The U.S. Role In Israel’s Arms Industry

By Bishara A. Bahbah

In a December 1986 New York Times article, Robert Friedman states that Israel has become one of the world’s top 10 arms exporters.1 A recent report by the Stockholm International Peace Research Institute (SIPRI), entitled Arms Production in the Third World, identifies Israel as the Third World’s largest arms producer between 1980 and 1984. Among the main Third World arms producers, according to the report, Israel is the only important producer and exporter of the four major arms categories—aircraft, armored vehicles, missiles and ships.2 Friedman’s article and the SIPRI report place Israel head to head in the international arms market with major industrial powers such as Britain, France and West Germany. Israeli arms have reportedly been sold to 64 countries and a host of other military movements in Africa, Asia, Europe, Latin America, the Middle East, North America and the South Pacific (see table, page 3.).

Of the $1.2 billion that Israel reportedly exports annually in arms and security services,3 roughly $500 million is exported to the United States.4 The inevitable question that comes to mind is: How can Israel, a fledgling country of four million people, afford all the research and development, capital, personnel, facilities and extensive marketing network required by a highly sophisticated arms industry and yet successfully penetrate the intensely competitive, but lucrative, U.S. arms market?

The success of the Israeli arms industry can be attributed to a combination of domestic and foreign factors. The domestic factors include: the presence of a large pool of highly skilled workers, scientists and engineers; a government policy that actively encourages arms production and military research; and a broad public consensus favoring arms production and arms exports. Secondly, Israel’s arms industry would not have progressed beyond the stage of producing ammunition and light arms or reconditioning surplus stocks without contributions from abroad—initially from Europe and subsequently from the United States.

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About This Issue

A former Israeli Knesset member once observed that Israel is not a government with an arms industry, but an arms industry that happens to have a government.

According to research by Bishara Babbah, author of our feature article, Israel’s arms industry also is: highly subsidized by the U.S. taxpayer; fiercely competitive in U.S. markets; uniquely privy to sensitive U.S. technology transfers; and, at present, the world’s third largest arms producer.

What comes to mind, during this Hanukkah and Christmas season, is the wit of the Anglican prelate, Dean William Inge, who observed: “A man may build himself a throne of bayonettes, but he cannot sit on it.” Professor Babbah’s documentation leaves little doubt that the United States has single-handedly helped Israel to erect for themselves a throne of bayonettes; the question left unanswered is whether men and women of good will, Israelis and Americans, can bend some of those bayonettes into plowshares?

John F. Mahoney, Executive Director

The Transition from Europe to the United States

Prior to 1967, most of the technology or expertise for the manufacture of weapons in Israel was obtained from France or West Germany, taking the form of machines, tools, production lines and even entire industrial military plants. In the late 1950’s, an agreement was negotiated with the French firm Rougier for the assembly of 12 Magister trainer jets in Israel. Many parts of the plane were produced domestically, and when the production of the French-made wings lagged, Israel purchased entire wing assemblies from Heinkel, the West German firm that manufactured the Magister under license from Luftas.

Israel’s famous Kfir C-2 fighter bomber, now in its second generation, was built using the stolen blueprints of France’s Mirage-5, to which the powerful American-made General Electric J79 engine was added. Israel also made use of foreign military equipment considered obsolete, building several hybrid weapons from the parts of outdated equipment. Thus, the Isherman and Supersherman tanks were built from old French M4 and U.S. M50 Sher- mans, and the T1-67 evolved from about 300 Soviet-made T-54/T55 tanks captured in the June 1967 war. The Gall assault rifle, one of Israel’s bestsellers on the international market, is simply a lighter version of the Soviet-made Kalashnikov rifle.

Although by 1966-67, Israel’s arms industry claimed capability of producing 400 small arms items, it was the French arms embargo, following the June 1967 war, that spurred Israel to direct its arms industry “toward fulfillment of its all-encompassing ideal—the total supply of all requirements in arms and munitions of every kind, their components, auxiliary equipment, spare parts, explosives, propellant fuels, chemicals and all else needed for the defense of the state.”

To implement its decision, Israel needed, among other things, the necessary capital and the technological expertise. At first Israel focused on its Western friends and allies to provide what was needed. However, when assistance was not forthcoming, Israel took matters into its own hands. In 1969, for example, Israeli agents stole the blueprints of the French Atar 9C engines used in the Mirage-3 and Mirage-5 aircraft. Armed with detailed plans for both engine and air frame, Israel secretly built the Mirage, fitting it with an Atar engine. Code-named the Nesher, or Eagle, the aircraft first flew in 1971 and was later used during the October 1973 war.

Although Israel continues to have access to European technology, as a member of the Common Market’s free-trade area, it has received considerably less European input, particularly since the late 1960’s. Instead, the United States has emerged both as the principal source of Israel’s sophisticated weaponry and an indispensable partner in its arms industry.
In the 1950's, the United States provided Israel with its first access to arms production technology. Although a formal military assistance relationship existed between the two countries, not much military cooperation was in place. It was not until 1962 that the U.S. offered Israel some military loans and only in 1966 that it agreed to ensure the sale of arms to Israel, if not from the Western allies, then from the U.S. itself. The post-1967 period witnessed the forging of a strong alliance between the U.S. and Israel. In December 1967, the U.S. supplied its first major arms shipment to Israel which consisted of Skyhawk jets, followed by the sale of Phantom jets in September 1969. These major arms sales marked the changeover in Israel's military arsenal from French to American technology, and was to lead to a growing military and economic dependence on the United States.

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**Israel**

**Customers by Region**

**Country/Reference Source**

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**Liberia:** Aaron Klieman, Israel's Global Reach, 1985, pp. 135-142, and Hadashot, October 15, 1984, p. 1.

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**India:** Carl Albert, "Making and Selling Arms Helps Keep Israel Free—But It Bothers Her," Jewish Week, August 13, 1982.

