

ARMING SADDAM

THE SUPPLY OF BRITISH MILITARY EQUIPMENT TO IRAQ 1979 - 1990

This briefing investigates the supply of British military equipment to Iraq in the years since Saddam Hussein became President of that country. It starts by looking at the UK government's policy on arms sales to Iraq; describes general UK-Iraq trade relations; and gives details of the sales of complete British weapons systems and military equipment to Iraq. The following section describes how Iraq sought to build its own military industry using components and technology from overseas and looks at Iraq's chemical, biological and nuclear weapons' programmes. In all cases the emphasis is placed on the British involvement in these programmes. The training of Iraqi military personnel in the UK is then discussed. Finally, the briefing questions whether British equipment might have reached Iraq via Jordan or Chile.

HISTORY

Baghdad, Basra and Mosul, the three provinces of the Ottoman Empire that form modern Iraq, were taken over and occupied by British troops during World War 1. In 1920 Britain was granted a League of Nations' mandate over the territory and installed a monarchy based on a ruling class of large landowners. Iraq became a nominally independent state in 1932, but British control over its oil had been secured and the Royal Air Force was guaranteed bases there. The monarchy was overthrown in a 1958 coup which marked Iraq's true independence, but led to an intense struggle between the Communists, Pan-Arab Nationalists and Ba'athists, an Arab nationalist and socialist group. The latter emerged victorious in February 1963 following another coup only to lose power in November of the same year. After a series of unstable governments, the Ba'athists regained control in July 1968.

The Ba'ath Party moved quickly to eliminate any political dissent and laws promulgated by its Revolutionary Command Council, whose Deputy Chairman was Saddam Hussein, led to a one-party state and a rule of terror. Extra-judicial killings, torture, "disappearances" and imprisonment have continued ever since and have been well-documented by human rights organisations.

Around a quarter of Iraq's 18 million population are Kurds and they have been subject to particularly brutal repression, not only by recent Iraqi governments but also under the earlier British rule. In the early 1970s Iraq's Kurds were involved in an armed struggle with Baghdad and were receiving support from Iran. In March 1975 Saddam Hussein, by now Iraq's Vice-President, signed the Treaty of Algiers with the Shah of Iran. Under this Treaty, the northern Iran-Iraq frontier was closed, preventing supplies reaching the Kurds from across the border.

In return, Iraq allowed Iran access to the Shatt al' Arab waterway, the disputed boundary between the two countries. In July 1979, his predecessor having resigned for "health reasons", Saddam Hussein took over as President. To remove any possible remaining

opposition to himself, Saddam immediately had twenty-one senior Ba'ath Party officials and members of the Revolutionary Command Council executed. On 17th September 1980, just over a year after becoming President, Saddam abrogated the Treaty of Algiers that he himself had helped to draw up. Five days later his armies crossed the border into Iran. Eight years of armed conflict had begun. After one million people had died in this war ("World Military and Social Expenditures" 1989), a United Nations-sponsored ceasefire came into effect on 20th August 1988. Saddam's war against Iraq's Kurdish population, which in 1988 had included the use of poison gas, continued.

The cost of the war with Iran had left Iraq heavily in debt. In July 1990 Iraq accused neighbouring Kuwait of breaking international agreements by producing too much oil, thus lowering the world price and Iraq's income. On 2nd August 1990, after Kuwait had in fact agreed to cut its oil production, Saddam's forces once again invaded a neighbouring state. The President was later to claim that, as part of the old Ottoman province of Basra, Kuwait was an artificial creation and was truly a part of historic Iraq. On 6th August the United Nations Security Council instituted an arms embargo against Iraq as part of a series of sanctions imposed as a result of the invasion.

MILITARY EXPENDITURE

According to the Stockholm International Peace Research Institute (SIPRI) Yearbook 1990, 6.9% of Iraq's gross domestic product was accounted for by military expenditure in 1979. By 1984 this had risen to 29.1%, falling only slightly to 27.5% in 1985, the last year for which SIPRI has the percentages. This compares with about 5% for the UK in this period; only Angola comes anywhere near the Iraqi figure with a few other Middle Eastern countries over 20%. In monetary terms, the 1984 figure is equal to US\$31,590 million at 1988 constant prices and the 1985 figure equals US\$23,506 million. Thereafter the spending declines.

ARMS SUPPLIES

Part of this military expenditure was used to purchase arms from overseas. During the first half of the 1980s, Iraq was the world's biggest importer of major weapons systems and it remained second, behind India, in 1986 and 1987. A report by SIPRI in 1987 identified twenty-six countries which had supplied arms *both* to Iraq and to Iran. These countries were: Austria, Belgium, Brazil, Britain, Bulgaria, Chile, China, Czechoslovakia, East Germany, France, West Germany, Greece, Hungary, Italy, North Korea, the Netherlands, Pakistan, Poland, Portugal, South Africa, Spain, Sweden, Switzerland, the USA, the Soviet Union and Yugoslavia. In addition, twelve countries had supplied only Iran while four countries had sold only to Iraq - Egypt, Ethiopia, Jordan and the Philippines. Not all of these deals were done with the knowledge or support of the government of the country concerned.

SOVIET UNION AND FRANCE

The long list above however conceals the fact that just two countries supplied most of Saddam's arsenal. According to the SIPRI Yearbook in 1989, equipment from the Soviet Union accounted for 47% and France 28% of Iraq's major weapons systems during the Iran-Iraq War. The Soviet supplies included tanks, artillery systems, helicopters and missiles, as well as advanced MiG aircraft. (Jane's Defence Weekly, 18.8.90) Mirage and Super Etendard aircraft and Exocet missiles as well as helicopters and missiles were sold by French companies.

In November 1980, however, the Soviet Union had stopped its arms supplies and these were not resumed until after the Israeli air-raid on Iraq's nuclear reactor at Osirak in July 1981. (Financial Times, 11.11.80 and 6.7.81) The Soviet embargo, although short, made Iraq look elsewhere for its weapons. It served also to boost Saddam's ambitions to build his own arms industry and thus lessen his dependence on outside military supplies. France had its own problem with Iraq - extracting payment for the weapons became difficult towards the end of the 1980s. Ironically, this problem was to have been solved on the day of the invasion of Kuwait when the French government was due to sign a credit deal with Iraq to cover the latter's £2.16 billion debts to French arms companies. (Times, 4.8.90)

Compared with the Soviet Union and France, the UK's role in arming Iraq may seem small. It was not however insignificant and it illustrates dramatically both the changing nature of the arms trade and the difficulties inherent in trying to control it.

UK GOVERNMENT POLICY

The UK government's policy on military exports to Iraq and Iran was not formally spelt out in detail until 1985. Prior to that, a letter from the Ministry of Defence dated 17th May 1982 says: "Our policy is one of neutrality in the conflict between Iran and Iraq ... We are prepared to consider requests for the supply of defence equipment from either side on a case by case basis, taking into account our neutrality obligations, our relations with the countries concerned and the need to work for a peaceful solution to the conflict."

It was on 29th October 1985, in a written reply to a House of Commons question, that the then Foreign Secretary Sir Geoffrey Howe announced the policy that remained in effect until the invasion of Kuwait:

'The United Kingdom has been strictly impartial in the conflict between Iran and Iraq and has refused to allow the supply of lethal defence equipment to either side.

In order to reinforce our policy of doing everything possible to see this tragic conflict brought to the earliest possible end, we decided in December 1984 to apply thereafter, the following guidelines to all deliveries of defence equipment to Iran and Iraq:

- (i) We should maintain our consistent refusal to supply lethal equipment to either side;
- (ii) Subject to that overriding consideration, we should attempt to fulfil existing contracts and obligations;
- (iii) We should not, in future, approve orders for any defence equipment which, in our view, would significantly enhance the capability of either side to prolong or exacerbate the conflict;
- (iv) In line with this policy, we should continue to scrutinise rigorously all applications for export licences for the supply of defence equipment to Iran and Iraq.'

One of the problems with this stance was the concept of "lethal" as distinct from "non-lethal" equipment. It can be argued that all equipment used by the armed forces contributes to their actual or potential lethality. This was admitted by Colin Chandler, then head of the Ministry of Defence's Defence Export Services Organisation. Speaking at the 1986 British Army Equipment Exhibition Mr Chandler (now Sir Colin) said "there is no such thing as a 'non-lethal' weapon."

Five months after the ceasefire in the war with Iran, the "guidelines" were "being kept under constant review in the light of the ceasefire and developments in the peace negotiations."

(Hansard, 18.1.89) Over a year later however the "guidelines" were still British government policy. Foreign Office Minister William Waldegrave said:

'Exports of defence-related material to both Iran and Iraq are governed by the guidelines announced by the then Secretary of State for Foreign and Commonwealth Affairs in the House on 29 October 1985. These are applied on a case-by-case basis in the light of prevailing circumstances, including the ceasefire and developments in the peace negotiations. Under the nuclear non-proliferation treaty we control the export of sensitive nuclear-related material and technology. As a member of the missile technology control regime, we control exports of missile-related material and technology. Our export controls are implemented under the Export of Goods (Control) Order 1989. All export licence applications are given the most careful scrutiny.'

