US Military Contractors in Israel

Sheila Ryan

Over the past two decades, a combination of factors has significantly reoriented the Israeli economy toward military production—weapons for Israel's military and for export to juntas, minority regimes and dictators around the world.

Israeli officials justify this development of military industries and arms export markets on the need for independence from foreign suppliers and the consequent need to lower the per-unit cost to the Israeli military. Israel now appears to be the largest producer of armaments in the Third World.[1]

The independence which Israel has achieved, however, is a highly restricted one. True, such development may render Israel somewhat less vulnerable to short-term US political pressure to halt an invasion or to implement a cease-fire. But in a more comprehensive sense this expansion has made Israel more dependent upon the United States than ever before to underwrite its major industrial institutions, with all the political ramifications that entails.

The Official Level

Massive US aid to Israel has made the development of the military industries possible. Israel allocates 25 to 30 percent of its GNP to the military.[2] It can afford this and still maintain its relatively high standard of living only because of the level of US security assistance.

Links between the US private sector and Israeli military production are largely based upon a series of government-to-government agreements. The first of these, dated December 1970, is the Master Defense Development Data Exchange Agreement. This allows the exchange of information significant in weapons development, including armored vehicles, air-to-air and air-to-surface weapons, electronic warfare and surveillance systems and other military equipment. By mid-1982, 19 separate annexes to this agreement had been negotiated and concluded for particular projects.[3]

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This agreement has fostered various forms of technology transfer, including licensed production, which have supported the development of a strong high-tech sector in Israel. (See Table I.) Between 1975 and 1977, 100 technical data packages covered by this agreement were furnished to Israel by the United States either at no cost or at a nominal charge.[4] In a secret appendix to the 1975 Sinai Agreement, the United States promised Israel military co-production agreements in the future. Israel used the leverage of the coming Geneva negotiations in 1978 to press for a range of co-production agreements.[5]

In the late 1970s, the US altered its procurement policies in an effort to rationalize NATO procurement by standardizing weapons. Since before World War II, the "Buy American" Act had required the Pentagon to multiply foreign contractors' bids by 50 percent, thus drastically minimizing purchases from abroad. The Culver-Nunn Amendment of 1975 authorized the waiver of this discriminatory factor when it would impede efforts to standardize armaments.[6] The 1979 Memorandum of Agreement between the United States and Israel, negotiated in conjunction with the US-Israel-Egypt peace treaty, extended possible Israeli bids on US military contracts to 560 items, lifting "Buy American" restrictions on a range of products from bombs, grenades and fuses to aircraft and parts for tanks.[7] An additional Memorandum of Agreement signed in 1984 specified that once an Israeli firm is determined to be the low bidder on a DoD project, the US cannot decide to limit bidding to American companies.[8]

The US-Israel Free Trade Agreement, signed in April 1985, eliminates all tariffs between the two countries over a 10 year period.[9] It will further encourage the export of military equipment by Israeli companies to the United States and their participation in joint marketing ventures to the Department of Defense.[10]

In addition, the US permits Israel to coproduce major weapons systems under the Foreign Military Sales program. The three chief procurement projects of this sort—the Merkava tank; the Lavi jet and a shipbuilding program for the Israeli Navy—have nurtured ties between Israeli and US military contractors.

In 1975, Israel persuaded the United States to permit $107 million in FMS credits to be spent on development of the first main battle tank to be made in Israel, the Merkava. Of that amount, $59 million was earmarked for expenditure in Israel. The Teledyne-Continental engine and the Allison transmission were made in the United States; 200 Israeli companies produced most

A Lavi jet fighter-bomber. **Israel Aircraft Industries**

of the parts for the tank.[11] The Merkava project was an enormous boon to the Israeli arms industry. "Without exception," two Israeli military officers observed,

> the Merkava project presented challenges and resulted in upgraded technology and enlarged production capacity capable of conforming to the very tight tolerances of military specifications. For most of the companies concerned, the Merkava project would open the door to new export markets.[12]

The Lavi jet project allots a far larger share of production to US corporations. Israeli authorities want 300 Lavis produced by mid-1990, at a total cost of $9 billion. Former defense minister Moshe Arens characterized the Lavi as a "fresh dimension in Israel-US relations because it is the first time the US has participated in the development of such technology outside its own borders."[13] US military officials insist that the project will be uneconomical for Israel, but $1.2 billion in FMS credits have already been spent to develop the jet. A US government team mandated to explore alternatives to the Lavi agreed that any option must "provide a substantial role for Israeli companies."[14]

