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The Atlantic arms economy: towards a military regime of accumulation?

● One of the most striking features of the world economy in the 1980s must be the juxtaposition of massive military spending, a recession, and the global restructuring of production. As a result the biggest manufacturing export earners in the US and in Britain are the military aerospace industries. Mainstream accounts of the changing world economy tend to ignore this military dimension. Perhaps surprisingly, this is almost equally true of socialist work (e.g. Frobel *et al*, 1982; Andreff, 1984; Lipietz, 1987).

The new international division of labour among arms producers is increasingly subordinating European high-technology military industries to the industrial-military complex of the United States. This is paving the way towards a new, military, regime of accumulation, coincident with recent patterns of capitalist economic growth increasingly dependent upon the production of department three output, luxury goods and waste. This has important consequences for traditional socialist strategies focusing upon 'arms conversion'. They are no longer sufficient.

New patterns of accumulation

There has been a healthy growth of sectoral studies of military industry, but here the focus is invariably on the national level (e.g. Kaldor, 1982; Castells, 1985; Breheny, 1987). This is equally true of political-economy studies, whether in the tradition of the 'Permanent Arms Economy' or the 'Military Industrial Complex' (e.g. Baran & Sweezy, 1964; Horowitz, 1969; Kidron, 1970; MacKenzie, 1983; Smith & Smith, 1983). The international impact of military industry tends to be left to journalistic studies of the arms trade (e.g. Samson, 1977; Sanger, 1986). It does receive some attention in a few Marxist accounts of international capitalism (e.g. Harman, 1985; Spence, 1985), but even here it tends to be treated as secondary, a sideshow in the grand spectacle of imperialism.[1]

Some important aspects of the recent expansion and restructuring of military industry are invisible in these perspectives. In particular, I want to suggest that the interaction of the military reindustrialisation in the US with changing policy towards the arms industry elsewhere, especially in Britain, is creating a new 'Atlantic Arms Economy'. The international military-industrial

apparatus which is being constructed will sustain new patterns of transnational accumulation in the 1990s. In the language of the 'regulation school' this opens up the prospect of a military regime of accumulation, to be added to the repertoire of possible solutions to the current crisis of Fordism.[2] The purpose of this paper is to draw attention to this possibility and consider some of its implications.

The internationalisation of arms production

Arms production is being internationalised, but within distinctive constraints. Firstly, the bias of military demand towards leading-edge technologies reduces the scope for decomposing advanced weapons production into simple tasks, and this limits the possibilities for relocating production internationally. Secondly, the demand for scarce advanced technologies means that arms companies are searching the globe with absolute technical capacities in mind, rather than comparative labour costs. Thirdly, companies gain access to product markets and technical inputs only through the apparatus of the nation state, and this confines certain activities to military allies.

As a result the internationalisation of high-technology arms production in the West is taking place around a NATO axis, and a small set of advanced-technology companies. A new set of military, administrative, and industrial institutions is being constructed, dominated by the US state and US capital, to bring together capital, workers, and state agencies on both sides of the Atlantic (and, to a lesser extent, the Pacific). On the side of demand, this apparatus is an instrument for harmonising military strategies, thereby creating massive unified arms markets. On the side of supply it is the framework within which huge international concentrations of capital are being forged out of formerly fragmented national units, to exploit those markets.

The development of the Atlantic Arms Economy is a product of the sharp business cycle in the high-technology arms market since the mid-1970s. The synchronised rearmament of the US, Europe and the Middle East was followed by stagnation in military spending. In the late 1980s military industries face unprecedented pressures to restructure, internationalise and rationalise (echoing those in civilian markets in the early 1980s). Also, these pressures are greatly intensified by radical changes in state intervention in the arms industry, especially in the US and the UK. As a result the international concentration of capital in the arms sector is accelerating.

The origins of the new international arms economy can be traced to the crisis of capital accumulation in the US in the mid-1970s. Profit rates were falling, Japanese and European imports were penetrating the US market, and the costs of social reproduction were rising (O'Connor, 1981; Bluestone & Harrison, 1982). The possibility of re-establishing accumulation in a 'Fordist' mould was foreclosed politically by the lack of domestic pressure for increased popular consumption (Davis, 1986), and economically by the internationalisation of the economy, and the discrediting of Keynesian demand management. At the same time, the practicability of a full-blooded 'monetarist' resolution was limited by the weakness of government control over the money supply. And in the context of recession, the state government was unable to reduce the costs of social reproduction appreciably despite cuts in welfare (Green, 1986: 25).

But one arena remained in which the state was politically and economically empowered – military strategy and arms spending.[2] In the late 1970s US military strategists shifted their perceptions of the international threat to US interests, and developed new military policies to deal with it (Halliday, 1984; Smith, 1987). Under the Carter administration, especially after the revolution in Iran, the 'one-and-a-half-war' strategy which had prevailed since the 1960s was abandoned in favour of a policy of equipping the armed forces for 'worldwide war'; the US was 'to be capable of defending all theatres simultaneously' (Weinberger, cited in Record, 1984: 42). This strategy was elaborated and extended by the Reagan administration.

On the level of military technology, this generated new innovations leading to 'the automation of the battlefield' (Barnaby, 1986). In the permissive conditions provided by the international role of the dollar, the organisational links between the Pentagon and the arms companies, the ideological residue of defeat in

Table 1 **Rearmament in the US**

Increase in defence spending and national income (current prices)

	1971	*1976*	*1985*	*Increase 1971-76*	*1976-85*
GDP	1,078	1,718	3,839	59%	123%
Defence	75	91	285	21%	213%

Source: US Department of Commerce, 1986

Vietnam, and the relatively protected nature of the US arms market (Markusen, 1985) the new strategy turned into long-term rearmament. Between 1968 (the peak of spending on the war in Vietnam) and 1976, US real defence spending fell by a third. Thereafter it increased, passing the Vietnam war peak in 1983, and rising another third by the mid-1980s. Defence spending stagnated relative to national income in the early 1970s; in the following decade it grew twice as fast (Table 1).