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**Thailand:** Agency Latino Americana de Informacion, November 17, 1977; Christian Science Monitor, December 27, 1982.

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**Austria:** SIPRI, World Armament and Disarmament Yearbook 1977, p. 276.

**Belgium:** Israel Export and Trade Journal, May 1977.


**Great Britain:** Ibid.


**Romania:** Jerusalem Post, June 4, 1982.

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**West Germany:** Los Angeles Times, July 29, 1983.

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**Brazil:** Latin American Weekly Report, December 24, 1982, p. 11.

**Chile:** Yadot Abramov, January 25, 1979; and SIPRI, World Armament and Disarmament Yearbook 1983, p. 419.


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* Reprinted from Israel and Latin America: The Military Connection (St. Martin's Press in association with the Institute of Palestine Studies.)
Four main agreements, detailing United States' commitment to the development of Israel's arms industry and the promotion of Israeli arms exports, have been signed by the United States and Israel. The first, widely considered a replacement for the old Franco-Israeli pact, was a 1970 Master Defense Development Data Exchange Agreement. This agreement "permits and facilitates the exchange of information important to the development of a full range of military systems including tanks, surveillance equipment, electronic warfare, air-to-air and air-to-surface weapons, and engineering." By mid-1982, 19 separate data exchange annexes, covering individual projects under the agreement, had been concluded. The March 1979 Memorandum of Agreement (MOA) committed the U.S. to stimulate various types of cooperation in research and development (R&D), and procurement and logistics support of selected defense equipment. Annex A provides for three areas of cooperation in research, while Annex B seeks to promote reciprocal defense procurement.

Annex A, expanding the Master Defense Development Data Exchange Agreement, provided for cooperative R&D programs. These include: joint R&D; supporting R&D where one country contractor performs R&D for the other country; and competitive R&D whereby one country's contractor competes against the other country's contractor in bidding on contract awards. The final aspect of this annex involved a scientist and engineer exchange program.

Annex B allows Israeli firms to submit competitive bids for more than 560 military items and services without application of Buy America Act restrictions, an arrangement similar to the one accorded to America's NATO allies. Under the MOA, Israeli military sales are exempt from customs duties as long as they satisfy performance, quality, delivery and cost requirements. In 1981, Israeli firms sold the Department of Defense and its contractors an estimated $50 to $100 million worth of goods under this Memorandum of Agreement.

In March 1984, the 1979 Memorandum of Agreement, renewed and revised to incorporate a number of "improvements," primarily increased Israel's access to the U.S. arms market. The number of categories open for Israel arms sales was expanded. At the same time, U.S. officials could no longer veto arms deals with Israel for political reasons after the bidding process had been completed.

Finally, the Memorandum of Understanding (MOU) on Strategic Cooperation, signed on November 30, 1981, incorporated a commitment made by then Secretary of State Alexander Haig to purchase Israeli military equipment worth up to $200 million a year. The objective of this commitment was to strengthen and stimulate Israel's defense industry, since the MOA only formalized an existing U.S. commitment to enhance Israeli arms sales to the United States. In April 1981, an interagency Defense Trade Task Force, made up of the Departments of State and Defense, was established to implement the Defense Trade Initiative which intended to "enhance Israel's defense industry's competitiveness to facilitate DOD procurement of up to $200 million a year in Israeli-produced equipment."

The MOU reiterated the desire of both countries to further military "cooperation in research and development, building on past cooperation in this area." Although the MOU, along with the Defense Trade Initiative, was suspended following Israel's annexation of the Golan Heights in December 1981, both were formally reinstated in November 1983.

U.S. Input in Israel's Arms Industry

The U.S. role in Israel's arms industry has been diverse and extensive. The U.S. has:

- funded Israeli military research and development;
- permitted the transfer of sensitive technology through joint ventures and subsidiary relationships;
- allowed Israeli liberal and exceptional uses of FMS funds;
- promoted co-production, licensed production and subcontracting agreements;
- agreed to Israel's modification and selling of U.S. military equipment;
- awarded service and maintenance contracts for U.S. forces; and
- purchased and leased Israeli military equipment.

Research and Development

The United States has promoted, and at times even funded, Israeli military research and development. Annex A
of the March 1979 U.S.-Israeli Memorandum of Agreement provided for cooperative research and development programs, while the 1984 Memorandum of Agreement provided for cooperation with the U.S. Air Force on air-to-air and air-to-surface weapons, electro-optic technology, tactical communications, chemical warfare defenses and electronic warfare. According to Lt. Gen. Louis Wagner, Army deputy chief of staff for research, development and acquisition, U.S. Army cooperative efforts, under the terms of the MOA, centered on data exchanges and government-to-government programs.

In order to facilitate and explore the potential of U.S.-Israeli cooperation in the area of R&D, the Israeli Embassy in Washington, D.C., organized a two-day conference in June 1986. The conference, hosted by the Israeli military attache, Maj. Gen. Uri Simchony, brought together Israeli and American speakers who addressed a selected group of U.S. businessmen interested in promoting R&D cooperation in electronics, electro-optics, metal work, lasers, computers and computer software. A month later, Israel revealed that it was seeking R&D funding from the U.S. similar to that granted to NATO countries. Part of the U.S. funding of Israeli R&D comes from the recycling of a portion Israel's loan payments. In addition, since 1977 the U.S.-Israeli Bina
tional Research and Development Foundation, commonly nicknamed Bird-E, has been a major conduit of financing for Israeli companies interested in developing and manufacturing products specified by U.S. business. Other funding has been traced directly to the U.S. military establishment. In an April 1986 interview, the President of the Technion, Israel's leading institute of technology, stated that "for years Technion research has been funded by the U.S. Air Force..."