In contrast to the Lavi, US-Israeli co-production of new ships for the Israeli navy appears to be moving along rather smoothly. US and Israeli companies, with some West German participation, will produce four missile corvettes and three diesel submarines at a cost of approximately $1.35 billion.[15]

Israel and the United States have signed a memorandum of understanding on cooperation in research on the SDI "Star Wars" project, similar to agreements with Britain and West Germany. Among the Israeli companies involved are Israel Aircraft industries, El-Op, Tadiran, Soreq (the Israeli nuclear research center), Israel Military Industries, and academic centers at the Negev Institute, Hebrew University and Technion. US Deputy Assistant Secretary of Defense Frank J. Gaffney, Jr. expects that "a consistent theme throughout the Israelis' efforts in connection with SDI will be trying to assess how the technologies they're working on will be relevant to their immediate security needs." Israel's immediate interests will be served in "space-based sensors, kinetic-kill vehicles, defense against tactical ballistic missiles and system architecture for regional defense against surface to surface missiles."[16]

Typically Israeli designers employ US DOD military specifications, or MILSPECS, in developing new projects.[17] Use of this design standard substantially simplifies co-production and use of components manufactured in the other country. In 1978, Tadiran was buying virtually all of its semiconductors and components from the US "simply because it is the only source for Mil-standard parts."[18]

A striking compatibility of corporate culture and technology exists between US and Israeli military producers. The careers of Al Schwimmer and Moshe Arens illustrate this compatibility. Born in Connecticut, Schwimmer volunteered to serve in Israel's nascent air force in 1948. He apparently specialized in illegal and quasi-legal procurement in defiance of the arms embargo imposed by the US and several other states. After the 1948-49 war, Schwimmer returned to the US to find himself under indictment for violation of the US Neutrality Act, and his TWA job no longer available. Shimon Peres was then the Israeli defense ministry's representative in the United States, responsible for smuggling aircraft to Israel. He worked closely with Schwimmer, who with

eight other former Israeli air force volunteers operated a small aircraft repair shop in a corner of Lockheed's airfield in Burbank, California. Peres arranged for Prime Minister David Ben Gurion to invite Schwimmer to come to Israel. "A week later," wrote Peres, "we started on plans for the establishment of Israel's aircraft industry."[19]

Until his retirement from IAI in 1978, Schwimmer presided over the creation of a sophisticated military aircraft production capacity. His influence was significant in providing a special place for Americans in Israeli aircraft production. Many Israeli engineers have been trained in the United States; between 1967 and 1972, 3,000 American technicians and scientists emigrated to Israel.[20] Schwimmer reportedly is still unable to speak fluent Hebrew. Since his retirement, Schwimmer has used his experience with military firms in Israel and the US to become involved in international arms deals, including the shipment of US arms to Iran.

Moshe Arens was born in Lithuania in 1925 to a family of wealthy industrialists who later immigrated to the US. Arens studied at MIT until drafted into the US army near the end of World War II. A leader of the Revisionist Zionist youth group, Betar, Arens lived in Israel briefly after the 1948-49 war, but returned to resume his studies in aeronautical engineering at California's Pasadena Institute. He then worked as an engineer for Curtiss-Wright. Six years later Arens returned to Israel.

In the early 1960s, he brought together the former commander of the Israeli air force, General Dan Tulkovsky, and a young electronics lecturer, Uziya Galil, who started one of Israel's largest arms corporations. Tulkovsky and Galil recruited David and Laurence Rockefeller as partners and founded Elron. As head of the engineering unit of IAI, Arens guided the development of the Arava and other, more sophisticated, aircraft. He also worked for Tami and Hydronautics. When he left IAI in the early 1970s, he founded his own arms firm, Cybernetics. Arens, whose Hebrew still has an American accent, has maintained strong business links with US arms corporations. In 1983, in the aftermath of the Sabra-Shatila massacre, the US refused to provide Israel with critical information for the Lavi aircraft project until Sharon stepped down. When Arens was appointed to replace Sharon, the information came through.[21]

US Corporate Ownership

Military contractors in the US have played an important role in developing entrepreneurial military production in Israel. A number of major US military contractors own all or part of Israeli military corporations, with a particular emphasis on electronics. Two important instances involve Control Data and GTE.