US defence spending is now equal to the GNP of the Indian subcontinent (Sivard, 1986: 33-35). The US arms industry is even bigger than this, since it also sells to foreign governments. The output of the missiles sector alone is equal to the GNP of Israel. The influence of the state over military industry is not confined to markets, it also provides a wide range of inputs. Arms companies use some government factories and equipment (the majority of machine tools used by companies like Boeing are supplied by the US government (House of Lords, 1985: 315)). Military research and development is primarily dependent on state funding (although less so than in Britain, since US companies are more likely to get their investment back through exports). Between 1975 and 1985 US spending on military R&D rose from $9bn to $34bn, increasing most rapidly in the areas of nuclear weapons, intelligence and communications and other advanced technologies (Ince, 1986: 90). Since the late 1950s the Defense Advanced Research Projects Agency (DARPA) has stimulated innovations in computer and data communications. In the 1980s DARPA funds a number of projects, including a $600m Strategic Computing Initiative to develop artificial intelligence for military applications (Barnaby: 88, 154). The best known military technology programme is the Strategic Defense Initiative (SDI or 'Star Wars'). In the initial phase $30bn has been allocated to advanced research, and this could result in development and production work worth up to $400bn (equivalent to almost 90% of the British GDP (Kaldor, 1986: 9)).

Procurement is not only biased towards high-technology products. It is also accompanied by measures designed to restructure the production process. In the mid-1970s the Defense Department introduced the Manufacturing Technology Programme – MANTECH. This is directed by the USAF Systems Command, providing incentives and demonstration factories to encourage integrated computer-aided manufacturing (Wanstall, 1985). It is presented by the USAF as a patriotic response to the demand for a reindustrialisation of America (Cypher, 1987: 53).

Through these and other measures, major segments of US defence spending are targetted on industrial restructuring. This has led a number of writers to observe that 'the Pentagon system

is the American system of industrial policy' (Chomsky, 1985: 213; for an assessment see Markusen, 1985). There is considerable controversy over the microeconomic impact, and critics claim that US defence spending is wasteful and leads to absurdities, such as the notorious $600 toilet seat (Buchan, 1987a). But 'efficiency' considerations may be somewhat beside the point. In the late 1970s and early 1980s the arms build-up provided domestic markets and a range of inputs and created a new field of accumulation. In the late 1980s and 1990s increasing efforts are being made to influence weapons procurement amongst US allies. These are shaping an international arms market while at the same time creating an international infrastructure for managing the consequent concentration of capital in the arms industry.

The international impact

The military reindustrialisation of the US affects other countries and non-US companies through a number of channels. The most obvious, although not necessarily the most important of these, is direct imports. Although the US arms market is heavily protected, the absolute volume of imports is significant and rising, particularly in the case of high-technology items. The US armed services are increasingly important markets, especially for components and assemblies, rather than complete weapons platforms. Meanwhile, as the recession works its way outwards,

Table 2 **US and world arms imports**

	*1983** *($ billions)*	*Real increase* *1976-80*	*1980-83*
World	35,108	+2.9%	+1.8%
All developed countries	7,607	+6.0%	+11.3%
All developing countries	25,501	+3.2%	−0.6%
US	479	+102.2%	+193.9%
UK	623	+101.2%	+53.1%
Japan	719	+121.6%	+82.0%
Fed Republic of Germany	412	−8.6%	−24.7%
Italy	163	−33.3%	+17.3%

*1982 dollars

Source: US Department of Commerce, 1986, Table 553, 1984 Table 564.

(**Note:** These figures exclude some major collaborative programmes, implying severe understatement of US imports.)

the military in most countries (outside the Middle East) have less to spend (Sivard, 1986: 12). This increases the relative significance of the US arms market. It accounted for half the world increase in military imports in the early 1980s (Table 2) and probably a much higher proportion since. In 1986, although US defence spending declined marginally, European defence companies achieved record US sales of $2.9bn (Buchan, 1987a). As a result the balance of trade in military equipment has moved sharply in Europe's favour (Table 3).

Table 3 **Changing defence trade ratio**

	1984	*1986*
US:Europe	7 to 1	1.6 to 1
US:UK	2.1 to 1	1.5 to 1

Source: Buchan, 1987b. AIDU, 1987.

The 'Atlantic Arms Economy' is built around high-technology weapons. Most British arms exports to the US fall in this category, UK companies being leaders in specialist fields of aircraft technologies, metallurgy, and electronic capital goods (SIPRI, 1984: 104).[4] An important newcomer to the group of military high-technology exporters to the US is Japan, which is developing expertise in core technologies of interest to the US military, notably fibre optics. Although Japanese companies are forbidden to export military equipment, a single exception is made in the case of military technology sales to the US.

The US domination of the arms market is luring foreign arms companies into new relationships with US capital through subsidiaries, licensing and other collaborative links. These arrangements provide access both to the US armed forces and to US defence sales abroad. The procurement decisions of the US armed forces are often followed by other countries, the more so as the allies come to share US military perceptions and weapons requirements. The US exerts the dominant influence over its allies' conceptions of the 'imaginary war' for which they must prepare (Kaldor, 1987). This consensus is reflected at the industrial level not only in collaboration, licensing and sub-contract agreements, but also in agreements to divide markets amongst firms. Thus a consortium of European firms makes the short range 'ASRAAM' missile, while US firms make its medium-range sister – 'AMRAAM'.