(Hansard, 23.4.90)

Licences for the export of military equipment are issued by the Department of Trade and Industry after consultation with the Foreign Office and the Ministry of Defence. Alan Clark, Minister of State for Defence, revealed that: "A group of military and civilian experts meets as required to assess the military significance of export licence applications for Iran and Iraq." (Hansard, 26.4.90)

This, then, was the official stated UK policy on military exports to Iraq until the August 1990 UN embargo. The real interest however lies in seeing how this policy was interpreted. The British government does not publish a list of the licences issued for the export of military equipment nor will it answer questions in parliament about specific deals as it claims such information is commercially confidential. The Government has even refused to provide details of the annual value of arms sales to Iraq despite having given similar figures in respect of Malaysia. (Hansard, 18.1.0.90) The information contained in this briefing as to how the Government has acted with regard to military sales to Iraq has therefore had to be gleaned from reports in newspapers and military magazines and from parliamentary statements and is of necessity incomplete.

TRADE PROMOTION

The trade in military equipment does not operate in isolation from other trade. Background information on the UK's general commercial relationship with Iraq during the late 1970s and 1980s is essential for an understanding of the military-related trade which took place in this period.

Just days before Vice-President Saddam Hussein assumed the Presidency of his country in July 1979 he received British Foreign Secretary Lord Carrington in Baghdad and agreed to lift Iraq's selective trade embargo against the UK. This embargo had been imposed in July 1978 after Britain had expelled eleven Iraqi diplomats following the murder in London of a former Iraqi Prime Minister. The lifting of the embargo heralded a "new page" in Anglo-Iraqi relations, Lord Carrington said, and the UK would look favourably on an Iraqi request for an economic agreement to boost trade. Restoring trade with Iraq was seen as particularly important in view of the loss of Iranian markets after the fall of the Shah. One deal with Iraq that was said to be outstanding from before the embargo was for "hundreds of millions of pounds" of Plessey's military electronics. (Financial Times, 5.7.79)

Visits to Iraq by Cecil Parkinson, then a Trade Minister, in October 1979 and by Secretary of State for Trade John Nott in November of the same year followed. Then in February 1980

the Committee for Middle East Trade, an advisory group to the British Overseas Trade Board (part of the Department of Trade and Industry, spent five days in the country. This was seen by the "Financial Times" (15.2.80) as "part of a campaign to expand trade with the second largest oil producer in the Middle East". There were hopes that two military contracts might soon be signed though the report does not indicate what these were.

In July 1981, eleven months into the war with Iran, Douglas Hurd, then a Minister of State at the Foreign Office, visited Baghdad to celebrate the anniversary of the 1968 revolution, which brought the Ba'athists to power. "The Guardian" (17.7.81) talked of Mr Hurd acting as a "high level salesman" and pointed out that Iraq's requirement for a comprehensive air defence system, for which British Aerospace was a contender, was a "tantalising prospect". In the same month, and after a year of negotiation, Iraq and the UK signed an economic and technical co-operation agreement. The new warmth between Baghdad and London would assist exporters and the new Trade Secretary, John Biffen, was to make an official visit to Iraq in October 1981. (Financial Times, 25.7.81) At the meeting in Baghdad from 3rd to 7th October 1981 the UK-Iraq Joint Commission was set up. It was to meet annually to discuss trading relations between the two countries. (DTI Information Service)

By 1983 however there were problems. Iraq's oil revenues had fallen while its war spending was increasing. In August of that year the Confederation of British Industry advised companies not already doing business in Iraq not to enter the market because of that country's deteriorating financial situation. (Financial Times, 11.8.83) Help was soon at hand, however. The then Prime Minister Margaret Thatcher announced that the Export Credits Guarantee Department (ECGD) was extending a £250 million loan to Iraq. Additionally, cash contracts worth \$200 million that had already been signed would be converted into credit. In exchange £30 million owed by Iraq to British companies would be paid without delay. (Financial Times, 7.10.83; Times, 7.10.83) Although backed by the British taxpayer through the ECGD, the loan was actually handled by merchant bankers Morgan Grenfell. The protocol the bank signed with Iraq stated that the loan could not be used for military equipment to help Iraq in its war against Iran. (Financial Times, 16.4.84) However it is possible that this loan, and those that were to follow during the mid-1980s, could have released for the war effort funds that might otherwise have been needed for civilian projects.

Reports on the Ministerial meetings mentioned above that took place during the Iran-Iraq War show that military projects were often discussed. The reports said that the projects could not be started until hostilities ended.

The ceasefire in the Iran-Iraq War was only days old when it was announced that Tony Newton, then Trade and Industry Minister, was to lead the UK delegation to the annual UK-Iraq Joint Commission "to help British companies to benefit from the trade opportunities" arising from that ceasefire. By continuing to provide credit to Iraq during the War, the UK had earned "Favoured Nation" status from Saddam Hussein's government. (Independent, 24.8.88) The Joint Commission met in Baghdad in November 1988 and the deal concluded by Mr Newton there allowed £340 million worth of export credit for 1989, nearly double the £175 million available in 1988. (Financial Times, 8.11.88) These credit facilities were again underwritten by the ECGD.

Asked by a questioner in the House of Commons before the Baghdad meeting whether human rights violations including the use of chemical weapons by the Iraqi government would be taken into account when considering the credit provision, Alan Clark, then at the Department of Trade and Industry, said: "The Government are concerned by the denial of human rights wherever this occurs, and has consistently made our views clear to the Iraqi

government on this subject. We have also made clear to the Iraqi government our condemnation of the use of chemical weapons. We will continue to do so. At the same time, we should not lose sight of the importance of developing political and economic relations with Iraq, and the provision of export credit is a major contribution to this." (Hansard, 4.11.88) The huge increase in credit provision would appear to give some indication of the weight the UK government gave to human rights considerations and trade interests respectively.

By the autumn of 1989, UK-Iraq trade relations were not running so smoothly and a meeting of the Joint Commission scheduled for October had to be postponed. Although the detention of British nurse Daphne Parish and "Observer" journalist Farzad Bazoft by Iraq was partly to blame for this deterioration, the main problem was arrears in Iraqi payments estimated at just below £80 million. (Financial Times, 14.10.89) Energy Secretary John Wakeham went to Baghdad for a three day visit to try and improve matters (Financial Times, 16.10.90) and in December at a London meeting of the Joint Commission new credit of £250 million was agreed for 1990. Concern about arrears was given as the reason for the sharp reduction from the 1989 level. (Financial Times, 1. 1 2.89)

The £250 million credit, like the £340 million of 1988, was in the first instance to be arranged by the Midland Bank. It was backed yet again by the ECGD. "The Observer" (3.6.90) suggests that the interest on the loans was below the current commercial rates, but that Iraq was still failing to meet the repayments. The article said that the ECGD had been called upon to make good the Midland Bank's losses in respect of earlier loans to Iraq. The ECGD has refused to tell the paper how much it had paid to cover Iraq's debts over the previous two years, but "The Observer" believed the amount was substantial.

An interesting debate in the House of Lords casts light on why the Government was prepared to continue underwriting loans to Iraq despite the apparently high level of financial risk involved. Asked about the contradiction between expressions of disapproval of the country's human rights record and the credits granted, then Trade Minister Lord Trefgarne replied that "if we cut off our trading relations ... we would lose many opportunities to convey our views on other matters." He went on to say that trade sanctions had "never ever worked" and to remind his listeners that "Iraq is sitting on oil reserves second only to those of Saudi Arabia. Indeed, I think that that makes it the second largest possessor of oil reserves in the world." (Hansard, 14.12.89)

It is in the context of this general courtship of Iraq, temporarily impoverished by the eight-year war with Iran, but potentially very wealthy, that the UK's military links must be placed. There was also the factor that distrust of Iran under the Mullahs led many in government, commerce and the media to see Iraq as a necessary counterweight to its neighbour.

BRITISH WEAPONRY

In the section that follows are listed, in rough chronological order, the complete weapons systems sold to Iraq by British companies during the 1980s as looking at two significant military exhibitions held during the decade and the appointment of a new military attaché. Far more is known about British sales to Iran than to Iraq during the Iran-Iraq War. However Iraq was the country that was invited to an arms exhibition in the UK and whose armed forces were trained here. Iran was not invited to the exhibition nor, after 1982, were its armed forces trained in the UK. It is virtually certain therefore that deals with Iraq about which we do not have information have taken place. Indeed in 1981 contracts for "defence-related but non-

lethal equipment" worth £250 million were signed (Financial Times, 31.3.83) but we do not know what any of these were.

TANK SPARES

In 1982 International Military Services (IMS), a company wholly-owned by the Ministry of Defence (MoD), was given permission to repair British-made Chieftain tanks captured by Iraq from Iran. The MoD said there had been no abandonment of neutrality, Britain would supply tank spares to both sides but no ammunition. (Guardian, 23.2.82; Hansard, 24.3.82) It has since been said that although permission was given to repair the tanks, no order to do so was placed by Iraq with IMS.