In 1966, Elron and the Israeli defense ministry set up Elbit as a joint venture. In 1970, Control Data Inc., the US technology conglomerate, purchased the defense ministry shares. Robert C. Chinn, senior vice-president of Control Data, served as chairman of the board of Elbit from 1974 to 1980. This corporate interrelationship facilitates transfer of technology.

Elbit has been on the cutting edge of Israeli military technological development. The fire control system it developed for the Merkava tank attracted attention for its role in the success of the Israeli armored corps against Syrian forces in Lebanon in 1982.[22] US corporate connections—technical, financial and marketing—operating in the Israeli political environment have given Elbit a special cachet. Elbit's vice-president for marketing, Aharon Amit, acknowledges that "in some cases Elbit systems may actually cost more than their Western equivalents, but their proven success in battle nevertheless makes them attractive."[23] Elbit also manufactures avionics, including a weapons delivery and navigation system for the Kfir jet fighter, and has been heavily involved in design of avionic systems for the Lavi.[24]

GTE's relationship to the Israeli electronics manufacturer Tadiran illustrates the political functions of such connections. From 1977 to 1984, GTE's sales to the Guatemalan government were restricted by a US embargo on military sales to Guatemala because of that government's slaughter of the indigenous Indian population.[25] Tadiran, 45 percent of whose stock was then owned by GTE, undertook two significant projects prohibited to GTE by the US embargo.

Table I: US Support for Israel's Military Industries

	Data Exchange Agreement	Technical Data Package	Commercial Production	Commercial Procurement	Cooperative R & D	FMS Credits
Aircraft fuel tanks		X	X	X	X	X
Ammunition		X	X	X		X
Armored systems/components	X	X	X	X	X	X
Communications equipment	X	X	X	X		X
Electronic warfare/radar	X		X	X		X
Hydrofoil missile boats			X	X	X	X
Industrial equipment				X		X
Inertial systems				X	X	X
Intelligence/electronic warfare			X	X	X	X
Jet engines/components		X	X	X		X
Military engineering		X	X	X	X	X
Military medicine				X	X	X
Military spares and parts		X	X	X		X
Precision munitions/fuses	X	X	X	X		X
Raw materials/specialty metals				X		X
Weapon delivery systems	X		X	X	X	X

Source: General Accounting Office, **US Assistance to the State of Israel** (Uncensored draft of June 24, 1983 report).

Steady Customers

"Slowly and with patience Israeli manufacturers try to penetrate this exclusive market, either directly to the military end-user in the USA or by subcontracting to US manufacturers.

"The reasons for this tendency are that US customers are steadier in terms of long range cooperation and also more solvent than some Third World customers where Israelis [sic] markets were up to now. As for European customers, their payments are too dependent on seasonal changes in their currencies in relation to the US dollar."

Military Technology, May 1985.

The first was to provide a sophisticated computer system especially designed for counterinsurgency. Installed behind the National Palace, which deployed that country's death squads, the system allowed Guatemala to compile extensive dossiers on suspected dissidents and data on its residents generally.[26]

In 1982, Tadiran established a weapons factory in Coban, Alta Verapaz, a northern province. The factory produces munitions and spare parts, both of which the Guatemalan military needs because of the arms embargo. The Guatemalan military claim that the facility can armor-plate vehicles and manufacture grenade launchers. The factory is the first of its kind in Central America.[27]

Tadiran—along with other major Israeli military producers, Elbit and IAI—has reportedly provided South Africa with military electronics and communications production capability.[28]

Over 150 US companies now do business in Israel.[29] An increasing number are setting up operations there, in part to take advantage of lower wages of Israeli engineers and technicians, in part perhaps encouraged by the official cooperation between the two countries. Texas Maritime Logistics, for example, has expressed interest in buying 51 percent of Israel Shipyards. The US Navy has signed a Master Repair Agreement with Israel Shipyards to use its Haifa facility for intermediate maintenance. The shipyards would also handle part of the co-production of new naval vessels for Israel.[30] National Semiconductor is investing $50 million in a plant near Jerusalem; Intel opened a $150 million semiconductor wafer fabrication plant.[31]