A new infrastructure for the concentration of capital

In 1976 the Carter administration established the Independent European Programme Group (IEPG) as a forum for integration of arms procurement within NATO (Overbeek, 1986). After some years of dormancy it was revived following the US Secretary of Defense's call in 1981 for 'a more rational division of labour under which our NATO allies and Japan will be asked to join in contributing more to the common defence'. In 1984 IEPG issued a list of 200 weapons systems for joint negotiation with the US (Bloom, 1984a). In 1985 it commissioned a study, the first of its kind, to assess prospects 'for greater rationalisation of European defence industrial capacity' (Bloom, 1985d). By 1987 it had established common agreement on 13 European Staff Targets (HMSO, 1987: 46). In 1983 the air staffs of five NATO countries reached agreement on a common requirement for the Eurofighter aircraft, likely to be the largest collaborative European military project for the rest of the century (Bloom, 1983a). In short, a set of institutions have been established through which US and allied military demands on industry are being coordinated. After a hesitant start in the 1960s, the harmonisation of military demand is now proceeding apace, and this promises to create a massive unified arms market in the 1990s.

The restructuring of relationships within and between national states and armed forces is being accompanied by an international restructuring of capital in the arms industry. Companies are increasingly forming alliances to exploit the integrated market. This is actively encouraged by the US state. The US armed services allocate $950m a year for collaborative R&D (Buchan, 1987b) and although this is only about 2% of the US research budget, it is equivalent to one-fifth of all British government spending on defence R&D (HMSO, 1986: 57). In 1985 a fund of $200m was created to seed joint US-European R&D into emerging-technology (ET) weapons (Bloom, 1985c). Under legislation promoted by Sam Nunn, chairman of the Senate Armed Services Committee, $3.4bn has been spent since 1981 on testing foreign equipment. Collaborative component production, which is not subject to Congress approval (as are major weapons systems) is especially favoured because it preempts the formation of powerful integrated European competitors.

The lure of the US arms market is leading foreign companies to establish plants in the US. Access to US defence contracts over $100m is dependent on a US base, and funds from the budget for collaborative testing must be spent within the US (Buchan, 1987a). The SDI programme is the one exception to this rule. As a result, it is opposed in Congress as a potential source of technology and

security leakage. But companies can usually overcome this if they can preserve adequate secrecy. This opens up a new channel through which the US arms industry taps into overseas R&D resources in-situ. Britain was the first government to sign an agreement for foreign companies to compete for part of the SDI research budget. In 1987 Japan followed suit with an agreement for Japanese companies to tender through collaboration with US companies. Despite technical doubts, and Congress resistance, spending on SDI rose from $1.4bn in 1985 to $2.7bn in 1986 (IISS, 1987: 15).

From US military reindustrialisation to the Atlantic Arms Economy

The support of national states and of companies for these various forms of collaboration is much greater than it was a decade ago. In 1978 the Klepsch report argued that an international division of labour in arms production was militarily and economically desirable, but politically unattainable (Klepsch, 1978: 69). Ten years later the signs are that this is no longer the case. Although the growth of US arms spending has come to an end, it remains at a very high level, and is now associated with increasing international integration of arms supply. US capital and state institutions play a central role in the dense cobweb of arms companies and their clients (Howe, 1981). This integration seems to be part of a wider containment of the tensions between the US and Europe which emerged in the early 1980s (Halliday, 1984; Kaldor, 1987; Johnstone, 1984; Petras & Morley, 1983). It is helping to reestablish US competitiveness by diverting rivals away from civil fields. Capital is being lured into the areas in which US companies are consolidating their comparative advantage, under state support (Kaldor, 1987: 91). The effects are likely to be most damaging in countries like Britain, where the separation between military and civil research is much stronger than in the US (Ince, 1986: 5).

Despite intermittent scares over protectionism, this is unlikely to be a passing phase. There are no domestic political forces within the US which oppose the level and direction of US defence spending except at the margin (Davis, 1986), and this means that imported products and ideas will remain important. Protectionism is probably more likely to deepen the industrial involvement of the Pentagon than to cut down on international collaboration. In the words of the head of the collaborative testing programme, the recent growth in European arms sales to the US is not 'any goodwill aid programme', it is the unavoidable result of demands for advanced technologies, and for cost effec-

tiveness (Buchan, 1987b). Increasingly, Pentagon-approved individuals are installed on the boards of contractors, and collaborative defence work can be managed by separate and secret divisions within companies (*Economist*, 1987).

The military reindustrialisation of the US has already transformed the crisis of US capitalism into an international restructuring of capital and of the world military order. If this is to become an enduring structure, other states must respond appropriately. None is doing so more than Britain.

The role of Britain

Britain contains the biggest high-technology arms industry outside the US. The European Community spends a third as much on defence R&D as the US, and Britain accounts for 46% of the European total (compared with 38% for France, 11% for West Germany, and 4% for Italy) (*Eurostat*, 1986: 70). This dwarfs defence R&D spending in Japan. The size and high-technology bias of the British arms industry is a result of its idiosyncratic development since the war. A succession of protectionist procurement policies supported a small group of aerospace and electronics companies which were thereby able to preserve wide industrial capacity despite declining competitiveness. In the 1960s and 1970s these companies increasingly invested in R&D, partly to meet UK demands, and partly because these were the basis of their major export successes.