LANDROVERS AND RADAR

Three hundred military Land Rovers, worth £3 million, and a large quantity of radar equipment said to be worth much more, were sold to Iraq in July 1985 to balance the export of the ships to Iran. (Sunday Telegraph, 28.7.85)

THORN EMI RADAR

Since no details were given it is impossible to tell whether or not the radar mentioned above was the Thorn EMI Cymbeline battlefield system capable of locating enemy weapons, including artillery and helicopters, and directing the fire of mortars and guns. Iraq is the world's largest user of the Cymbeline system, with an estimated 1,500 systems deployed in Kuwait in early 1991 together with another 1,000 in southern Iraq. Cymbeline was supplied to Iraq during the 1980s and its operators trained in the UK in 1990, see Training below. (Private Eye, 31.8.90; Thorn EMI Electronics entry, BAEE catalogue 1990; Sunday Times, 2.12.90; Jane's Defence Weekly, 2.2.91)

MARCONI SYSTEMS

Iraq also has the Marconi Command and Control Systems' AMETS which "provides the solution for accurate and timely meteorological data needed to ensure accurate file." There is no indication when this might have been sold. (Jane's Defence Weekly, 2.2.91; Marconi catalogue)

BAEE

The Government's British Army Equipment Exhibition (BAEE) takes place every other year in Aldershot. The 1986 BAEE was attended by a five-strong Iraqi delegation led by Major General M. Ibrahim Hammadi (Director of Armaments and Supplies) and Major General Qahtan al Azzawi (Director of Military Computer Applications). This information came from a leaked attendance list - the British government would not answer parliamentary questions as to which countries had been invited. In 1987 Iraq was on the original invitation list for the Royal Navy Equipment Exhibition, also run by the Government. They did not however attend and, from comments made at the press conference, it would appear that at some point they had been told they would not be welcome.

UNIFORMS

"Private Eye" (26.1 0.90) revealed that the British forces sent to Kuwait after its occupation by Iraq found themselves without desert camouflage uniforms. This was because the MoD had sold of "tens of thousands" of sand-coloured uniforms to the Iraqi army in 1986.

BAGHDAD EXHIBITION

Iraq held its 1st International Exhibition for Military Production in Baghdad between 28th April and 1st May 1989. Companies from eighteen countries attended, trying to persuade Iraq to include their weaponry in its rearmament programme. France displayed the largest quantity

of military hardware ever seen outside its own borders and other countries present included the Soviet Union, Italy, Greece, Portugal, Turkey, Czechoslovakia, Bulgaria, Yugoslavia, Poland, Argentina, Brazil, China, Egypt, Chile and the UK. (Jane's Defence Weekly, 18.2.89 and 22.4.89)

There were thirteen (some reports say seventeen) UK exhibitors at the Exhibition. Then Foreign Office Minister William Waldegrave explained in a letter dated 21st July 1989 that: "Licences were granted for the temporary export of promotional material at the Fair, providing it did not contravene the guidelines." Among the British companies taking part were British Aerospace who showed their Hawk aircraft. The Government reportedly refused permission for them to display their Harrier and Tornado planes, a decision which left Iraq's Deputy Minister of Military Production somewhat put out. Other companies present included GEC Avionics, Racal, Royal Ordnance, Thorn EMI and Astra Holdings. (Jane's Defence Weekly, 22.4.89 and 13.5.89) Machine tool companies Matrix Churchill and Colchester Lathes, about which more below, also exhibited.

Mr Waldegrave stressed that companies which went to the Exhibition did so on their own judgement and without Government support. This point was also made by Lord Trefgarne, then at the Ministry of Defence. In a letter dated 21st March 1989 he then went on to say: "it has been made clear ... that the Government's agreement to allow equipment to be exhibited does not imply willingness to allow either promotion or supply of any of the equipment or services on exhibition to either Iraq or any country attending." However Trade Minister Tim Sainsbury told the House of Commons, retrospectively, that "Officials attended the exhibitors briefing meeting on 20 March 1989 to provide advice on current bilateral commercial relations." (Hansard, 31.10.90)

BAe HAWK

Back on 5th July 1981 "The Sunday Times" had revealed that 20 Iraqi technicians were in the UK to discuss a £1 billion deal to establish an aircraft industry in Iraq and to build 300 Hawk jets there under licence. Discussions about this had started in December 1980, just five months after Iraq's invasion of Iran, and British Aerospace employees had been regularly visiting Iraq since March 1981. A year later Defence Minister Geoffrey Pattie said: "British Aerospace is negotiating with the Government of Iraq for the sale and local assembly of Hawk aircraft. No agreement has yet been reached." (Hansard, 25.3.82) The understanding of the newspapers at the time is well summed up by "The Guardian" of 6th July 1981 which commented that the deal was "hypothetical until the conflict is over".

By the time of the Baghdad Exhibition for Military Production in 1989 the fighting with Iran was over, although no peace treaty was signed. Reports from the Exhibition suggested that Iraq was close to making a choice between ordering the Hawk 100 or one of its rivals, the C-101 made by CASA of Spain, the MB-339 from Italy's Aermacchi and the Dassault Alpha from France. The BAe Hawk was said to be the favourite. (Jane's Defence Weekly, 13.5.89)

In the early summer of 1989 BAe was said to be on the verge of signing the order, now variously reported as being for between 50 and 70 Hawks, in a deal worth £350-1,000 million. The company argued that the Hawk was a trainer aircraft while opponents of the sale, including the Campaign Against Arms Trade and the Kurdish community, pointed out that BAe's own promotional literature said that in "the Hawk 100 the distinction between an aircraft designed for advanced training duties and one designed solely for combat becomes extremely blurred." (BAe's "Hawk Focus 3")

On 27th July 1989 the Cabinet's Overseas and Defence Committee decided not to allow negotiations on the deal to proceed. The Ministry of Defence and the Department of Trade and Industry were said to have been swayed by BAe's argument that the Hawk was a trainer and that the sale should go ahead. However the Foreign Office view, that the peace between Iran and Iraq was fragile and that selling the jets might jeopardise hopes of restoring damaged relations with Iran, prevailed. (Financial Times, 28.7.89)

After the UK government refused to allow the export of the Hawks, Iraq looked to the other European companies for its jets. There is however no information that any such deal took place.

ROYAL ORDNANCE

British Aerospace's munitions subsidiary, Royal Ordnance, is reported to have unwittingly sold Iraq nine hundred strips of explosives retardant via an intermediary. The material is used to propel large rockets. No date is given to indicate when the sale took place. (Sunday Times, 2.12.90)

RACAL RADIOS

Electronics giant Racal reportedly sold Iraq battlefield UHF and HF radios but there is no indication as to when the sale might have taken place. (Sunday Times, 2.12.90)

MILITARY ATTACHÉ

UK military attaches are Armed Forces officers posted to British High Commissions and Embassies abroad. According to a report by the National Audit Office in April 1989 these attaches spend, on average, about a third of their time working to support UK arms exports. The attaches investigate the equipment needs of the countries to which they are accredited, and give briefings to and secure introductions for representatives of British military industry.

The Middle East Association was reportedly organising a "commercial briefing" for UK companies in July 1990 with Col A J Dobson, shortly to be posted as British military attaché to Baghdad. (Guardian, 4.7.90) Questioned about this, Defence Minister Alan Clark replied: "Assistance is offered by the resident military attaché in Baghdad in conformity with the guidelines on the export of defence equipment to both Iran and Iraq." (Hansard, 17.7.90)

There is no information available on the activities of his predecessor but these reports would suggest that at least from the time Col Dobson was to take up his posting, official assistance was to be given with the promotion of the sale of at least some classes of military equipment to Iraq.

COMPONENTS AND TECHNOLOGY

Iraq did not just want to buy its weaponry ready-made or to assemble it from kits supplied from overseas. The "Financial Times" (11.9.89) quoted Iraq's Director-General of Information as saying: "Should we wait for arms to be sent from other states? The only solution to the threat to our very existence is to establish our own military industry and to provide our armed forces with Iraqi arms." The experience of the Soviet arms embargo at the beginning of the war with Iran had led Saddam Hussein to make the establishment of an indigenous arms industry a major policy objective. In July 1988 civilian and military industry were integrated and the Ministry of Industry and Military Production was set up under Saddam's son-in-law, Hussein Kamel, to co-ordinate Iraq's efforts in this direction. (Financial Times, 9.9.89)

MISSILE PRODUCTION

Probably the most publicised of Iraq's efforts to produce its own weaponry concerns ballistic missiles. The Stockholm International Peace Research Institute (SIPRI) defines a ballistic missile as "any unmanned, self-propelled weapon delivery vehicle that can be used in a surface-to-surface role and which sustains a ballistic trajectory through most of its flight without relying on aerodynamic life. Most fly through outer space, but not all. Most have ranges over 40km, but not all. Most are guided but not all." (SIPRI Yearbook 1989) In other words, a ballistic missile is a rocket-type delivery system that can travel long distances.

A ballistic missile can carry a nuclear, chemical or conventional warhead. The last-mentioned must be very accurate or fired in greater numbers if it is intended to hit a specific target. The temptation would therefore be to use a nuclear or chemical warhead if that technology were available. All types of warheads can also be dropped from aircraft, but missiles can more easily penetrate enemy defences. They also do not risk the loss of costly aircraft and their expensively-trained crew.

Iraq already possessed ballistic missiles at the time of its invasion of Iran in 1980. These missiles were FROGs and Scud-Bs supplied by the Soviet Union and they were to be used against Iranian cities. In the later years of the same war, Iraq produced the "al-Hussein", a Soviet Scud-B missile with its warhead reduced from 985kg to 500kg in weight to enable it to travel 600 instead 300 kilometres. The next year, 1988, the "al-Abbas" was test-fired. This is another adapted Scud, this time with a 300kg warhead and additional fuel tanks to enable it to travel 900 kilometres. (SIPRI 1989 Yearbook; Jane's Defence Weekly, 26.1.90)

A much more ambitious programme was that of the Condor 2 as it involved the development of a missile from scratch. The Condor 2 is also sometimes referred to by its Arabic name, Badr-2000, Badr being the ultimate battle between Mohammed and the infidels. It was originally a co-production between Iraq, Argentina and Egypt though the latter two were to leave the project. As was frequently to be the case in Iraq's armaments programme, the technology and components in many instances came from Europe. In the case of the Condor, many of them were acquired through a Swiss-based company called Consen.