Raising Capital

Israeli military industries now publicly offer stock in the US, both through stock exchange listings and over the counter.* US residents wishing to invest in Israeli military industries can now simply call their brokers and purchase these stocks as conveniently as any others. Of the stocks monitored by a newsletter specializing in Israeli investments, nearly a third were companies with significant military production.[32]

Suspension and Parts Industries (SPI) is an interesting example of the companies being publicly traded in the United States. SPI manufactures a range of suspension parts for tanks and armored personnel carriers: "all the parts that go from the hull of a tank down to the ground," according to an SPI salesman. SPI's parent company is Urdan Industries, a steel works in Israel which performs major work on tanks for the IDF. The *Israel Investment Letter*, pitching the new SPI stock offering to its subscribers, described "the exciting factor":

> [W]hile SPI is a chief supplier of suspension parts to the Israel Defense Forces, most of its customers are outside Israel and have strong currency and very deep pockets, namely the US government and private US manufacturers of military vehicles.[33]

US capital and markets provide these Israeli companies with access to funds which could be difficult to procure domestically at a time of serious economic strain. Rada Electronic Industries, which began to offer its stock publicly in this country in 1985, is developing a data control computer for the Lavi, and a portable computer (Rover) for army units in the field. Rada has also devised other forms of access to US capital: the production of the Rover is being financed through a US limited partnership which will receive royalties on sales.[34]

BMY, a Pennsylvania company which manufactures armored vehicles, has cooperated in joint ventures with IMI on a number of weapons projects, including a Heavy Assault Bridge produced under contract to the US Army for use with the M1 tank, and the Counterobstacle Vehicle, also for the US Army, equipped with a bulldozer-type plow and two telescopic power shovels designed to clear minefields.[35] An enthusiast of US-Israeli procurement cooperation noted the benefits for BMY:

> A US company that in the past had no research and development capacity has acquired considerable expertise in areas that will make it more competitive and protect employment. BMY will be able to exploit Israel's considerable expertise in mechanized warfare to produce better products, and the US Army will acquire from BMY better weapons. Israel Military Industries, for its part, will earn fees offsetting part of its own research and development costs, and can anticipate that it will be awarded subcontracts.[36]

El-Op, 50 percent owned by Tadiran, is concentrating its sales drive on the Pentagon, and established a joint venture with Varo, Inc. of Garland Texas called Varo Electro-Optics, Inc.[37]

General (Res.) Yeshayahu Gavish, director-general of Koor, emphasized the role of the Free Trade Area agreement setting the basis for new joint US-Israeli joint ventures in the high-tech area. Under these arrangements, he expected that

> The Israeli company will produce semi-finished goods which will be finished and marketed by American companies, in the United States, or even abroad.
>
> One must never forget that Israel is a huge purchaser of American military items—literally billions every year. And when we place our orders in the United States, we at Koor (which is highly active in defense and related fields) will, of course, prefer those American companies which subcontract part of the work to Israeli companies.[38]

One example is the corporate arrangement to produce and sell the Pioneer I drone. The air war over Lebanon in 1982 brought Israeli drones to the admiring attention of the US military. Rather than compete with their respective Scout and Mastiff models, IAI and Tadiran formed a new Israeli company, Mazlat Ltd. Its president is Reserve General Svi Schiller, "who controlled drone technology and operations in a number of military operations." Mazlat formed a joint venture with AAI Corp. of Baltimore, which had also been working on drones.[39] AAI Inc. will sell $25.8 million worth of the drones to the Navy, a figure which could rise to $100 million if the Navy exercises its option to buy six additional systems.[40]

*These include ECI Telecom, Elbit Computers, Elron Electronics, Etz Lavud, Haganah Ltd., Rada Electronics, and Suspension and Parts Industries (SPI).