The major companies developed close links with the US armed forces and US companies. In some important cases these derived from the role played by the Mutual Weapons Development Programme in the 1950s. Through the MWDP the US Air Force identified projects in which it was interested, and supplied infrastructure and development funds. On this basis, and with continued encouragement by US armed forces following their experiences in Vietnam, the Hawker and Bristol companies developed expertise in vertical take-off technology.[5] These companies were linked through directorships to Lloyds Bank, and the Atlanticist current in British capital (der Pijl, 1984). Bristol – later part of Rolls Royce – turned its energies towards the US and the military rather than the British aircraft industry (Turner, 1969).

In the 1960s and 1970s exports became increasingly important.[6] The most profitable exports were products which had been developed in collaboration with the US (like the Harrier) or other private ventures oriented to export markets, such as the Rapier missile. In the late 1970s the bulk of work was on NATO collaborative projects, which amounted to a compromise between protected and export markets. They enabled the companies to

escape the risk of project cancellations and allowed them to sustain a wide range of activities. On this basis the British aerospace industry survived into the 1980s as the only industry with across-the-board industrial capacity. But potential competitors were gathering, not only lower-cost manufacturers in newly industrialising countries, but also R&D specialists in Europe, especially France. This enhanced the importance for British companies of improving their export performance, especially in those R&D-intensive products where they were still competitive.

The Thatcher government

The Thatcher government initially reduced the urgency of export competitiveness by expanding the domestic market. Real defence spending rose by a quarter between 1979 and 1985. But later in the 1980s domestic defence spending began to fall, and it became increasingly obvious that some major projects would have to be cut (Greenwood, 1983). The cancellation of the Nimrod aircraft and Zircon satellite in 1987 marked the first of what is likely to become a series of major cancellations.

Table 4 **Indices of real defence spending under Thatcher government** (constant prices)

Fiscal year: 1978	1979	1980	1981	1982	1983	1984	1985	1986*	1987*
Total defence spending: 100	103	107	108	115	116	123	123	121	118
Equipment: 100	102	116	121	125	130	141	140	135	134

*Projections

Source: Calculated from *Statement on the Defence Estimates* Volume 2, 1984, 1985, Table 2.1; and 1987 Table 2.2.

Rapid expansion and sudden stagnation in domestic demand enhanced the need to establish secure long-term niches in export markets. This need became even more urgent as a result of unprecedented changes in the British state's relationship to the arms industry. Any doubts over the lingering commitment to a comprehensive national weapons-producing capacity were formally dispelled in 1981. The defence budget was henceforward to be used only for cost-effective arms procurement (HMSO, 1981). The British government began to dismantle large parts of the traditional apparatus of support, reorganising the Ministry of Defence and the procurement system to increase competition in

contracting. The value of contracts awarded 'by reference to market forces' rose from 30% of the total in 1979 to 46% in 1984. A new company (Defence Technologies Enterprises) was set up to identify technologies under development in the research establishments which might be commercially exploited (Ince, 1986: 98-99).[7] Some of the largest defence companies (British Aerospace, Rolls Royce, the Royal Ordnance factories, and the naval dockyards) have been privatised.

Arms exports have been encouraged through arms equipment fairs, and the more active involvement of government officials with potential customers. UK arms exports reached a record level of $5.8bn in 1986 (AIDU, 1987: 13). The Thatcher government has been particularly anxious to encourage collaboration, arguing that the allies must 'develop closer and more effective international links' to enable the US to continue to play its 'irreplaceable military role' (HMSO SDE, 1984: para 317). Defence Minister Michael Heseltine, a key figure in the revival of the IEPG, stated that collaboration was necessary 'even if it caused pain to some entrenched national interests' (Davidson, 1984). The government sought SDI contracts, under which some $34m has been allocated to the UK by mid-1987, providing modest but potentially significant footholds for the companies concerned (mainly Plessey, British Aerospace, and Systems Designers; other companies, like Ferranti, are involved through US affiliates).

The significance of the Westlands crisis

The government's attitude to collaborative defence projects became a matter of public attention in 1985 when the Minister of Defence, Michael Heseltine, resigned over the Cabinet's handling of the Westlands affair. Faced with a cash-flow crisis, Westlands was keen to join with the US arms firm United Technologies, but Heseltine opposed this (Overbeek, 1986). The alarm precipitated by the MoD's refusal to rescue Westlands made it possible for Heseltine to secure the support of the British defence giants – BAe and GEC – for his 'European' alternative, which also included Agusta, and Aerospatiale. But the majority on the Cabinet had no wish to entangle the state in new obligations to old-fashioned manufacturing companies which were simultaneously demanding large sums for other projects such as Nimrod and the Eurofighter (Rutherford, 1986).

The 'US solution' was supported by the Department of Trade and Industry, and the Thatcher faction supported integration between US and UK arms companies, but was tempered by a reluctance to intervene against the preferences of the Westlands company. Heseltine's alternative represented a more interven-

tionist and circuitous path to trans-Atlantic cooperation, and marginally different ambitions for the division of labour within it. But it was still intended to further collaboration with US companies, by first restructuring the European helicopter industry. The 'European' solution sought to build a high-technology European defence complex in symbiosis with that of the US – an attempt to 'mould Europe in America's technological image' (Kaldor, 1986). The claim that there was a major difference between US and European collaboration was therefore largely a fiction, albeit a convenient one for the ambitious Heseltine (Bloom & Barber, 1986). Labour politicians tended to exaggerate the differences between the two Westlands 'solutions' by focussing only on marginal differences in industrial policy, and overlooking the British state's wider geopolitical role.