A potentially large source of funding for Israeli R&D presented itself when, in March 1983. President Ronald Reagan formally announced plans for the Strategic Defense Initiative (SDI), commonly known as Star Wars. The U.S. invited 18 countries to participate in the $26 billion SDI research program, aimed at establishing a deterrent force to protect against enemy missile attacks. In May 1986, Israel became the first non-NATO and only the third country, in addition to Britain and West Germany, to agree to participate in the program. A Memorandum of Understanding (MOU) was then signed between the countries governing Israel's participation.

The MOU gave Israel the right to compete with other participating countries for SDI research contracts. Shortly after the signing of the MOU, Lt. Gen. James Abrahamson, director of SDI, announced that two research contracts had been signed with Israel and three were expected to be signed soon afterwards for a total of approximately $10 million. More importantly, no ceiling was set for the monetary value of the research contracts that Israel could compete for. By mid-1987, Israel was about to win the largest-ever defense contract from the U.S. The $100 million contract would involve the development of a new anti-tactical ballistic missile (ATBM). Israel Aircraft Industries (IAI) and a host of other smaller Israeli companies would be the main contractors for what is officially called the "Arrow" project. U.S. sources considered the contract a major breakthrough in U.S.- Israeli military cooperation, since the deal involved the latest defense technology of SDI.

Aside from keeping abreast of the technologies central to a tactical missile system (perceived by Israel as vital because of Syria's acquisition of highly accurate SS-21 missiles, which are capable of reaching Israeli targets), Israel believes that participation in the SDI research will greatly enhance its industrial future. Being at the forefront of the SDI technological revolution could have positive spinoff effects on new computer systems, energy sources, communication devices and many other consumer products.

**Joint Ventures and Subsidiary Relationships**

U.S. technology has been instrumental in the development of Israel's domestic arms industry. According to Aaron Klieman, author of Israel's *Global Reach: Arms Sales as Diplomacy:*

The Americans have made virtually all their most advanced weaponry and technology—meaning the best fighter aircraft, missiles, radar, armor, and artillery—available to Israel. Israel, in turn, has utilized this knowledge, adapting American equipment to increase its own technological sophistication, reflected tangibly in Israeli defense offerings.

The basis for the technology transfer is set out in the Master Defense Development Data Exchange Agreement, which was signed by the U.S. and Israel in December 1970. Under the terms of this and other aforementioned agreements, the U.S. has provided Israel with an unspecified but substantial number of complete technical data packages, at no charge or at nominal prices.

In March 1986, former U.S. Deputy Undersecretary of Defense for Planning and Resources, Dow Zakheim, announced that aside from reaching an agreement on joint exploration of remotely piloted vehicle initiatives, the U.S. and Israel "have 27 other exchange agreements that cover a host of technical matters." He cited developments of computer-directed "smart" munitions for ground combat as an example of cooperation. According to Douglas Frantz and James O'Shea of the Chicago Tribune, "America's relationship with Israel has fostered two sets of policy guidelines governing aid and access to military technology—one set for Israel and another for the rest of the world." The Reagan Administration, citing the strategic value of Israel, has granted Israel unprecedented flexibility in its use of U.S. aid funds and almost total...
access to American technology.

With little monitoring from federal agencies and active assistance from a number of U.S. officials, Israeli defense companies have had consistent, substantive access to some of the "most sophisticated American weapons technologies."26 By 1985, more than 150 U.S. companies, mostly involved in the defense industry, had opened plants in Israel or had entered into joint ventures with Israeli companies.27 Israel has offered these companies benefits and subsidies on foreign capital investments, as well as concessions on research and development costs, training, and rental of plants and premises.28

Among the most recent U.S. corporations investing heavily in Israel is Intel Corp., which provided $150 million toward a semi-conductor wafer fabrication plant, and National Semiconductor, which committed about $50 million for a plant near Jerusalem. Other large companies include Baxter Travenol Laboratories Inc., Gould Inc., Motorola Inc., and Control Data Corp.29

In late 1985, Parlex Corp., a leader in the interconnection and packaging of semi-conductor and other components for electronic equipment, reached an agreement with Rafael, the Armament Development Authority of the Israeli Ministry of Defense, to supply Rafael with the "design, development and manufacturing technology for flexible and flexible-rigid multilayer circuits."30 Rafael currently produces flexible and rigid printed circuits for its own use.31

After months of negotiations with the Israeli Ministry of Defense, the U.S. aircraft-engine manufacturer Pratt and Whitney agreed, in May 1984, to buy a 40 percent share in Beit Shemesh Engines Ltd., Israel's leading manufacturer and overhauler of engines and industrial gas turbines. This partnership: first, made it easier for Pratt and Whitney, which was slated to manufacture the engine of Israel's Lavi aircraft, to produce these engines in Israel; and, second, greatly benefited Beit Shemesh by upgrading its technology base and pumping funds in the company at a time when it was in serious financial trouble.

When, in 1986, Israel wanted to upgrade the engines of its F-16 fighters, the joint venture enabled Pratt and Whitney to provide the engine modification kits to Beit Shemesh Engines which, in turn, proceeded with the upgrading itself.40

The most important U.S.-Israel joint venture centered around the now defunct Israeli Lavi jet fighter project. According to IAI President Moshe Keret, "about half of the content of the airplane, including its engine and wings, will be American-made."41 Israel's Defense Minister Yitzhak Rabin has stated that Israel saw the Lavi as a "joint project between IAI and the aeronautical industry in the U.S." More than 120 U.S. companies have been involved, as subcontractors, in the development of the plane. Major systems, such as the engine and parts of the fuselage and wings, were made in the U.S.42

At the same time, Israel has actively purchased small U.S. firms involved in classified work for the military.43 For example, Elbit, an Israeli defense computer company, purchased, in October 1984, 70 percent of the stock of the Boston-based Inframetrics Inc., which designs and manufactures advanced infrared and night-vision systems for imaging radiometers. One main reason for the acquisition was to broaden Elbit's technological base in the field of advanced sensors, and the scanning system developed by Inframetrics had "a wide range of applications in both civilian and military spheres."44