Table II: US Corporate Ownership of Some Israeli Military Industries

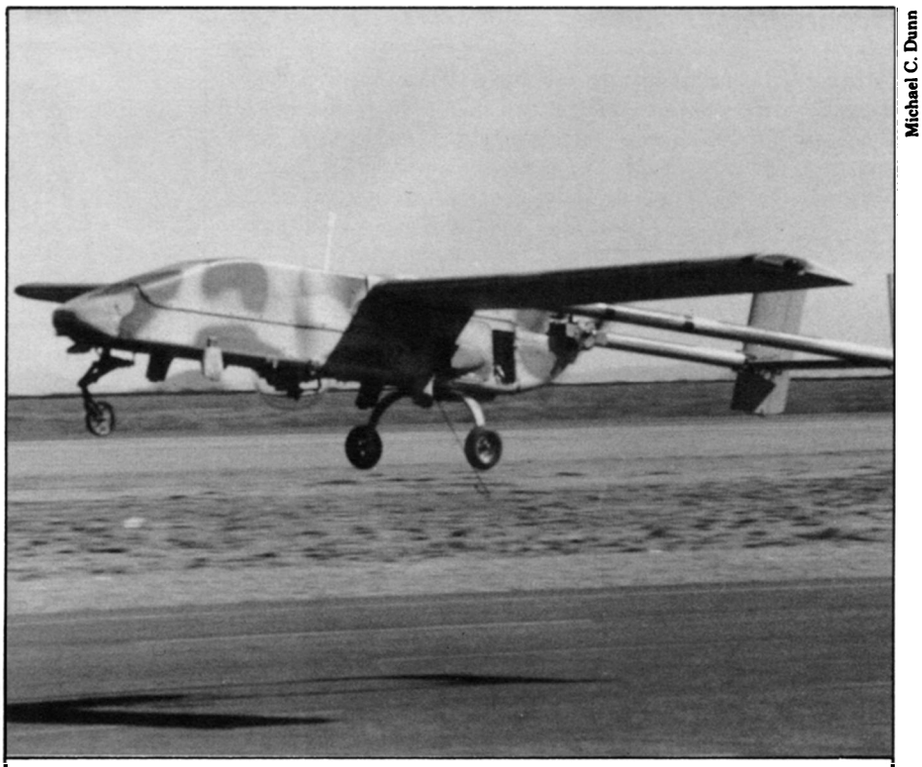
US Corporation: **AEL Industries, Inc.**
Israeli Corporation: **Elisra Electronic Systems, Ltd.** (formerly AEL Israel, Ltd.)
Financial Relationship: AEL owns 58 percent of Elisra.
Military Products: Electronic warfare systems; telephone switching equipment. In 1984 approximately 50 percent of sales were for export. Awarded Israel Defense Prize in 1983 for collaboration with the Israeli Navy on computerized battle systems.[1]

US Corporation: **Astronautics Corporation of America**
Israeli Corporation: **Astronautics CA Ltd.**
Financial Relationship: Subsidiary.
Military Products: Advanced electronic displays and symbol generators for military aircraft; fire control systems for tanks.[2]

US Corporation: **Control Data Inc.**
Israeli Corporation: **Elbit Computers, Ltd.**
Financial Relationship: Elron, the Israeli parent of Elbit, established in 1962 with a joint investment from Rockefeller Venture Capital and Israel Discount Bank. In 1966, Elron cofounded Elbit Computers with the Israeli Ministry of Defense. Control Data purchased the shares of the Ministry of Defense in 1970. Control Data exchanged its shares of Elbit for nine percent of Elron in 1981. Elbit USA, which seeks joint ventures and markets for Elbit in the United States, and the French and German affiliates of Elbit are wholly owned subsidiaries of Control Data. Control Data, Clal and Elron own equal shares of Worldtech.
Military Products: Array of computerized equipment, including weapons delivery systems for aircraft; tank fire control system; military communications; electronic warfare systems.[3]

US Corporation: **GM-Detroit Diesel Allison, Inc.**
Israeli Corporation: **Nimda, Ltd.**
Financial Relationship: Details unknown.
Military Products: Vehicle power trains; retrofits for tanks, trucks and armored personnel carriers; majority of sales for export.[4]

US Corporation: **GTE, Inc.**
Israeli Corporation: **Tadiran Israel Electronics Industries, Ltd.**
Financial Relationship: GTE owns 22 percent of Tadiran, Israel's largest private-sector firm. Until 1983, GTE owned 45 percent of Tadiran, but sold half its shares to the other large owner of Tadiran, Koor, the Histadrut labor federation company.
Military Products: Electronic warfare systems; military communications and command systems; remotely piloted vehicles. In 1982-83, 46 percent of all sales were for export; 70 percent of these military products. El-Op (Tadiran has 50 percent interest) produces passive night-vision and other optical devices for the military, ranging from components for the Kfir and Skyhawk to hand-held laser range finders for infantry use. In 1983, 47 percent of El-Op's sales were for export.[5]



Michael C. Dunn

Israel is the only producer of remotely-piloted vehicles (RPVs). The Pioneer (above) is made by Mazlat, a joint venture of IAI and Tadiran and has been ordered by the US Navy.