The restructuring of British defence capital

The Thatcher government began removing state support and encouraging collaboration when domestic defence spending was rising. When it ceased to rise from the mid-1970s, the sugar was stripped from the pill. And although many of the administrative reforms were the result of demands made by the defence companies during the 1981-82 procurement review, they did not lead to the kind of modernised state infrastructure most companies wanted. The cross-departmental agencies they asked for never saw the light of day (SBAC, 1984), and the UK's export promotion efforts remained feeble in comparison with most other states (Ball & Leitenberg, 1985). The main effect of organisational reform was therefore to make the market environment more turbulent. The companies were alarmed: Arnold Weinstock, chairman of GEC, complained that 'the competitive element is fine . . . but you cannot change the rule of fifty or sixty years and expect the manufacturers to respond overnight' (House of Lords, 1985: para 1377).

The closed door to civil markets

In principle, British arms companies might have responded to the decline in domestic demand by diversifying into civilian markets. In fact, a certain amount of 'market-led' arms conversion has taken place, but it has been very modest in scale, and some prominent examples have failed. The crisis at Westlands was a vivid example. When the Ministry of Defence ceased to guarantee further orders, the low rate of sales of the civil Westland W-30 helicopter became critical, and the company fell into the liaison with Sikorski as a way of reviving military orders.

British Aerospace has also attempted to reduce its long-term military dependence. But the major civil projects, such as the Airbus, require levels of investment which the company cannot raise internally, or by open borrowing, and the state has provided only half the sums requested. The company's other major civil sales have been largely fortuitous. The purchase of the entire run of the BAe-146 freighter by Murdoch's TNT company was unanticipated (the aircraft was originally developed for Third World markets, then targetted on US airlines). BAe's most advanced technologies are locked into the military missiles and electronics sectors. Since the most reliable markets in the foreseeable future remain the military ones, it is not surprising that the new chairman of BAe, Roland Smith, has given first priority to holding on in the 'highly-profitable, highly-successful' defence markets (British Aerospace, 1987).

GEC opened a new company to develop advanced chips aimed at civil markets (Marconi Micro Systems – a subsidiary of Marconi Electronic Devices). This is the main example of a spontaneous 'conversion' attempt in the defence electronics industry, but the bulk of output is still for military applications (Duncombe, 1985: 32). Unless GEC rapidly – and somewhat miraculously – finds new civilian end-product markets this will remain the case. Even the predominantly civil Inmos company is falling towards the military. Inmos developed the transducer, a 'computer-on-a-chip', primarily for civil markets, but with the decline of the British consumer goods industry (exemplified by its parent, Thorn EMI) and the parallel growth of the SDI programme, military applications have grown in importance. Inmos is now planning to produce a high reliability military version of the transputer (Coulter, 1987: 15).

There are potentially huge civilian markets in space technologies, but British companies like Rolls Royce have been unable or unwilling to invest accordingly, in the absence of government support. Official reticence was highlighted in summer 1987 when funding for the British National Space centre was cut within two years of its foundation. The director resigned in protest. The only civil market where defence companies seem to be planning major new inroads is the financial services sector. This is a growth market where their computing and software skills can be applied, unlike their specialised esoteric military hardware (Maddock, 1983). Systems Designers, a company part-owned by British Aerospace, sells in both military and financial markets. GEC also aims to diversify into financial services (Lloyd, 1986: 34). The weakness of market-led arms conversion in Britain is partly a reflection of the lack of government support for civil R&D (Ince, 1986). But at a deeper level, it reflects the fact that the

barriers to entry in civilian markets are rising rapidly because the pace is set by huge international concentrations of capital, much larger than those in the nationally-fragmented military sector.

Turning from Whitehall to the Pentagon

Consequently, the British defence industries appear to be devoting their greatest efforts to hanging on in military markets. Thus British Aerospace acquired the Royal Ordnance factories, and GEC acquired the Yarrow military shipyard. Marconi and GEC Avionics are investing in stealth technology (which has no civil application whatsoever). Ferranti acquired the secretive US defence company International Signals and Controls (ISC), making it the second largest defence electronics company in Britain. And since the British military market is limited and becoming more competitive, their best hope is to try harder to move through the door which the US military has opened.

There are a growing number of military programmes linking US and UK companies. The longest-standing of these is the Harrier programme in which British Aerospace collaborates with McDonnell Douglas, and Pratt and Whitney with Rolls Royce. The decision to scrap the Nimrod aircraft and purchase the Lockheed 'AWACS' precipitated a deal between Plessey and Westinghouse to provide electronic equipment for both UK and US versions. In 1986 GEC acquired the Astronics division of Lear Siegler, a specialist in remotely-piloted aircraft for military uses. Ferranti's acquisition of the ISC group links it to a range of secret US projects including Star Wars (*Economist*, 1987: 77). Racal-Tacticom secured its biggest ever export deal by collaborating with Boeing over sales to Saudi Arabia. GEC and Lockheed are collaborating over Lockheed C-130 AEW sales to France (for a sample of recent deals, see appendix I). In 1975 British arms exports to the US amounted to only one-fifth of US arms sales in Britain. By 1987 this had risen to two-thirds (*Export Direction*, 1987: 7). British companies complain vociferously about US protectionism, but leading exporters seem to be following British Aerospace's example and trying to overcome this by engaging more American agents and collaborators, and adopting American-style sales techniques.[8] The Thatcher government's policy towards the defence industries has had the twin effects of inhibited diversification into civil markets, and adding impetus to the formation of the Atlantic Arms Economy.

