd
- 38 Ford Motor Co Ltd
- 39 Grindlays Holdings Ltd
- 40 Guest Keen & Nettlefords Ltd
- 41 Rank Organisation Ltd
- 42 Rolls Royce Motor Holdings Ltd
- 43 Ropner Holdings Ltd
- 44 Stone Platt Industries Ltd
- 45 Vantona Group Ltd
- 46 Weir Group Ltd
- 47 Yarrow & Co Ltd



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