MTCR

In 1987, alarmed by the Condor 2 and other Third World missile projects, the United States, the UK, France, West Germany, Italy, Canada and Japan agreed the Missile Technology Control Regime (MTCR). This instituted guidelines "to control the transfer of equipment and technology which could make a contribution to any missile system capable of delivering a nuclear weapon." Other European countries, and the Soviet Union, have now either joined the Regime or have agreed to abide informally by it. The MTCR has been criticised for coming too late and doing too little. It can also be seen as hypocritical with some signatories themselves possessing ballistic missiles but trying to prevent others doing likewise. The instigation of the Regime did however indicate that there was concern by Western governments about missile proliferation. This did not stop their companies, individuals and perhaps some involved in government assisting Saddam in the achievement of his military-industrial goals.

HELP FROM THE UK

In order to build the missiles and to establish its own military industry Iraq needed to acquire technological expertise from the industrialised world. It looked principally to Europe and there have been many revelations about this in the press, the most numerous concerning firms

from the former West Germany. However British companies played a much greater role in this area than they did with regard to the supply of major weapons systems.

Many of the components and much of the technology sold was of the kind often referred to as having "dual use"; having both military and civilian application. While in some instances it is clear that the suppliers knew how their goods would be used, others genuinely appear to have been in ignorance that their products were to be put to military use.

TDG

Some companies and individuals appear frequently in the reports on the arming of Iraq. Foremost among these is the London-based Technology and Development Group (TDG). TDG was bought by the Al-Arabi trading company of Baghdad in 1987 and all its directors are Iraqi nationals. Although these directors have claimed to have nothing to do with the Iraqi government, three of them, Fadel Jawad Kadhum, Dr Safa Habodi and Hana Jon, are said to be senior officials in the Nassr State Enterprise for Mechanical Industries. Nassr is part of Iraq's Ministry of Industry and Military Production. (Financial Times, 21.9.89; Defence, December 1989) TDG's role was to seek out firms which might be useful to Iraq's military industry and it became the centre of a web of directorships and ownerships of such companies.

The Iraqi directors of TDG were ordered to leave the UK in November 1 990 "because of their involvement in procurement on behalf of the government of Iraq" although two of them were later given permission stay on to arrange for the sale of the best-known of TDG's offshoots, Matrix Churchill. (Financial Times, 9.11.90; Independent on Sunday, 11.11.90) After the outbreak of fighting between Iraq and the Allied Forces in January 1 991, the two were detained in Pentonville Prison. (Financial Times, 18.1.91)

MACHINE TOOLS

Iraq needed computer-controlled lathes and other high precision machine tools to make the components for its missiles, shells and other military equipment. Until 1987/88 Iraq looked to West Germany and Switzerland to supply these machine tools, but the companies in these countries could not keep up with the burgeoning demand. British firms saw the opportunity and, following a meeting at the Iraqi embassy in Bonn in 1987 (see under Meed International below), entered the market. According to the Machine Tool Technologies Association (MTTA) quoted in the "Financial Times" (13.9.89), sales of machine tools to Iraq were worth £1.1 million in 1986 and £2.9 million in 1987 but then rose dramatically to £31.5 million in 1988.

In January 1988 the Director General of the MTTA together with representatives from the companies Matrix Churchill, Colchester Lathes and BSA (see below) met with then Trade Minister Alan Clark. They discussed the 1985 "guidelines" on exports to Iraq in relation to machine tools. According to the MTTA's minutes, Mr Clark told the meeting that when applying for export licences "the intended use of the machines should be couched in such a manner as to emphasise the peaceful aspect to which they will be put. Applications should stress the record of 'general engineering' usage of machine tools." (Sunday Times, 2.12.90) Tim Sainsbury, the new Minister for Trade, told the House of Commons the day after the article's appearance that Mr Clark strongly denied the article's interpretation of what had happened at his meeting with the MTTA and said that the Department of Trade and Industry had not been sent a copy of the MTTA's minutes at the time. (Hansard, 3.12.90)

MATRIX CHURCHILL

£8.5 million of that huge rise in machine tool sales between 1987 and 1988 can be attributed to one company, Matrix Churchill which had a factory employing 500 people in Coventry. Until 1987 Matrix Churchill was known as TI Machine Tools and was part of the TI Group. In that year however, following talks between the directors of TI Machine Tools and TDG, the Coventry company was bought by the latter for £4 million through a holding company called TMG Engineering. The directors of the former TI Machine Tools took an 11% interest in the company. (Financial Times, 17.10.90) Under its new Iraqi ownership, Matrix was able to return a profit of £2.4 million in the 1988/9 financial year instead of making the loss it had done for the previous ten years. (Financial Times, 13.9.89)

The details of Matrix's military projects with Iraq vary between press reports. It is clear however that they include orders for lathes worth £19 million in total. Amongst the orders was one for 200 of the company's Computer Numerically Controlled lathes, to be assembled in Iraq from kits produced in Coventry. (Financial Times, 19.10.90) According to an Insight article in the "Sunday Times" (2.12.90), the lathes were used to make shells. The article also says that the British government granted a licence in November 1989 for the export of Matrix machines to make detonation fuses. The machines were to be used in a shell-making factory being built for Saddam by Chilean arms manufacturer Cardoen, see below. The Export Credits Guarantee Department was said to have backed the deal to the tune of £12 million so that if Iraq defaulted on payments to Matrix the British taxpayer would foot the bill. Some spare parts for the shell-making equipment did not appear to Department of Trade and Industry officials to need an export licence. The "Sunday Times" quotes a letter to this effect dated 29th July 1990, four days before the invasion of Kuwait.

Information about Matrix had started to come to light in the autumn of 1989 following the company's attendance at the Baghdad arms exhibition earlier in the year and the scandal involving the Atlanta, Georgia, branch of the Italian Banca Nazionale del Lavoro (BNL). The branch was issuing vast loans for projects related to Iraq without reference to its head office in Rome. Amongst the loans was one to Matrix Churchill to fund a £26 million turnkey project to build a die-forging plant for Nassr. (Financial Times, 21.9.89) Matrix told the "Financial Times" (13.9.89) that the plant was for the "emerging Iraqi automotive industry" and that the company had used the Baghdad exhibition to make general trade links. It is possible that this project was indeed civil and that until September 1989 the Coventry workforce was unaware of its role in Saddam's plans. Thereafter they cannot have remained in ignorance as the press reports describing the BNL scandal detailed the military links.

The invasion of Kuwait brought Matrix even more centre-stage in the press. The United Nations embargo and the loss of Iraq as a customer also brought commercial repercussions. Thirty of the company's workforce of 500 were made redundant in October 1990 and discussions were started with employee representatives with a view to shedding a hundred more jobs. (Times, 21.11.90) There was also the question of ownership. There was to be a management buyout but following the freezing of several of the company's accounts by the Bank of England in September 1990 and the questioning of three directors after a Customs and Excise raid the next month - they were released without charge - this was called off. (Financial Times, 17.10.90) At the time of writing it looks likely that Matrix Churchill will be bought by the holding company of BSA Tools (see below) for about £2 million. The Trade and Industry Secretary, Peter Lilley, has given his provisional approval to the sale. (The Engineer, 13-27.12.90)

SRC

A Canadian scientist/businessman and his Belgian company might seem out of place in a briefing concentrating on British aspects of the arming of Iraq. Dr Gerald Bull and his Space Research Corporation (SRC) are however essential elements in the story.

Dr Bull worked on ballistic research for the Canadian Armament Research and Development Establishment during the 1950s; then from 1964 to 1968 he was the Canadian director of the US Army-Canadian Department of National Defence High Altitude Research Project (HARP). This sought to develop a large calibre gun as a cheap alternative to rockets for putting satellites in low earth orbit. HARP was tested in Quebec, Arizona and Barbados, but experts doubted that such guns could place delicate satellites in orbit and the project was terminated. (Jane's Defence Weekly, 24.11.90)

In 1968, Dr Bull set up his own company, the Space Research Corporation, registered in Delaware. A Brussels SRC was set up in 1972 and it became the only one in 1980 when the US, and a Canadian SRC, went bankrupt. The company, by now with subsidiaries in Spain, Switzerland, Yugoslavia and Austria, was employing about 85 people at the time Dr Bull was murdered in March 1990. SRC wound up its operations soon after Dr Bull's death. (Financial Times, 20.4.90; Guardian, 27.4.90) During its existence the company achieved notoriety twice. The first time was in 1980 when Dr Bull was sent to prison for four months in the United States for violating US laws regarding the United Nations arms embargo on South Africa. The second time was in 1989 and 1990 when there was a whole series of revelations about SRC's involvement in arming Iraq. One of the first of these concerned the LearFan factory and TDG.

LEARFAN

A factory was set up near Belfast in the late 1970s to manufacture the LearFan, a turboprop business aircraft. The plane was built from advance composite and carbon fibre materials of a kind used extensively in military industry. The LearFan company went into liquidation in 1985 and its premises were subsequently used for storage.