In 1986, Rada Electronic Industries, Ltd., another Israeli company, acquired a controlling interest in Tasco Electronic Services of Fullerton, California, which develops and manufactures modules for military computers, automatic test equipment and emulators for advanced computers. Its main customers are Hewlett-Packard and McDonnell Douglas Helicopter.45

Rada is also one of the growing number of Israeli arms manufacturers that have been raising investment capital in the U.S.46 When Rada needed cash for production and development and to reduce the company's debt, it offered its stock for sale on Wall Street.47 Elta Electronics, an Israeli government-owned company that manufactures sophisticated systems for military applications, was floated on the Tel Aviv and New York stock exchanges in order to raise $13 million for research and development.48

To obtain concessions from U.S. companies, "particularly where technology is involved," Israel has actively tied its purchases of military equipment from these companies to their willingness to share their technology with Israel.49 In most cases, commercial agreements between a U.S. firm and Israel specify the rent-free use of the vendor's equipment for production in Israel, waiver of R&D costs, the delivery of simulation packages, and lists of parts and suppliers. For example, Israel purchased Litton's LW-33 weapons delivery system for the F-4E and RF-4E contingent upon a phased program of technology assistance and know-how to qualify IAI as a prime subcontractor with work equal to 25 percent of the total contract.

Similarly, in purchasing the Samson rocket-powered gliding decoy from Celesio Industries (since named Brunswick), Israel insisted on the transfer of the technology data and threatened to halt other contracts unless the U.S. State Department approved the manufacture of components in Israel.50 Although permission was originally refused, the U.S. subsequently lost interest in the decoy and Israel was allowed to take over the technology involved. It went on to produce the Samson drones whose performance in the Lebanon war was such that in February 1984, the U.S. purchased the weapon itself.51

Although few restrictions have been placed on Israel's ability to acquire U.S. technology, the special relationship between Israel and the U.S., during the last few years, has been shaken by scandals involving Israelis or their friends attempting to smuggle U.S. technology.

In 1985, the U.S. Government indicted Richard Smyth of Milco International for illegally exporting, be-
to obtain American technology illegally. On one occasion, an Israeli purchasing agent was arrested by police on the roof of the building housing the Bigger Byte Computer Co. and Reili Technology. The Israeli consulate subsequently announced that the Israeli agent, Ronen Tidhar, "did it on his own private time." Since members of Israel's military purchasing mission hold diplomatic passports, they could not be charged or summoned for questioning.

The transfer of technology to Israel remains a sensitive issue in the U.S. Government. On one hand, President Reagan and his top aides have continuously and publicly pledged U.S. support to preserve Israel's "qualitative edge over its potential adversaries." At the same time, the U.S. has denied Israel access to technology in a number of areas, "which grow as classes of technology spread its [sic] tentacles," according to a military analyst.

The few limitations imposed on the transfer of U.S. military technology to Israel may be attributed to a combination of factors. One limitation, the suspension of certain technologies, particularly those associated with the production of cluster bombs, was imposed following Israel's 1982 invasion of Lebanon. This suspension was never lifted. The second involves a general U.S. tightening of procedures because of the fear that information might reach Soviet hands. The third relates to the Jonathan Pollard affair, the U.S. Navy analyst who admitted to spying for Israel under the supervision of a special Israeli intelligence unit.

Despite these minor limitations on Israel's access to U.S. technology, Israel has benefited tremendously from the extensive access to U.S. technology. It has saved Israel both money necessary for research and development and the time involved to develop the technology. Furthermore, the joint ventures with U.S. companies has allowed Israel to tap into the expertise of American companies, to reduce the high cost per unit of weapons systems and, at the same time, to diminish the chances of a U.S. veto on the export of Israeli arms that contain U.S. components.

Liberal and Exceptional Uses of FMS Funds

The Israeli arms industry and military exports have greatly benefited from the U.S.'s consent to allow Israel liberal use of its Foreign Military Sales (FMS) funds. According to U.S. law, FMS loans and grants must be spent on the purchase of military equipment from U.S. manufacturers. Of all the exemptions granted by the Pentagon, the absolute majority were granted to Israel, thus allowing it to use U.S. military aid to buy its own products. Since 1982, the U.S. has permitted Israel to use $100 million annually of its FMS funds to purchase Israeli-made military equipment. As an inducement to convince the Israeli leadership to forego the development of the Lavi fighter jet, the U.S. promised to increase the $100 million that can be spent in Israel to $400 million.

Israel has also requested, with little success, that other countries be allowed to use FMS credits to purchase Israeli goods. The U.S. has allowed Israel to make trade offset arrangements for purchases using FMS credits. In November 1983, the Reagan Administration issued an executive order creating special offset rules for Israel. When buying U.S.-made equipment with U.S.-provided funds, Israel can insist that the supplier buy back a specified percentage of the contract value in Israeli goods or services (Israel generally asks for 25 percent on purchases of $1 million or more). According to Lt. Col. Don Brownlee, a spokesman for the military aid office at the Pentagon, Federal laws permit all countries to use offsets when purchasing military equipment with their own money.
exception and allowed the use of $181 million in FMS funds to develop a modified version of the Pratt and Whitney F-100 jet engine which powers the U.S. F-15 and F-16 aircraft.\textsuperscript{76}

The most ambitious use to date of U.S. FMS credits and grants was for the development of the Israeli Lavi fighter bomber, which was expected to enter full-scale production in the 1990's. In 1983, the U.S. Congress passed an amendment that allowed Israel to use $550 million of its FMS funds in fiscal 1984 for the development of the Lavi aircraft. Of these, $250 million were to be spent in Israel and the remaining $300 million in the U.S.