Britain's role in the Atlantic Arms Economy

The main bargaining counter of British arms companies in

the emergent arms economy is their supply of R&D labour, which by US and European standards, is cheap. In British manufacturing as a whole, low pay is undermined by even lower productivity (Ray, 1987). But this is not true of R&D (Hartley, 1983). At the same time, the UK offers some advantages as a site for assembly to serve the European market. UK military support for the US is a key factor here. Companies like Marshall Engineering at Cambridge, and British Aerospace at Bristol, have secured major contracts for servicing US military aircraft, with USAF personnel on site (Boddy, Lovering & Bassett, 1986). As the Atlantic Arms Economy takes shape, the British defence industry may therefore disintegrate into two distinct components: one part surviving as an assembly unit for the local market, the other as a low-cost R&D supplier to the Atlantic Arms Economy (with possibly a small third part producing components). These parts are already visible in embryonic form. How far they develop depends on the wider consolidation of the Atlantic Arms Economy.

This in turn depends on the continued assimilation of European, Japanese and other armed forces and arms industries to the markets and production networks orchestrated by the US. The German arms industry is regrouping around a set of export-oriented 'superproducers', and together with the leading French, Italian and Spanish arms companies it is actively collaborating with US and UK companies to serve the interrelated US and european arms markets. The increasing integration of France to NATO suggests that the influence of the US over the military strategy of national governments, and thence the coordination of the arms market, is increasing. There is no shortage of indicators that the US and the UK are rapidly being joined by other participants in the Atlantic Arms Economy.

Prospects for a military regime of accumulation

How far will this go? These trends must be set against other possibilities in civilian markets. Some commentators claim that European civilian industry is poised for a major recovery. The establishment of a unified European market in 1992 is encouraging the formation of new alliances amongst European companies, and this, it is argued, promises to challenge US technological leadership (*Business Week*, 1987). Official European initiatives such as Esprit may not have achieved much that is tangible, but they have opened up new avenues for companies to talk to each other.[9] The future of the Atlantic Arms Economy might also be threatened by the burden of deficit financing in the US, which some believe cannot continue for much longer. If these various arguments are right, the profitability of military work might soon

pale in comparison with new civilian activities. The Atlantic Arms Economy will then turn out to have been a transitional phemonenon of the 1980s.

But there are a number of heroic assumptions in this scenario. Firstly, although European companies are collaborating in civilian high-technology to an unprecedented degree, this has yet to be translated into output and market penetration. The creation of new civilian fields of accumulation is less visible than the consolidation of military markets, especially in Britain. Secondly, the imminent collapse of the US economy is far from guaranteed. There seems to be no reason to assume that arrangements cannot possibly be found within international finance to sustain US deficits, just as similar arrangements have been made to sustain less important 'Third World deficits' (Hoogvelt, 1987: 80). At present the main challenge to the Pentagon's growing appetite for non-US equipment seems to come from the protectionist lobbies in Congress, rather than resurgent European capital. And, as yet, there are few reasons to believe that this will outweigh the enthusiasm of the military establishment and the Reagan administration (*Export Direction*, 1987). In the military-industrial domain at least, the attempt to 'claw the US back to a position of world dominance' (Bush, Johnston, Coates, 1987) seems to be succeeding, at least for the time being.

The significance of a transatlantic military regime of accumulation

As military industry is restructured around the apparatus described above, the Atlantic Arms Economy may develop into a new and relatively enduring system of production and consumption. In the language of the regulation school, it may become a new, and transnational, regime of accumulation. Under the 'Fordist' regime the independent actions of multinational capital and nation-states resulted in the 'discovery' of similar modes of regulation in many advanced countries (i.e. a welfare state, and the institutionalisation of increases in purchasing power in return for rising productivity – Lipietz, 1987: 40). According to Lipietz, this was not an 'international regime of accumulation', but rather a 'world configuration that temporarily guaranteed the compatability of a juxtaposition of similar regimes of accumulation with different growth rates . . . which were inserted into the international framework in different ways' (Lipietz, 1987: 40). The military, political and corporate networks which structure the Atlantic Arms Economy can be seen as an embryonic transnational mode of regulation, while the transnational economic relationships with which they are associated form an inter-

national military regime of accumulation.

The regulation approach throws an interesting light on the historical significance of this transition. Lipietz suggests ('very schematically') that capitalist economic development may be divided into two phases. In the first, between the industrial revolution and the First World War, the mode of regulation in the most advanced capitalist countries was 'primarily extensive'. That is, it was concerned with expanding the scale of production with constant norms of production. Since the Second World War, in contrast, the dominant regime has been intensive and centred upon the growth of mass consumption' (Lipietz, 1987: 33). In this 'Fordist' phase accumulation involved increasing the productivity of labour (or 'the real subordination of labour to capital') in turn for increased incomes and consumption, and the corresponding extended reproduction of means of production.

In other words, if the first phase of capitalist extension revolved around extended reproduction in Department I (capital goods), the second revolved around extended reproduction in Department II (wage goods). A shift to a military regime of accumulation, as discussed here, would represent a shift to Department III. Indeed, there are other indicators that Department III or 'luxury' items now form a critical cluster which is influencing the trajectory of capitalist economic development. This is exemplified in the world-wide growth of markets for high-income goods, financial services, and construction for elite groups (exemplified by the 'Yuppification' of the West's inner cities). These stand in contrast to the relative neglect of working-class markets. Internationally-administered arms markets add to the range of possible resolutions to the crisis of Fordist production. While the world's poor get poorer, the productive potential of capitalist industry is turned more and more towards fripperies and the means of destruction.