In March 1989 LearFan's plant and equipment were purchased by a new company, SRC Composites Ltd. This was 100% owned by the Canira Technical Corporation Ltd, registered in Northern Ireland. Canira in turn was owned on a 50-50 basis by SRC and TDG. To help finance the new venture, a £2 million grant was applied for from the North Ireland Industrial Development Board (NIIDB). In the beginning it looked as though the grant would be made but in August 1989 the NIIDB sent letters to Belfast banks and other institutions saying it would be refused. The letters said that the Foreign and Commonwealth Office (FCO) had been consulted and referred to the backing SRC Composites received from Iraq and to that country's missile programme. (Observer, 3.9.89) The reasons for the refusal were spelt out more fully in an October 1989 letter from Richard Needham, Under-Secretary of State at the Northern Ireland Office, to the Shadow Northern Ireland Secretary, Kevin McNamara: "The FCO said that Iraq was known to be involved in an advanced ballistic missile development programme in cooperation with other countries including Argentina. Composite materials, which the former LearFan factory produced, could be used in ballistic missile and other weapons systems." (The Guardian, 27.4.90) Commenting on the decision Gerald Bull's son Michael said: "No one can tell me that Belfast is a high-tech operation. To say it will lead to missile technology is crazy." (Flight International, 9.9.89)

The refusal of the NIIDB grant put the SRC Composites scheme "into jeopardy". (Flight International, 16.9.89) In October 1989 the company's premises and assets were eventually bought by Belfast aircraft and missile manufacturer Short Brothers. (Times, 11.10.89)

MEED

In addition to TDG and SRC there is a third company with a head-hunting role in Iraq's armament programme. That company is Meed International, founded in 1987 by an Essex businessman Roy Ricks and an Iraqi engineer. Mr Ricks had lost his previous job as managing director of a small fire alarm company and, in his quest for employment, contacted the Iraqi engineer who had marketed the alarm company's products in the Middle East. The latter knew that Iraq was searching for weapons technology in Europe and together the two set up Meed International with an office in London.

Meed International was instrumental in setting up the crucial 1987 meeting in the Iraqi embassy in Bonn which marked the beginning of the involvement of British machine tool companies in Iraq's military industry. At least three British companies were present at the meeting - TI Machine Tools (see Matrix Churchill, above), Colchester Lathes, BSA Tools and Wickman Bennett, (see below) - together with other European companies, the embassy's commercial attaché and a senior engineer from Nassr.

Visits by Iraqi officials and engineers to British companies were also arranged through Meed International though not all these resulted in contracts. For instance, two engineers visited National Plastics in Coventry, part of the Courtaulds group, in late 1987 to negotiate the purchase of stabiliser fins and testing equipment for missiles. National Plastics' managing director said: "We made it clear that an export licence and export credit would be required. In the event, after doing preliminary quotations, the whole thing died."

Meed International also acted as an intermediary between Iraq and companies from elsewhere in Europe, again with mixed success in terms of contracts signed. By the middle of 1988 TDG was coming more to the fore and Meed International's activities appear to have declined. While Roy Ricks is said to be running an office from Maidstone, Kent, his erstwhile Iraqi partner was last heard of in California.

(Whole section: Defence, December 1989; Sunday Times, 2.12.90)

COLCHESTER LATHES

The links between Iraq and Essex-based Colchester Lathes, a subsidiary of the 600 Group, Iraq go back some time. A "lucrative" tender for a machine tool contract fell foul of Iraq's 1978 embargo on British trade. (Financial Times, 5.7.79) It was however as a result of the 1987 Bonn meeting that the company established an office in Baghdad with about twenty staff. Machine tools such as lathes and jigs were supplied to Iraq's weapons and explosives testing site at ai-Qaqa, south of Baghdad, and to a military plant at Badr. The complex at al-Qaqa was run by the Ministry of Industry and Military Production and was the site of a major explosion in August 1989. It was at that time that Colchester Lathes involvement with Iraq first came to notice.

The 600 Group's Company Secretary Hugh Ashton said at the time of the explosion that he had thought Badr manufactured "some sort of consumer goods" while Colchester Lathes' branch manager in Baghdad was reported as saying that most of his firm's involvement in Iraq concerned the expansion of that country's railways. This ignorance was curious given that the company exhibited at the Baghdad arms exhibition earlier the same year, see above. Mr Ashton has subsequently admitted that the machines could be used for military purposes.

(Whole section: Financial Times, 8&11.9.90; Observer 18.3.90; Sunday Times, 2.12.90; Guardian, 4.12.90)

In a further illustration of the web of links between the various machine tool companies involved with Iraq, "The Engineer" (8.2.90) reported that a director of Matrix Churchill, Lawrence Izzard, had left to join Colchester Lathes.

OTHER COMPANIES

Additional information is frequently coming to light about the involvement of British companies in the supply of components and expertise to Iraq's military industry. The list that follows is therefore by no means exhaustive. In many cases it is not clear whether or not the company knew the use to which its product or technology was to be put.

Bennett Mabler

Redditch machine tool manufacturer Bennett Mahler was said to have arranged contracts or pursued negotiations with Meed International. (Observer, 18.3.90)

BIMEC Industries

Wolverhampton's BIMEC Industries sold a metal treatment plant to Iraq for £1.65 million under the impression it was to be used for tractor tracks. In reality it was used in a tank refurbishment programme and to upgrade metal parts of the "al-Hussein" missile. Told of this by "The Sunday Times" Insight Team (2.12.90), BIMEC Chairman Sam Smith said: "I think it's dreadful. I'm not at all pleased with that."

Brown and Sharpe

Machine tool manufacturer Brown and Sharpe of Derbyshire is said to have arranged contracts or pursued negotiations through Meed International. (Observer, 18.3.90)

BSA Tools

Following the Bonn meeting, BSA Tools of Birmingham received an order for fifty machines for use in a shell factory. The order was worth £7 million. (Defence, December 1989; Sunday Times, 2.12.90) It looks likely that BSA Tools will purchase Matrix Churchill, see above.

Deltacam Systems

Birmingham-based Deltacam Systems was a subcontractor on the International Computer Systems project, see below. The company confirmed that it had sold Iraq 3-D modelling software. (Defence, December 1989)

Global Technical and Management Services

In March 1990 Customs officials took documents from the Deeside, north Wales and Edinburgh offices of Global Technical and Management Services and questioned two of the company's employees. The papers were said to be related to attempts by an Iraqi Airways' employee (earlier involved in attempts to smuggle nuclear technology from the United States) to acquire acoustic mine technology for Iraq. Global said that it had recently cleared Iraq's offshore waterways of mines and that it wanted to increase trade links. The company insisted that it would not supply any services not sanctioned by the British authorities. (Guardian, 31.3.90; Electronic Times, 5.4.90)

ICL

The leading computer firm ICL advertised in its internal staff circular "Opportunities" for a sales manager and an engineer to work in Iraq on a twelve month contract. The sales manager's job was to target sales to Iraq's Ministry of Defence. Questioned by "Computing" magazine (2.8.90), ICL said it had been operating in Iraq for twenty years and that everything it supplied was subject to British export controls. Nothing "sinister, like a command and control system for controlling missiles" would be sold.

International Computer Systems (London)

Through TDG, International Computer Systems won a contract with Nassr in 1988 to supply computer design systems for the injection moulding of plastics. The plastics were to be used as part of the missile programme. (Defence, December 1989)

Ketlon

Kent firm Ketlon was reported to have supplied machine tools to Iraqi munitions plants. (Observer, 27.1.91)

Microwave Modules

The "Observer" (16.9.90) reported that Customs officials were investigating a package of goods exported to Iraq in late 1988 by Microwave Modules of Aintree, Liverpool. The package was said to contain both a lightweight video monitoring device and components for a Remotely Piloted Vehicle (RPV). The latter would usually be used by military or security forces. The company said that it did considerable trade with Iraq and that the monitoring equipment was licensed, but that no RPV was exported. The newspaper also said that Customs were concerned about Microwave's export of power supply units to Iraq. The specification of the units demanded by Iraq and given by the company to the Department of Trade and Industry, indicated to experts that they needed to be able to withstand an explosion.

Ordnance Technologies

In October 1990, three men were remanded on bail after being charged under the Customs and Excise Management Act with illegally exporting an artillery fuse assembly line to Iraq. The three included the managing director of Reading company Ordnance Technologies and his father. (Independent, 4.10.90) It was later said that the company had had some unexplained involvement with TDG. (Independent on Sunday, 11.11.90)

Scientific Computers

Scientific Computers of Burgess Hill assembled a hybrid computer under the impression that it was going to a university. In fact it went to a military research centre to be used for simulating ballistic missile flights. (Flight International, 19-25.9.90)

Wickman Bennett

According to "The Sunday Times" (2.12.90), Wickman Bennett, a company owned by the Berisford Group, received a £6.4 million contract for machine tools designed to produce mortar shells with calibres ranging between 60mm and 120mm at a factory run by Nassr. The contract was secured through Meed International. Wickman Bennett was to test the shells in its Coventry factory. The company also supplied machines for the production of mortar fins.

In what is possibly a reference to the same contract, "The Observer" (27.1.91) revealed that it possessed a draft contract dated 2nd April 1987 between Wickman Bennett and Nassr. The contract gives quotes, totalling £74,950, for six sets of cutting tools for 60mm, 82mm and 120mm cutting tools. This was said to be part of a £2 million plus contract.