But controversy surrounding the project quickly arose. In testimony to the House Foreign Affairs Committee during the spring of 1984, Defense Secretary Caspar Weinberger argued that Israel should not develop a fighter that could be purchased at lesser cost from the U.S. Since the American administration had not invested "a cent" in the development of the Lavi's American counterpart—the F-20 manufactured by Northrop—Weinberger could see no reason why the U.S. should help fund an Israeli fighter that would compete with the F-20.\textsuperscript{77}

Other opponents focused on the possible elimination of jobs in the United States resulting from the loss of the F-15 and F-16 sales to Israel, as well as on the principle of paying for the research and development of competing defense products.\textsuperscript{78} But proponents of the project prevailed, and the House Foreign Affairs Committee earmarked, for fiscal year 1985, an additional $450 million of Israel's FMS grant for the development of the Lavi, with $250 million to be spent in Israel. For fiscal years 1986 and 1987, Congress earmarked $450 million annually for the Lavi; however, the portion to be used in Israel was increased to $300 million per year.\textsuperscript{79}

After spending approximately $1.5 billion, more than 90 percent of which was provided by the U.S., Israel's Cabinet decided on August 30, 1987, to halt the project.\textsuperscript{80} With pressure exerted by the U.S. Government, which at the same time promised to further liberalize Israel's use of U.S. FMS grants, the Israeli Government concluded, by a slim majority, that the Lavi project was uneconomical and would devour Israel's defense budget and a disproportionate share of U.S. military aid.

Cancellation of the Lavi project gave way to a new, unprecedented use of U.S. FMS funds. Secretary of State George Shultz informed the Israeli Finance Minister Moshe Nissim that the Reagan Administration would support earmarking $450 million of Israel's annual $1.8 billion U.S. military aid budget for the Lavi, to pay termination charges in contracts with U.S. and Israeli companies working on the plane.\textsuperscript{81}

**Co-production, Licensed Production and Subcontracting**

Co-production, licensed production and subcontracting agreements are particularly prized, not only to acquire technology but also for commercial reasons. In 1972, Israel signed a co-production agreement with the U.S. that allowed it to manufacture spare parts for aircraft imported from the U.S. Israel reportedly earned $100 million over a three-year period.\textsuperscript{82}

In addition to demanding co-production of certain components as a condition for purchasing weapons systems from U.S. firms, Israel has used political leverage to obtain authorization for such agreements from the U.S. Government. In a secret addendum to the 1975 Sinai Agreement, U.S. Secretary of State Henry Kissinger promised cooperation in future military co-production projects.\textsuperscript{83} Two years later, for concessions in the Geneva negotiations scheduled for 1978, Israel requested rights for the co-production of armored XM-1 tanks, torpedoes,
Maverick and Hellfire ground-to-ground missiles, and sophisticated radar and electronics equipment. Nevertheless, a number of Israeli requests for co-production agreements have been turned down. On rare occasions, the U.S. has also expressed concern about the use of U.S. funds and technology to create an export-oriented industry in competition with U.S. industry. In February 1976, former President Gerald Ford vetoed a request for co-production of 40 percent of the F-16 warplanes sold to Israel. Co-production concessions for the McDonnell Douglas F-15 were also refused. Notwithstanding, according to the U.S. Comptroller General’s 1983 report on U.S. assistance to Israel, “the U.S. has permitted Israel to co-produce U.S. defense equipment through licensed production ‘at a higher level of technology’ than it has any other FMS credit recipient.”

Over the past few years, Israeli defense industry sales to the U.S. armed forces included components produced under license for U.S.-made systems also purchased by Israel. These components encompass conformal fuel tanks for McDonnell Douglas F-15 fighters; some airframe and avionics components for McDonnell Douglas F-4, Grumman F-14 and General Dynamics F-16 aircraft; armor parts for General Dynamics M-60 tanks; small arms ammunition; AN/VRC-12 radios; and shoulder-launched multipurpose assault rocket weapons, produced under license by McDonnell Douglas for the U.S. Marine Corps.

One of the inducements offered to Israel in order to scrap the Lavi project was a U.S. Government commitment to allow Israel to choose from several options for possible production of the next generation of the U.S. F-16 aircraft, the Agile Falcon fighter.

Israel is becoming more involved as a subcontractor for American prime defense companies. For example, in 1985, McDonnell Douglas signed a $20 million contract with Israeli defense companies to produce parts for its Apache attack helicopter. General Dynamics subcontracted IAI to build, under license, 300 pairs of wings for its F-16 fighters. Israeli Military Industries (IMI) was subcontracted to produce 300-gallon tanks for the Grumman A-6 which were on order for the U.S. Navy. Engines for the F-15 and F-16 fighters use components made by the Israeli firm Iscar Blades, while IMI manufactures other parts for the F-16.

At times, Israeli companies were the only foreign companies awarded subcontracts for U.S. military products. In 1985, the U.S. Army awarded a $1.2 million to the Israeli company, Suspension and Parts Industries Ltd., for sprocket wheels for the M-1, America’s newest tank. The order was the first such contract awarded to a non-American company for the production of M-1 parts. In other instances, Israel has been the sole producer of some components of American weapons. Cyclone Aviation Products, Israel’s largest private manufacturer of airplane parts, is the sole producer of the access door for F-15 planes.

When McDonnell Douglas came up with the concept of adding conformal fuel tanks and equipment pods to the outside of the F-15 fighter (which increases the combat range by 550 miles), the U.S. Air Force did not have the research and development funds available. Wanting these additions on the F-15’s it had ordered, Israel offered the necessary funds provided under U.S. military assistance and paid McDonnell Douglas to develop the fuel tanks. The U.S. subsequently subcontracted an Israeli firm to produce these tanks in Israel. Thus, the U.S. Air Force ended up ordering these tanks for its own planes from Israel, as well as those slated for sale to Saudi Arabia.