This is not to imply that a military regime of accumulation is a recipe for a completely trouble-free Kautskian super-imperialism. But in the absence of equivalent developments focussed on civilian markets, movements in this direction must be expected to continue, with the blessing of armed forces, nation states, and increasingly concentrated units of capital. The 'interimperialist rivalry' of the late 1970s is being resolved in favour of a renewed, if unstable, 'superimperialism' associated with the internationalisation of US military reindustrialisation (Kaldor, 1978; Mandel, 1983; Hoogvelt, 1987).

If this continues, the bifurcation of the British arms sector is likely to be echoed across Europe as a whole. French and Italian arms companies, in particular, are heavily dependent on exports of weapons embodying less esoteric military technologies, espe-

cially to the 'Third World' (as the role of Italian mines and French aircraft in the Gulf war reveals). This part of the European arms industry is already challenged by the emergent arms industries of South Africa, Brazil, Israel, India and other industrialising countries. Arms exports from this group account for under a tenth of the world total, but rose by a third in the first half of the 1980s (AIDU, 1987). More R&D-intensive activities are increasingly conditioned by collaborative structures, bringing companies such as Fiat, Agusta, SNECMA, Thomson, MBB, and other European companies into the transatlantic networks which include the British and US defence industries. The most advanced element of the European arms industry in the 1990s may consist of a small core of advanced military technologies serving the Atlantic Arms Economy. This sector will remain an enclave, unless the promised restructuring of European capital leads to a sudden reindustrialisation which opens up profitable alternatives to military work.

Domestic implications

Locking in to the international economy through this type of Department III production has implications for the structure of the national economy and the distribution of rewards. The arms industry in Britain, the US and Europe is likely to remain an enclave in the national economy, and a major source of polarisation in labour markets, inequality between the genders, and uneven development of localities. Military industry in Britain has already shed assembly and clerical workers on an unprecedented scale, while taking on more scientists and technologists. Between 1978 and 1984 the number of scientists and technologists in the aerospace and electronic capital goods sectors rose by nearly 6,000, or over a third, and managers and administrative and professional employment also rose, but employment in all other grades declined (Appendix II). As the arms sector is likely becoming even more of an enclave it is growing more dependent on international elite labour markets. In this it echoes the effects of the 'Big Bang' in the finance sector, with similar distributional effects (Thrift, 1987). The arms industry appears to play a major role in reinforcing the selective prosperity of Southern 'sunbelt' towns, not only in the US (Markusen, 1985) but also in the UK (Lovering, 1987a), Germany and France. At the same time the male bias of employment in the arms industry is being intensified, despite the modest increase in the number of women in professional groups.

There is only enough space here to signpost some of the areas where the emergence of the Atlantic Arms Economy has implications for socialist analysis and strategy. At the theoretical level, for example, it is clear that the debate over the future of imperialism needs to be informed by greater awareness of the military-industrial dimension. With a few exceptions (notably Mary Kaldor's work), this is lacking at present.

At the broadest level of principle, the prospect of a new military regime of accumulation opens up a new space for reformist strategies 'within capitalism'. Arguments over policy must place military strategy at the centre of foreign policy, and arms conversion at the centre of industrial strategy. But new ways need to be found to bring together these two areas of debate. The militarisation of capitalism can only be resisted if the Pentagon's magnetism over high-technology can be counteracted. This entails changes within the US, and/or new forms of European reindustrialisation, alongside military decoupling from NATO.

In the less rarified world of everyday debates, this means developing new arguments for state intervention to support civil initiatives and non-military research and development. The analysis sketched out here reinforces the general claim that the essential precondition for any national strategy is an international one (Radice, 1984: 136), but this must address military and political issues along with economic ones. Support for the European space industry, the Airbus programme, or European IT initiatives, are certainly a long way removed from a socialist economic strategy. But they open up infinitely preferable military and economic prospects, within capitalism.

National strategies need to give far more attention to arms conversion. At present this tends to be a 'single issue' characterised by rather technicist demands for 'socially useful production' (for an overview see Elliot, 1985). The efforts of Lucas Aerospace workers to develop arms conversion as part of their 'Alternative Plan' in the 1970s have been well-publicised (Wainwright & Elliot, 1982). However, even in this pioneering case, support for this campaign amongst the bulk of the workforce was limited. And it has not been followed by any equivalent initiatives in the 1980s. Although there are many local conversion campaigns, few can claim to be based in the workplace, and most of these are last-ditch defences against closure. The exception, the Better Jobs for Defence Workers Campaign amongst aerospace workers in Bristol, is based in the local trades unions. But even this has only a modest foothold in the workforce.

The Labour Party, meanwhile, is trying to run two incompatible campaigns at once. Party policy stresses arms conversion,

but just before the last general election, fears that this would mean job losses resulted in a sudden shift of emphasis. It was announced that cuts in the nuclear programme would be translated into increased spending on conventional weapons. But the arms industry is unlikely to be responsive to conversion if its military dimension is being consolidated. It appears that the latter policy receives most effort. Attempts to mobilise around the issue of conversion tend to be left to the local level, where they can dovetail with peace, environmental, and job issues. However, in practice this means that the issue is dominated by peace activists rather than workers, and this weakens their impact. The experience of the GLC, which launched the best-resourced local campaign, suggests that local-level campaigns are unlikely to achieve more than symbolic gains (GLC, 1985; Wainwright, 1987).

The analysis presented here also reinforces the need to challenge dominant perceptions of the world order. As Chomsky suggests, the leverage of 'ideological struggle' is perhaps greatest in the realm of international relations (Chomsky, 1986). The myth of the 'communist threat' (or that of Iran, Libya, etc.) must be confronted not simply because of its military consequences, but also because it has damaging economic implications. On this dimension, the Labour Party, from Bevin to Kinnock, has an appalling record, having consistently reinforced these myths, while resisting any moves towards international realignment (i.e. towards Europe). Contesting these myths therefore means challenging dominant perceptions on the organised left.