BUNKERS

"BBC Newsnight" reported that British engineers designed the hardened hangars at eight airbases in Iraq. Up to three hundred of the partially buried hangars, each holding one or more aircraft, were constructed to a higher specification than that of NATO. They have steel roofs with a four foot reinforced concrete cover. The twin sliding doors, made of a steel and concrete sandwich, are almost two feet thick and weigh forty tons. 124 feet in front of the doors is a blast wall, backed by sand. Underneath the doors is a water trap to stop attack by

incendiary devices. (Times, 23.1.91; Independent, 23.1.91) "The Independent" says that the hangars were built by Belgian and Yugoslav contractors. On the other hand, 'The Observer' (27.1.91) says that French, German, Thai and UK firms were involved. "Jane's Defence Weekly" (26.1.91) believes that even the designs of the hangars came from "continental Europe."

WIND TUNNELS

Not only companies, but also individuals with expertise were sought by Iraq. In June 1990, "Defence" reported that a British consultant had been advising Iraq's Ministry of Industry and Military Production on repairs needed to a supersonic wind tunnel near the northern city of Mosul. The tunnel, in the Saad 16 complex, had been designed by an Austrian company and built by a West German one, but had never worked. The Saad 16 complex was used to service a range of Iraqi military projects including the Condor 2 missile. The consultant said he did not know what the wind tunnel might be used for: "It is not for an academic to judge what they (the Iraqis) do with their equipment." (Defence, June 1990)

The consultant approached two UK companies, Aircraft Research Association of Bedford and Advanced Propulsion and Energy Control Systems of Liss in Hampshire, for assistance with the wind tunnel testing. The companies believed that Iraq intended to design a cruise missile and contacted the Ministry of Defence which advised both them and the consultant to have nothing to do with the project. The advice was taken although the consultant, who had originally got involved through an Iraqi student of his, denies that it was a cruise missile project. (Flight International, 26.9-2.10.90)

THE SUPERGUN AFFAIR

On 11th April 1990 Customs officials at Teesport seized eight steel tubes made by Sheffield Forgemasters and destined for Iraq. Thus the curious saga known as the "Supergun" affair came into the public domain. At the time of writing, the Commons' backbench Trade and Indus" Committee looks set to relaunch its enquiry into the affair. It is possible that the enquiry might uncover exactly what was going on as at the moment there is little agreement among commentators as to how Iraq intended to use the seized pipes and those which had been despatched previously.

Sheffield Forgemasters had received an order for two sets of 26 1,000mm diameter constant-bore tubes. Joined together these would form two 156 metre long smooth bore pipes. By way of comparison the World War 1 howitzer "Big Bertha" was 420mm in diameter while Krupp's World War 11 K12 gun was 210mm by 36 metres.

The eight tubes seized at Teesport were the final eight - forty-four had already been shipped. Some of these were stopped en route to Iraq in Greece and Turkey. As well as seizing the pipes, Customs officials also visited the second British firm involved in the affair, Walter Somers of Halesown in the West Midlands. Walter Somers had supplied Iraq with a series of 350mm diameter tubes together with a hydraulic mechanism. The drawings for these were supplied by the Advanced Technology Institute (ATI), a company based in Athens and controlled by the Space Research Corporation. (Military Technology, June 1990)

"Jane's Defence Weekly" (24.11.90) says that Dr Bull signed a contract with Iraq on 6th June 1988 to develop self-propelled guns with 150 mm and 210mm diameters and enhanced ammunition, to run ballistics training courses for Iraqi personnel at SRC and to undertake ballistic research known as "Project Babylon". No British firms appear to have been involved in the development of the self-propelled guns. "Project Babylon" was transferred to Dr Bull to be run under the auspices of ATI and the project's manager was a British subject, Dr

Christopher Crowley. An earlier report (Observer, 22.4.90) claims that at least six Britons worked on "Project Babylon" at ATI. Some of them had answered an advertisement placed in a Bristol newspaper for "Design Draughtsmen" at enhanced rates of pay.

In a statement Nicholas Ridley, the Secretary of State for Trade and Industry, told the House of Commons that: "The Government recently became aware in general terms of an Iraqi project to develop a long-range gun based on designs developed by the late Dr Gerald Bull." (Hansard, 18.4.90) Ministry of Defence experts had looked at the tubes and documents from Sheffield Forgemasters and Walter Somers. The experts considered that the "indications were that the tubes were components of a large-calibre armament, albeit of a scale outside anything previously experienced." The Secretary of State confirmed, what Bromsgrove's Conservative MP Sir Hal Miller had already revealed, that his Department had been approached in June 1988 by Walter Somers to ask if a licence was necessary for the export of metal tubes to the Space Research Corporation in Belgium. Sheffield Forgemasters had made the same enquiry the following month in relation to the export of tubes to Iraq for use in the polymerisation of polyethylene. "On the information available at that time", Mr Ridley continued, "it was decided that export licences were not needed for those goods. Until a few days ago, my Department had no knowledge that the goods were designed to form part of a gun. If my Department had known that purpose, then it would of course have advised that licences were necessary, and they would not have been granted."

Given that the Government knew that the mainly military SRC was involved and given that Walter Somers and its local MP doubted Iraq's explanation that the pipes were for use in the petroleum industry, the advice given to the two firms that they did not need export licences seems somewhat strange. The then Prime Minister Margaret Thatcher was however adamant that the blame lay with the firms and that it was up to them to seek export licences. (Times, 20.4.90)

As time passed, revelations about the "Supergun" multiplied. Additional "parts" of the gun were reported from Italy, Switzerland, West Germany and Spain. (Financial Times, 26.5.90) Belgium ammunition firm PRB was to develop the propellant for the gun and at least one cargo was said to have been shipped via Jordan. The contract with PRB was signed early in 1988 but terminated when PRB was taken over by the UK firm Astra Holdings in September 1989. (Jane's Defence Weekly, 24.11.90)

But was there actually a "Supergun"? Certainly several commentators question the cartoonists' vision of a huge cannon pointing diagonally into the air. They ask why Iraq would want such a gun when the missiles it already possessed could do the same job of delivering warheads over long distances much more effectively. The gun would have a fixed position and be difficult to conceal thus making it an immediate target for any enemy. Using all the propellant produced by Iraq's munitions industry it could still only be fired three times a day. (Military Technology, June 1990; Independent, 17.11.90)

Other reports suggested that the "Supergun" was perhaps a latter-day version of HARP, see under SRC above. Again this was questioned as Iraq had already launched its Tamuz-1 space rocket in December 1989. The components and instruments of any satellite launched from a "Supergun" instead of a rocket would need to be designed to withstand "the highest acceleration stresses ever imposed on a man-made object". Since there are no known comparable projects, Iraq would have to have carried out the satellite's research and development from scratch. Also, whether the pipes were for a long- distance gun or a satellite launcher, there is a lack of explanation as to how the twenty-six sections could be

joined together and still withstand the stresses that would result from the firing of the projectile. (Military Technology, June 1990)

So what possible explanations still exist? All along Iraq has claimed that the "Supergun" is piping for its petroleum industry. "Even if we buy a box of chocolates from Britain, they'll say Iraq will use it to produce an atomic bomb", Foreign Minister Tariq Aziz was quoted as saying in the "Financial Times" (14.4.90) In November 1990, it was still the intention of Iraq to appeal in the High Court for the release of the pipes seized at Teesport. (Guardian, 16.11.90)

The "Independent on Sunday" (17.11.90) suggests that Sheffield Forgemasters' and Walter Somers' piping was to form three "guns". One would be a 60ft long model and the other two, made of material up to 12 inches thick, would be 150 metres long with a one-metre bore. They would be mounted horizontally and used as test beds for the study of the behaviour of propellants and projectiles inside a barrel. This was "Project Babylon".

Somehow however, the paper says, Customs and Excise confused it with another project of Dr Cowley's. The drawings taken from Forgemasters and Walter Somers did not fit the piping seized. Instead, argues the "Independent on Sunday", they related to "Project 839" - guns which would fire a relatively small shell but whose 750 kilometre range would have been much greater than any comparable battlefield artillery piece. The guns would be mounted on railway trucks and thus mobile and less vulnerable to attack. Iraq was said to have ordered 75 of these and received three although it is not clear from whom.

The "Daily Mirror" (25.1.91) also goes for the multiple gun theory. As well as a "Supergun" with a 1,000mm diameter and 75 metre length the paper believes that Iraq also commissioned two smaller guns from Dr Bull. These were a 600mm gun with a 500 mile range and a 350mm gun with a 100 mile range. Two of the latter, the paper says, have actually been assembled in Iraq by British scientists. Travelling at a speed of 5,000mph the gun's rockets are four times as fast as a Scud missile and can drop their payload accurately to within a kilometre. The guns can be moved by lorry. The tubing for the guns was allegedly produced by Walter Somers while the cradles came from Sheffield Forgemasters. A previously unmentioned British firm, Destec, is said to have fitted the gun barrel's seals in Iraq. All this work reportedly took place in late 1989 and early 1990.

Another writer, this time in "Military Technology" (June 1990), suggests that Iraq and Dr Bull had resurrected a German project from World War 11, the "Begonia" gun. A number of four to five metre sections of piping would be joined together with each section containing a secondary firing chamber. As the projectile travelled through the piping, it would accelerate progressively as the hot gases following it ignited the propellant charges in the secondary firing chambers. Pressure within the tube would thus remain at a low level so the sections could be held together with nuts and bolts.