All in all, Israel’s subcontract work for U.S. prime defense contractors amounted to $20.6 million and $22 million in 1984 and 1985 respectively. Given the size of some of the publicly-known subcontracts, these figures are undoubtedly low.

### Modifying and Selling U.S. Military Equipment

The U.S. has allowed Israel to buy the exclusive rights to produce U.S.-designed military equipment, introduce modifications, and sell it abroad. In 1987, for example, Israel bought the rights to an American jet subsequently called the Westwind executive jet. The Israeli version, however, is powered with a different engine, albeit one of U.S. production. The Westwind has been marketed both as an executive jet and as a military reconnaissance plane. By September 1984, 300 of these jets had been sold. Three years before, IAI had begun working on an advanced generation of the jet, the Westwind Astra. The Astra, with a speed of Mach 0.8 and a range of 3,000 nautical miles, has been marketed since late 1984.

In July 1987, IAI’s project, which would upgrade the McDonnell Douglas F-4 Phantom aircraft by replacing the General Electric J-79 engines with the Pratt and Whitney 1120 engine, passed a milestone when a modified F-4 flew at IAI’s installation at Ben Gurion airport. Other modifications include a more accurate navigation and weapons delivery system, new wiring and systems designed to reduce the pilot’s work load. New radar was also installed and changes made in the plane’s frame to strengthen weak spots and the wings. These modifications were intended to propel the F-4 Phantom jets past the year 2000.

Israel undertook this work in order to attract business in countries that use the Phantoms in their air forces. The new combat capability of the modified F-4’s is expected to be very attractive to air forces already possessing the old F-4’s but, because of severe budget problems, unable to buy new aircraft. According to IAI sources, modifications on existing weapons systems promise to become an IAI major income earner within the foreseeable future.
Service and Maintenance Contracts for U.S. Forces

In October 1985, the U.S. Navy signed a Master Repair Agreement (MRA) with Israel Shipyards, enabling the U.S. Sixth Fleet to use Haifa for intermediate maintenance work. A month later, the biggest armada of the U.S. Sixth Fleet ever to visit Israel docked in Haifa harbor for supplies, servicing and shore leave. Over the years, IAI has also won several overhaul and maintenance service contracts for U.S. Air Force F-15 and F-16 fighter jets stationed in Europe. The Israelis, continually voicing their concern that these service agreements were insufficient, were prepared to do much more. The Israelis have also complained regarding their limited ability to compete with NATO countries in bids for maintaining U.S. military equipment.

In March 1987, Ze'ev Almog, general manager of Israel Shipyards, met the commander of the U.S. Sixth Fleet in Europe who promised to give the yard a larger share of the fleet's annual $16 billion in shipyard, repair contract work. The U.S. would later refrain from allowing the Sixth Fleet to visit Haifa for service and repairs, following the sentencing of the Israeli spy Jonathan Pollard. Service and maintenance contracts in the future will likely improve considerably. The Pentagon may allow Israel to bid on an added $100 million for operations and maintenance contracts for U.S. military equipment.

Purchasing and Leasing Israeli Military Equipment

The establishment and expansion of the Israeli arms industry was intended to satisfy domestic needs and to reduce reliance on foreign suppliers. Less than a decade after Israel's decision to develop a full-scale arms industry, the industry outgrew its domestic base, which was too limited to provide the economies of scale necessary for the viable and economical production of major weapons systems. In the early years, the IDF was virtually the sole client, but by the late 1970's and early 1980's, more than 60 percent of Israel's arms production was sold abroad.

During the last decade, Latin America, undisputedly Israel's largest market for arms, accounted for approximately 50 to 60 percent of its total military exports. Although Israel has, over the past few years, expanded its arms sales to Asia and Africa, the overall share of its arms exports to Third World countries, particularly those in Latin America, has been decreasing. The faltering economic situation in many developing countries has proven to be the major obstacle.

Pressure to export arms in order to maintain and expand its arms industry, Israel looked to arms markets. Increasingly, the United States has emerged as the most promising and reliable market. Under the 1979 U.S.-Israel Memorandum of Agreement, renewed and expanded in 1984, Israel could bid for U.S. military contracts along the lines of other NATO allies. The U.S. also committed itself, under the terms of the Memorandum of Understanding on Strategic Cooperation, signed on November 30, 1981, to purchase Israeli military equipment worth up to $200 million a year.

Within a short period of time, Israel succeeded in penetrating the U.S. defense market. "Aviation Week & Space Technology" reported that Israel's defense product sales to the U.S. doubled from 1984 and 1985. Following a trip to Washington, in January 1985, by Israel's Minister of Defense, Yitzhak Rabin, Israeli officials were delighted to learn that the Pentagon was planning to allow a sizeable increase in Israeli military sales to the U.S. armed forces. Among the additional equipment that the Pentagon was planning to purchase were piloted reconnaissance aircraft, mortars, other types of ammunitions and all sorts of other hardware. "We're talking about several hundred million dollars in Israeli exports to the Pentagon," a well-placed American source said.

The Jerusalem Post reported that in 1986 Israel sold more than $400 million worth of military goods and services to the U.S., while the New York Times indicated that during the same year, Israeli exports in arms and services to the U.S. were roughly $500 million worth.

In the spring of 1986, Israel's Prime Minister Shimon Peres requested the U.S. to increase its military purchases in Israel for U.S. Army units stationed in Western Europe from $100 million to $500 million. Within a month, Peres received a favorable reply from the U.S. Department of Defense. Two other important developments could significantly increase Israeli arms sales to the U.S. The Free Trade Agreement (FTA), signed by Israel and the U.S. in March 1985, calls for the gradual elimination of customs duties on all trade between the two countries. The first of its kind between the U.S. and another country, the FTA is expected to increase Israeli exports to the U.S. And in relation to the cancellation of the Lavi project in August 1987, a reported compensation for Israel would be "a variety of attractive classified contracts pending between the U.S. and Israel" that could potentially dwarf all current levels of U.S.-Israeli military cooperation.