Conclusion

This is a unique period in the history of capitalism. A declining Empire is attempting to reestablish itself, and in the absence of a credible civilian alternative, it is succeeding in doing so by promoting a military regime of accumulation. But since this requires the active support of other nation states and a range of capitals it can be resisted by workers and citizens in a number of different arenas.

APPENDIX I

A sample of links between the UK and US arms industries

1. Collaborative programmes with US companies

In production:

Sea Gnat Decoy System
M483A1 Artillery Shell
Multiple Rocket Launch Rocket System
Sidewinder air-to-air missile
Harrier AV8B/GR5

In development:

NATO Frigate Replacement
Advanced Sea Mine
Short Range Anti-Radiation Missile
Long Range Stand-Off Missile
Airborne Radar Demonstrator System
NATO Identification System
ADA Computer Language Project Support Environment
Multifunctional Information Distribution System

2. Collaborative programmes with European companies linked to market sharing agreements with US companies

Advanced Short Range Air-to-Air Missile (ASRAAM) (US companies producing complementary Medium-Range Missile, AMRAAM)

3. Recent acquisitions, collaboration and licensing agreements with US companies

Ferranti merges with US International Signal and Controls Group (SIC).
GEC buys US firms: Circuit Technology, Picker Corporation, and Astronics and Development Sciences (subsidiary of Lear Siegler).
Dowty buys Hydraulic Units Inc. (formerly subsidiary of Boeing).
Pratt and Whitney acquire licence to produce Rolls-Royce/Turbomeco 322 for Sikorski helicopters in US.
Rolls-Royce agrees workshare with Garrett (US) on engines for Tucano aircraft.
Following part-acquisition by Sikorski (subsidiary of United Technologies), *Westland* produces Black Hawk helicopter for European market, and composite materials for US market.

MEL collaborates with Sabreliner Corporation for surveillance version of its aircraft.
Vickers collaborates with General Electric and HR Textron on fly-by-wire technology.
Bendix Guidance Systems granted licence by Smiths Industries for US sales.
Dunlop teams with Elder Corporation to make aerospace components (in response to inquiry from Boeing).

4. Some other recent US defence contracts with UK companies

Normalair Garret supply flight recorders for US Navy Harriers.
Flight Refuelling supply fuel valves for US Navy Harriers.
BAe and *Smiths Instruments* supply laser gyroscopes for Northrop F-5.
Ferranti supply databases to US Navy.
BAe and *Sperry* supply assemblies/components for McDonnell Douglas Goshawk.
Martin Baker supply ejection seats to US F-18.
Plessey supply data acquisition systems to USAF for C-130 and C-141 transport aircraft.
Smiths Industries supply head-up displays to US Marine Corps for Harrier AV8B.
Dowty and *Smiths Instruments* supply aero-engine control systems for US Harrier customers.
Lucas Aerospace supply power units to US Harrier customers.
Marconi Avionics supply head-up displays to US Navy for F-16, and data systems to US Army for H-1S helicopter.
Ferranti Defence Systems undertake laser reserch for Westinghouse Electric Corporation (part of USAF Advanced Tactical Fighter Programme).
Dowty Boulton Paul supply actuators for Bell-Vertol V-22 tilt-wing helicopter.
Marshall of Cambridge designated as service centre for Lockheed Europe.
BAe granted contract for refurbishing USAF F-11 aircraft in Europe, until next century.

Note: The leading export market for British Aerospace products in 1986 was USA (28% of identified total) followed by West Germany (18%), Saudi Arabia (14%).

Sources: Society of British Aerospace Companies, trade press.

APPENDIX II

Occupational change in British defence industries

	1978	*1984*	
Managers and administrative staff	21,647	25,482	+3,835 (+17.7%)
Scientists and technologists	15,261	21,090	+5,829 (+38.2%)
Technicians	34,409	34,227	−182 (−0.5%)
Craftsmen	53,850	48,933	−4,917 (−9.3%)
Operators	53,350	41,890	−11,460 (−21.5%)
Clerks	35,331	26,645	−8,686 (−24.6%)

Source: EITB

Notes

1. For different theoretical critiques of this position, see Kaldor, 1982b; MacKenzie, 1983; and Lovering, 1987a.
2. These terms are derived from Lipietz, 1987. Broadly speaking, a regime of accumulation is a relatively enduring relationship between production and consumption of the type grasped in Marxist schema of extended reproduction. A Mode of Regulation is the network of legislation, institutionalised cooperation and coercion etc. which ensures that agents continue to reproduce the relationships of a given regime of accumulation.
3. This is not to suggest that rearmament happened *because* there was a crisis of accumulation in the 1970s. Halliday, Chomsky and Davis suggest that the social origins of rearmament were complex, and lay in the combination of defeat in Vietnam, the destruction of radical movements within the US, and a shift of power towards a new fraction of capital (Halliday, 1984; Chomsky, 1987; Davis, 1986).
4. See evidence to the House of Lords Select Committee on Overseas Trade (House of Lords, 1985).
5. The MWDP supplied 25% of original development funds, and the senior management of these companies were in close contact with US military personnel.
6. Between 1963 and 1978 employment attributable to arms exports rose by a third, while employment attributable to British procurement fell by a third (Pite, 1980).
7. This was a weak echo of the demands put by the Electronics EDO for a strategy for civilian application of military technology (Maddock, 1983).
8. See the statement by Roland Smith in British Aerospace, 1987.
9. Thanks to Kevin Morgan and Phil Cooke for discussions on this point.

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