In November 1990 Customs and Excise dropped all the charges brought earlier against Dr Crowley and the managing director of Walter Somers in connection with the "Supergun" affair. The prosecution decided there was not a realistic chance of proving to a jury that the Walter Somers director knew how the exported pipes would be used and Customs decided it would be "inappropriate" to continue to press charges against Dr Cowley alone. (Times, 16.11.90) Now the matter is no longer "sub judice", it remains to be seen whether or not the House of Common's Trade and Industry Committee or anyone else can discover the truth behind the "Supergun".

CHEMICAL WEAPONS

In March 1984 a United Nations' inspection team concluded that Iraq had used chemical weapons against Iranian troops. Further use was confirmed in that war. Chemical weapons were also used against Iraq's Kurdish population, most notably in Halabja in March 1988 when 5,000 people died and another 12,000 were injured. (independent, 2.8.88)

Iraq's chemical warfare research facilities are located at Salman Pak, on the Tigris River, 40 kilometres south-east of Baghdad, while the main production plant is at Samarra, 100 kilometres west of the city. There is also a smaller plant, possibly producing precursor chemicals for Samarra, at Fallujah, 60 kilometres west of the capital. Blister agents, produced at the rate of 700 tons a year, comprise the greater part of Iraq's chemical arsenal. The nerve agents Tabun and Sarin are also manufactured, at an annual rate of 50 tons. (Defence, December 1990)

Supplies for the manufacture of chemical weapons are notoriously difficult to control as the chemicals needed for their manufacture are also used in agricultural, pharmaceutical and other industries. The Samarra plant, for instance, is run by the State Establishment for Pesticide Production. (Christian Science Monitor, 2-8.1.89)

Following the use of chemical weapons in World War1, the 1925 Geneva Protocol for the *Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases and of Bacteriological Methods of Warfare* was an attempt at control by most of the leading powers of the time. The Protocol, which Iraq signed 1931 and violated half a century later, does not however ban the development and manufacture of chemical weapons nor is there any provision for verification.

Since 1979, the quest for a convention totally banning chemical weapons, including their production, has come under the auspices of the United Nations Conference on Disarmament. Commentators have remarked that agreement to a convention frequently seems close but finally elusive. (New Scientist, 25.8.90) In the meantime however, informal harmonisation of chemical export controls takes place at the twice-yearly Paris meetings of the "Australia Group". This "Group" includes the European Community countries, the United States, Japan and Australia but recent reports suggest that the six former communist East European states have asked to join. (New Scientist, 25.8.90; Times, 29.12.90)

Despite the attempts by governments to control such weapons, there is much evidence that Iraq received a great deal of outside, and especially European, help with building its chemical warfare capability. West German companies in particular seem to have played a leading role in this. (Stern, 23.8.90)

THE UK'S ROLE

THE GOVERNMENT

Prior to the March 1984 confirmation by the UN inspectors of the use of chemical weapons by Iraq, a "Wide range of noxious chemicals, projectiles, detection devices, decontamination kits and protective clothing" already required a UK export licence. (Hansard, 20.4.90) Reacting to the UN report, the British government announced that it was "determined" that chemicals for the manufacture of the weapons would not be supplied from the UK. Eight chemicals would henceforth need a licence before being exported to Iraq or Iran and such

licences would only be issued if the Government was satisfied of their bona fide industrial use. (Hansard, 12.4.84) The number of chemicals requiring such licences has steadily increased over the years in line with information about Iraq's programme, reaching a total of thirty-seven at the end of 1990. At that time it was also announced that a licence would be needed for equipment which the exporter knew or suspected might be used for the production, storage, handling, detection or identification of chemical or biological weapons. (Financial Times, 21.12.90) The Government also circulated longer warning lists of chemicals to the industry and traders. (Hansard, 3.12.86)

The Government would not however reinforce its condemnation of Iraq's use of chemical weapons by stopping export credit. (Hansard, 4.11.88)

THE COMPANIES

Companies in the UK appear to have given comparatively little, if any, assistance to the building of Saddam's chemical arsenal. According to "The Independent" (12.9.90), Iraq solicited European companies for help with the building of a "pesticide plant". Babcock & Wilcox and ICI were among those approached. Although the former appeared to have expressed preliminary interest in the project, the latter was disturbed enough by the plans to inform the Foreign Office what was happening. Although the Foreign Office did nothing, ICI's concern forced Iraq to change tactics and to assemble the plant itself from components. The same article says that chemical protection suits were obtained from the UK to safeguard the workers in the plant. Courtaulds and a Midlands firm, SOS, were contacted to provide them but it is not clear if they actually did do so. Primary Medical Aid of Fareham, Hampshire was said to have sold 10,000 protection suits in a 1981 deal worth \$500,000 (New Scientist, 22-29.12.83) but another report says that the sale of such suits was stopped by the UK government in the early 1980s after Iraq's chemical warfare capacity became known. (Guardian, 6.9.90) As it is not the Government's practice to disclose information concerning individual export licensing matters we do not know if any British protection suits did actually go to Iraq.

BIOLOGICAL WEAPONS

Iraq has signed, but not ratified, the 1972 *Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological and Toxin Weapons and on Their Destruction*. This Convention bans and eliminates all forms of biological weapons. There have however been various reports, coming from the United States, that Iraq has a biological warfare capability. These reports, which Iraq has denied, suggest the biological agents, including anthrax, are being manufactured in specially-designed buildings in the chemical weapons complex at Salman Pak. (Jane's Defence Weekly, 5.1.88, 28.1.89 & 6.10.90)

"The Times" (24.8.90) reported that shortly before the invasion of Kuwait, the head of the Arms Control and Disarmament Department of the British Foreign Office wrote to the heads of biological science departments as well as those researching virology and genetics, and postgraduate medical schools. He asked them to report any suspicious applications by students from the Middle East for courses involving research that could be used in biological weapons. Companies involved in similar research were asked to scrutinise suspicious export orders and report them to the Department of Trade and Industry. Other West European governments together with those of the United States, Canada and Australia are reported to have taken similar action. The Foreign Office letter did not single out Iraq but said that it "believed about ten countries either have or are considering acquiring a biological weapon

capacity. The Middle East and North Africa are of particular concern, but the risk of proliferation is widespread."

NUCLEAR WEAPONS

In 1969 Iraq signed the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) drawn up the previous year. Under the nuclear safeguards agreement associated with this Treaty and signed by Iraq in 1972, the country's nuclear plants are inspected twice a year by the International Atomic Energy Authority (IAEA). The inspection which took place in November 1990 concluded that all nuclear material was accounted for and that there was no evidence of weapon development. However, many governments and experts believe that Iraq is violating the NPT by working to produce a nuclear weapon and that it is hiding the evidence from the IAEA.

To make nuclear weapons sufficient plutonium or enriched uranium is needed. It is thought that in the 1970s Iraq had plans to make plutonium weapons, such as the one dropped on Nagasaki in 1945, but that this programme was brought to an end when Israel bombed Iraq's French-built Osirak nuclear reactor in June 1981.

Following the Osirak bombing, Iraq is said to have turned away from plutonium and instead to have worked towards acquiring enriched uranium. Uranium had been supplied by Brazil, Portugal and Niger in the early 1980s, but recent reports suggest that it is now being mined inside Iraq near the border with Turkey. To enrich the uranium a series of a thousand or more gas centrifuges, arranged in batteries and known as a cascade, is needed. As in the case of missile and nuclear technology, Iraq looked beyond its borders and particularly to Europe for help with making the centrifuges. Again, the network of Iraqi-owned front companies and individuals working for Iraq were used to make the contacts and to buy the equipment.

According to a "Sunday Times" Insight report (16.12.90), the centrifuge laboratory was located close to, but not at, the Tuwaitha nuclear facility inspected by the IAEA. Thus it escaped the latter's attention.

BRITISH INVOLVEMENT

Media speculation about Iraq's nuclear weapons programme was intense following the seizure of 40 US-manufactured switching devices, thought to be capable of being used as triggers for a nuclear bomb, at Heathrow at the end of March 1990. The list below details British companies' involvement in Iraq's nuclear weapons programme. It is unclear what, if anything, the companies knew of the use to which their products would be put although in some cases it seems that the orders should have aroused suspicion.

Avesta

Birmingham steel firm Avesta supplied a special non-corrosive steel, able to withstand searing uranium hexafluoride gas, for the centrifuges. The order from Iraq had come via a Midlands exporter, who was not named by "The Sunday Times", and West Germany. (Sunday Times, 16.12.90)

Boko

Iraq was looking for machine tools to help them make a rotor, capable of withstanding enormous speed, for the centrifuge. Special spinning lathes were needed and Meed

International approached Coventry firm Boko about this in 1987. The order eventually went to a more competitive West German company. The Iraqi who asked Meed International to find a supplier of the special lathes is said to have arranged other European purchases of equipment for the nuclear weapons programme from an office located in west London. (Sunday Times, 16.12.90)

Consarc Engineering

A factory in Bellshill near Glasgow, owned by the US company Consarc Engineering, was to supply two furnaces to Iraq while the company's New Jersey factory was to send another three in a deal totalling £7 million. Consarc believed the furnaces would be used to make artificial limbs for those wounded in the Iran-Iraq War. In July 1990 the US government stopped the export of the New Jersey furnaces saying the furnaces could be used to melt plutonium or uranium for the cores of nuclear bombs, or titanium for missile nose cones. Apparently the US Defence Department had discovered that the furnaces were to be installed in a weapons complex a long way from medical facilities. Also, the furnaces had a far greater capacity than would be needed for artificial limbs. The export of the Scottish furnaces was blocked by the British government the day after the invasion of Kuwait. (Sunday Times, 15.7.90; New Scientist, 11.8.90; Daily Mirror, 14.8.90; Guardian, 15.9.90)

Magnetech

Crawley firm Magnetech also received an order through the Midlands exporter mentioned under Avesta, this time for computerised testing machines called permeameters so that Iraq could carry out quality checks on the centrifuges. Three Iraqi nationals spent a week at the company in December 1989 learning how to operate the £40,000 machines. (Sunday Times, 16.12.90)

Matrix Churchill

A visitor to the centrifuge production centre reportedly saw precision lathes made by Matrix Churchill there. (Sunday Times, 16.12.90)

Swift-Levick

The Midlands exporter arranged the supply by Swift-Levick of Rotherham of magnets for the centrifuges. The firm was told the magnets were for use in electricity meters, but they were of a much higher specification than those usually employed for this purpose. They were similar to those previously sold by the company to British Nuclear Fuels for their enrichment plant at Capenhurst. (Sunday Times, 16.12.90)

TRAINING

British military training is provided both by the Government and by private firms. Throughout the Iran-Iraq War, Iraq appeared on the list of countries who received training from members of HM Armed Forces or at Ministry of Defence establishments. This official training of Iraqi personnel continued until March 1990 when it was stopped as one of the British reprisals for the execution of Farzad Bazoft.