Already an increasing number of Israeli arms manufacturers are counting heavily on the U.S. market. Zeev Bonen, general manager of Rafael, Israel's Armaments Development Authority, stated in July 1986, that the "company's future market possibilities are mainly in the U.S." Israel's Tadiran, which in 1984 sold approximately $60 million in communications equipment to the U.S. defense market, was anticipating doubling that figure in 1985. Israel's largest trading organization,
Koor Industries, Ltd., recently opened a Washington office to market the military products, including electronics and ground equipment, that are produced by some of its 300 affiliate companies.121

On a number of occasions, the U.S. has opted to lease rather than buy Israeli military equipment. For example, the U.S. leased from Israel three mine plows and six 105 mm guns for evaluation and possible future purchase.122 The most widely known case of U.S. leasing of Israeli military equipment involves the Kfir fighter jets. In 1985, the Israeli Air Force agreed to lease 12 Kfirs to the U.S. Navy which were later based at the U.S. Naval Station in Oceana, Virginia. In return for the "free of charge" lease, IAI was given the exclusive right to service the Kfirs in the U.S. at a cost of $68.5 million for a three-year period.123 In reality, this lease was part of a barter exchange with the U.S. Navy which lent Israel 12 Ch-53A Sea Stallion Helicopters.124

The Kfirs are used by U.S. Navy pilots to simulate Soviet-made MiG-21 and MiG-23 fighters in training exercises.125 The program at Oceana was instrumental in convincing the Navy to lease another 13 Kfirs assigned to an airbase in Yuma, Arizona. Again, IAI won a 38-month, $96.5 million contract from the U.S. Navy to service the planes.126

Israel benefited in a number of ways from this leasing arrangement. With a surplus of Kfirs, because of a limited ability to sell the plane worldwide, Israel stands to gain by winning the exclusive service contracts. Second, the leasing was viewed as promoting closer military ties with the U.S.127 Third, the introduction of Kfir into the U.S. Navy, according to Marvin Kiernow, director of IAI's Washington office, "will give not only IAI but all other Israeli companies a chance to demonstrate that Israel can maintain a complicated, total weapons system in the U.S. inventory."128 Finally, the lease was viewed as enhancing Israel's arms industry reputation around the world. The fact that the U.S. Navy leased the Kfirs, it was argued, shows that "IAI is a leader in the aerospace industry and deserves the respect of a lot of people."129

IAI wasted little time in capitalizing on the arrangement. It published a full-page advertisement (which appears below).130

In conclusion, Israel's ability to establish an arms industry of impressive dimensions that produces a diversity of technologically sophisticated weapons is beyond dispute. The stunning growth of its exports over the past 15 years—from $100 million in 1970 to between $1 to $2 billion in the 1980's—is a reflection not merely of the growth of the industry and the high performance of its products, but also of Israel's ability to seize opportunities offered by the vagaries of international politics. All this would have been impossible without:

the funds for research and development and the complete technical data packages that were provided by the U.S.;

the joint ventures and the subsidiary relationships established with leading U.S. arms manufacturers;

the liberal and exceptional uses of U.S. FMS funds that allowed Israel, among many other things, to buy its indigenously-produced arms with U.S. funds and use offsets on contracts financed by U.S. financial military assistance;

the permission granted to Israel to co-produce and produce under license U.S. military products and to take on subcontracts for U.S. arms manufacturers;

allowing Israel to modify, sell, service and maintain U.S. military equipment;

and, finally, leasing and purchasing from Israel hundreds of millions of dollars annually in Israeli arms products.

As to the future, there is little doubt that the progress and expansion of Israel's arms industry will continue to be heavily dependent on the U.S. involvement. Very few indicators refute the assessment that the U.S. will persist in providing Israel with the needed finances, advance technology and access to the lucrative U.S. arms market. Such support cannot but guarantee a booming Israel's arms industry and the molding of a more militaristic Israel, compliments of the United States.
33. Between 1975 and 1977, 100 such technical data packages were made available to Israel. *Armed Forces Journal*, December 1977, p. 14.
36. Ibid.
41. Ibid.
55. *Jerusalem Post*, May 24, 1985, p. 15.
59. Rempel and Shaw, p. 18.
60. Frantz and O'Shea, p. 1-1.
63. Time, August 18, 1986, p. 34.
65. Ibid.
70. O'Shea and Frantz, p. 1-1.
73. Ibid.
75. *U.S. Assistance to the State of Israel*, p. 45.
77. Babcock, p. 52.
84. Ibid., p. 21.
85. Babcock, p. 46.
88. U.S. Assistance to the State of Israel, p. 44.
96. Babbah, p. 47.
98. Aviation Week & Space Technology, May 12, 1986, p. 27.
103. Aviation Week & Space Technology, December 2, 1985, p. 84; and Defense & Foreign Affairs, September 1986, p. 2.
110. Babbah, p. 52.
111. Ibid, p. 61.
120. Aviation Week & Space Technology, June 17, 1985, p. 141.

Notice

A videocassette presentation of Palestinian bridal and ceremonial costumes of the late 19th and early 20th centuries may be ordered from F. & H. Munayer, P.O. Box 1018, W. Caldwell, NJ 07006. This unique presentation, accompanied by Arabic music, includes more than 30 complete costumes from all parts of Palestine, with close-ups of the various stitches, patterns and accessories. Length: 75 minutes; cost: $65.00, including postage and handling.