The Government has consistently refused to give any details about the training such as numbers involved and what they were being taught. During the war with Iran former Foreign Office Minister Timothy Renton did say that the training was "essentially not combat-related", but would not be drawn further. (Hansard, 3.12.86) A later questioner was unable to elicit any further information even about numbers. Asking how many Iraqi pilots had been trained by the RAF over each of the last ten years he was told: "This information is confidential between Her Majesty's Government and the Government of Iraq." (Hansard, 15.5.89) However, the

expulsions following the Bazoft execution did reveal that, at that time, six Iraqi personnel were being trained. Four were students at the Royal Military Academy, Sandhurst and two at HMS Dryad, a Royal Navy training school near Portsmouth. (Times, 16.3.90) The cost of these courses, and all other service courses attended by Iraqi students since 1979, had been met by the Iraqi government. (Hansard, 23.3.90)

PRIVATE COMPANIES

If information about Government training of overseas armed forces personnel is sketchy, that relating to training by private companies is even more difficult to come by. The following are those that have received media attention.

Specialist Flight Training

Three articles refer to Specialist Flight Training, variously basing the company in Carlisle, Sussex and Hamble, Hampshire. Established in 1981 specifically to train 80 Iraqi pilots, the company received £9 million for doing so. The then Chairman of the company, Air Marshall Sir Peter Wykeham, said: "Most of the RAF training schools were full up. There were some 4,000 Iraqi military personnel under training in Britain at one stage during that period." (Flight International, 28.4.84; Observer, 26.8.90 & 27.1.91)

Thorn EMI

A story from the Thorn EMI house magazine, quoted in "Private Eye" (31.8.90), said that six Iraqi officers had come to the UK earlier in 1990 to be trained in the use of the company's Cymbeline radar.

VIA FRIENDS

There have been several reports that Iraq received equipment via Jordan and the Chilean arms company, Cardoen. In no case has this been proven with regard to equipment originating in the UK.

JORDAN

Worries about the true destination of equipment destined for Jordan arose very early in Iraq's war with Iran. An MP asked the Secretary of State for Defence if he would "ensure that any British arms sales to Jordan are conditional upon those arms not being resold to Iraq." Francis Pym sought to reassure his questioner that: "Export licences are only granted for arms sales once we are satisfied that the request is authentic and the arms are destined for the exclusive use of the purchasing Government." (Hansard, 2.12.80)

In 1985 however the Old Bailey heard of a scheme to export guns to Iraq between 1981 and 1983. Two hundred sub-machines worth £110,000 and labelled as being for Aqaba in Jordan had been stopped at Greenwich docks. Samples had already been flown out via Heathrow with documentation saying they were for Sudan. Sterling Armament had quoted for the supply of 2,000 of the sub-machine guns and had appointed Atlantic Commercial as agents. An export licence had been refused for the guns, but the companies decided to go ahead anyway. The two employees of Atlantic Commercial and an employee of Sterling Armament were fined for their part in this. (Guardian, 28.11.85)

Although the Government had refused a licence in this case, worries that Jordan was being used as a conduit for the sales of weaponry to Iraq continued. Following the "Supergun" affair, see above, Opposition MPs raised the issue on a number of occasions. (Independent

on Sunday, 29.4.90; Hansard, 17.5.90 and 25.6.90) There is however no conclusive evidence that Jordan has been used as a supply route for Iraq.

CHILE

Industries Cardoen of Chile was a reliable supplier to Iraq during the war with Iran. The company's sales to Saddam included cluster bombs.

After the invasion of Kuwait Cardoen claimed that it had developed the prototype for a "Stonefish" naval mine using specifications from British company GEC-Marconi. The mine is an "intelligent" seabed weapon which can distinguish between different types of ships. The Cardoen claim followed reports that Iraq could have deployed mines with "Stonefish" characteristics, GEC-Marconi's technology having reached the Gulf via Chile. But although Cardoen had frequently supplied Iraq in the past, the company denied selling them the mine or any other equipment since the ceasefire with Iran in 1988. (Financial Times, 30.8.90)

As mentioned above one of Matrix Churchill's many Iraqi connections is also said to have been through Cardoen. Matrix say that their export licence application, which was granted in November 1989, gave the destination of the goods as Nassr in Iraq. If this is indeed the case, the supply of machinery to an arms company with a project in Iraq should have indicated to the UK government that the Matrix equipment was helping Iraq's armament programme and not destined for Latin America. (Sunday Times, 3.12.90)

CONCLUSION

For most of the 1980s Iraq was a country at war. Even when the fighting stopped in 1988 there was no peace settlement with Iran; indeed, there was not to be one until after Saddam's forces had invaded another neighbour, Kuwait, in 1990. It was against this background of conflict that the UK government considered applications from British companies for licences to export militarily-useful equipment to Iraq. Extreme caution would therefore have been appropriate. But, as this briefing has shown, there were pressures that worked against this. Iraq was seen as a counterweight to Iran's power in the region. Equally it was an oil rich country which was becoming a major trading partner with the UK.

These divergent pressures led to apparently contradictory action by the British government. It allowed the export of military equipment which it categorised as non-lethal and invited Iraq to the 1986 British Army Equipment Exhibition. Whether or not the machine tool manufacturers were actually told to imply their machines were for civil use when applying for the licence, the Department of Trade and Industry (DTI) does not appear to have investigated and/or taken action on reports that these machines and other equipment were being used for military purposes. On the other hand the UK appears to have played a leading role in controlling the export of chemicals that might be used in weapons and the Foreign Office did step in to prevent the development grant going to the LearFan factory.

Accurately assessing the Government's role in the supply of military equipment is, however, made extremely difficult by the lack of a publicly available register of arms exports. Information about export licences is held by the DTI, but successive British governments have treated it as confidential. If it were available, a register of export licences granted and refused would enable proper analysis and evaluation of the Government's arms export policy to Iraq and elsewhere. A register of applications for export licences open to public scrutiny *before* such licences were granted would allow for informed debate as to the wisdom of granting a particular licence. With regard to the one deal which did generate debate before a

decision on the export licence was reached - the British Aerospace Hawks - the Government did not finally grant a licence. It is quite possible therefore that had information about other prospective sales of military equipment to Iraq been made public, fewer would have been granted export licences.

The debate about the need for an arms export register will intensify with changes in the nature of the international arms trade. As this briefing has indicated, while transfers of complete weapons systems continue, the trade in technology and components is a matter of growing importance. An increasing number of newly industrialised countries are, like Iraq, building their own arms industries. In most, if not all, cases however they are still reliant on technology and specialist components from the old industrialised countries.

Controlling the transfer of militarily-useful technology and components is much more difficult than controlling the export of tanks and planes. In many cases the same equipment has military and civil application so knowing its intended use is vital. But knowing the destination of the equipment within a country might not be sufficient if, as this briefing has shown to be the case with regard to Iraq, the same ministry runs both civil and military industry. More public debate about export applications might help here. Those with knowledge of the recipient country could report their suspicions before the equipment left the UK.

Exporting military equipment to Iraq was not however something done by the UK alone. Indeed as we have shown the Soviet Union and France were Iraq's major suppliers. With regard to the sale of components and military technology the former West Germany was probably most heavily implicated. The invasion of Kuwait alarmed people not only in the UK but around the world and has prompted fresh consideration of arms transfer issues. In many countries, governments and opposition parties are looking at their arms export laws to see how they can be strengthened. Perhaps most significantly the crisis in the Gulf prompted the former Soviet Foreign Minister, Eduard Shevardnadze, to suggest that his country draft new laws to control its arms exports. He also wrote to the UN Secretary General pressing for international action. He wanted particular attention paid to stopping the proliferation of missiles and missile technologies and making sure that arms reductions in one region do not result in military rivalries elsewhere. He urged restraint on the transfer of arms to areas of conflict. The Soviet Foreign Minister also proposed the establishment of an arms trade register and that customs and law-enforcement agencies should co-operate to stop the illegal arms trade in the same way as is done with regard to drug-trafficking. The invasion of Kuwait has starkly illustrated the dangers of the indiscriminate trade in arms and indicate that the consideration of proposals such as Mr Shevardnadze's are long overdue.

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