Book Views

Education for Peace: Testimonies from World Religions
Edited by Haim Gordon and Leonard Grob

Reviewed by L. Humphrey Walz

Two disciples of Martin Buber developed this remarkable 16-essay anthology in the belief that “the world’s religions contain at their core the resources that are most viable for peacemaking and peace education.” To make these more widely accessible, they commissioned adherents of Buddhism, Christianity, Hinduism, Islam and Judaism to present their faiths’ peace-related emphases in a context of involvement with “the demanding world of interpersonal and international relations.” Thus the second Buddhist essay on attaining “peace among those who struggle” opens with: “The atomic bomb dropped on Hiroshima... robbed me of the sight of my right eye... (and) led me to devote my life to... the abolition of nuclear weapons and (to) the aid of atomic bomb victims.” And the second Hindu essay shows why and how Vedic satyagraha, as uncompromisingly practiced by Mahatma Gandhi, “convinced many that unqualified non-violence is a practicable and powerful means toward establishing a just social and political order and... peace.”

Judaism, Christianity and Islam are dealt with as “the three Abrahamic faiths (that) are called, as children of Abraham, to be a blessing for the world (Gen. 12:2).” They share equally, though with variations, “the vision of universal harmony and justice under one God” who strengthens us to answer His call. Related essays from the different traditions make this...
Books To Order

□ Haim Gordon and Leonard Grob, eds., Education for Peace: Testimonies from World Religions, New York: Orbis Books, 1987, 240 pp., $14.95. Sixteen essays addressed to students and professors in peace studies and comparative religion. Concluding essay focuses on experiment that transformed 300 mutually suspicious pupils from Israeli-Jewish and two Palestinian (presumably Muslim/Christian) into mutually supportive friends. When the experiment became “too successful,” bureaucracy put an end to it, but its seeds are there to be planted wherever appropriate soil and climate await them.

L. Humphrey Wals is an Associate Executive of the Northeast Presbyterian Synod and member of AMEI’s Board of Directors.

□ Lila Abu-Lughod, Veiled Sentiments: Honor and Poetry in a Bedouin Society, Berkeley, CA: University of California Press, 1986, 317 pp., $35.00. Breaking through the West’s condescending stereotypes of Arab women, this exceptionally well written anthropological field study of Bedouin tribes uses their private intimate poetry as the key to uncover the relationship between their personal desires and public modesty. Our price, $18.95.

□ Uri Avnery, My Friend, The Enemy, Westport, CT: Lawrence Hill and Company, 1986, 340 pp., $12.95. A long-time Israeli peace activist gives an intimate record of the numerous secret meetings which a small group of “Peace Now” Israeli leaders have had with PLO leaders. Our price, $7.95.

□ Benjamin Beit-Hallahmi, The Israeli Connection: Who Israel Arms and Why, New York: Pantheon Books, 1987, 263 pp., $18.95. This carefully researched book exposes Israel as arms dealer and military trainer of the world’s most brutal and reactionary regimes. The author, an Israeli scholar, argues that Israel’s war against third world independence movements reflects not only a need for exports markets and a desire to serve as a U.S. proxy but also reflects its own history as a Western imposition upon the hostile third world. Our price, $11.25.

□ Elias Chacour, Blood Brothers, Grand Rapids, MI: Chosen Books, 1984, 224 pp., $6.95. A Palestinian priest known for his social work in the Galilee tells the story of his search for reconciliation between
Palestinians and Jewish Israelis. Our price, $4.95.


- Paul Cossali and Clive Robson, Stateless in Gaza, London: Zed Books, 1986, 159 pp., $12.50. These cogent interviews with a diversity of Palestinians living in the Gaza Strip give the reader a sympathetic understanding of the vitality and endurance with which they face exile in their own land under a harsh Israeli occupation. Our price, $8.75.

- Elizabeth W. Fernea and Basima Q. Bezingan, ed., Middle Eastern Muslim Women Speak, Third Edition, Austin, TX: University of Texas Press, 1984, 452 pp., $12.50. This classic collection of autobiographical and biographical sketches, spanning 3 centuries, offers the reader a superb introduction to the diversity of experience of Muslim women and the commonality of many of their concerns. Our price, $7.75.

- Paul Findley, They Dare To Speak Out: People and Institutions Confront Israel's Lobby, Westport, CT: Lawrence Hill and Company, 1985, 362 pp., $8.95. The former eleven-term Congressman from Illinois discusses how Americans are victimized for opposing the Israeli lobby. Our price, $5.95.


- W. Thomas Mallison and Sally V. Mallison, The Palestine Problem in International Law and World Order, Harlow, Eng: Longman Ltd., 1986, 564 pp., $45.95. This monumental study of international law analyzes Zionist political/legal objectives, the partition of Palestine, the legal status of Jerusalem, Israeli settlements and Palestinian rights. Our price, $29.50.


- Afia Riahat, Distant View of a Minaret and Other Stories, London: Heinemann Education Books, 1985, 238 pp., $7.50. More convincingly than any other Arab woman writer, Riahat lifts the veil on what it means to be a woman living within traditional Muslim society. These 15 short stories deal with such universal themes as sex and death within a context that vividly affirms the religious values of Islam. Our price, $5.50.


- Edward Tivnan, The Lobby: Jewish Political Power and American Foreign Policy, New York: Simon and Schuster, 1987, 304 pp., $19.95. A former reporter for Time magazine, Tivnan has thoroughly researched the history of the Zionists lobby in preparing this lively and cogent attack on AIPAC, the American Israel Public Affairs Committee. He argues that by dominating U.S. Jewish opinion, as well as general American debate on the Middle East issues, AIPAC has damaged prospects for an Arab-Israeli peace. Our price, $12.95.

- Milton Viorst, Sands of Sorrow: Israel's Journey from Independence, New York: Harper & Row, 1987, 328 pp., $18.95. Viorst, a liberal supporter of Israel, describes in sorrow how Israel turned its back on peace, preferring to dominate its neighbors and become a spearhead of U.S. policies which treat the Middle East as little more than a battlefield in the cold war. Our price, $11.75.
A $20.00 voluntary annual subscription is requested to cover cost of postage and handling for The Link and A.M.E.U.'s Public Affairs Series.