US Corporation: **Gerber Scientific, Inc.**
Israeli Corporation: **Beta Engineering and Development, Inc.**
Financial Relationship: Through Gerber Venture Capital Corp., a wholly owned subsidiary, Gerber Scientific owns 35 percent of Beta Engineering.
Military Products: Mine detectors for Israeli army and export; vibration-detection surveillance devices advertised as "field proven on five continents," through YAEL Systems, a wholly-owned subsidiary of Beta Engineering. Beta is part of the CLAL group of Israel.[6]

US Corporation: **Intel Corporation**
Israeli Corporation: **Intel Israel, Ltd.**
Financial Relationship: Wholly owned subsidiary.
Military Products: Microcomputers for missiles and airplanes.[7]

US Corporation: **Motorola, Inc.**
Israeli Corporation: **Motorola Israel, Ltd.**
Financial Relationship: Wholly owned subsidiary.
Military Products: Fuses for bombs; surveillance and security equipment.[8]

US Corporation: **United Technologies, Inc.**
Israeli Corporation: **Bet Shemesh Engines Ltd.**
Financial Relationship: UT bought 40 percent of the Israeli government's shares of Bet Shemesh in 1984.
Military Products: Engines and engine components for military aircraft (including the Phantom, Tadiran's drone and others); components for Pratt and Whitney's engine for the Lavi. (UT is the parent company of Pratt and Whitney.)[9]

US Corporation: **IsLAMBDA Electronics, Ltd.**
Israeli Corporation: **Veeco Instruments**
Financial Relationship: Wholly owned subsidiary.[10]
Military Products: Details unknown.

US Corporation: **Vishay Intertech**
Israeli Corporation: **Vishay Israel**
Financial Relationship: Subsidiary.
Military Products: Resistors; thermal sleeves for the Merkava and other tanks; other products.[11]

Footnotes

1 AEL's 1984 10-K form filed with the Securities and Exchange Commission; SIBAT catalog; *Jerusalem Post*, May 10, 1984.

2 Dun's Marketing Services, *America's Corporate Families and International Affiliates 1984*; SIBAT catalog.

3 Control Data's 10Ks, 1974-1984; Arnold Sherman and Paul Nirschhorn, *Israel High Technology*, (Jerusalem: La Semana Publishing, 1984), pp. 157-159; SIBAT catalog.

4 Michael Collins Dunn, "The Silicon Kibbutz," *Defense and Foreign Affairs*, December 1985.

5 SIBAT catalog; Dr. Michael C. Dunn, "Tadiran, Israel's Defense Electronics Giant, Looks Abroad for Growth," *Defense and Foreign Affairs*, October 1983, p. 36; *Jerusalem Post*, May 10, 1984.

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7 *Israel Economist*, August 1983.

8 Motorola's 10-K reports.

9 *Financial Times*, August 28, 1984; SIBAT catalog.

10 Veeco Instruments' 1984 10-K.

11 SIBAT catalog, *The Israel Economist*, September 1984, p. 29.

Technology Transfer

Another form of corporate relationship is production licensing by Israeli corporations of equipment designed in the United States. The initial instance was IMI's production of the US Army's 106 mm recoilless rifle before the June 1967 war.[41] The US has allowed Israel to co-produce US military equipment under license at a "higher level of technology" than any other FMS credit recipient, according to one State Department official.[42]

One consideration in the web of relationships between Israeli and US military production corporations is the transfer of sophisticated technology. The official responsible for overseeing and regulating such transfer is Stephen D. Bryen, deputy assistant secretary of defense for international economic trade and security policy. Bryen, while on the staff of the Senate Foreign Relations Middle East subcommittee in 1978, came under investigation by the Justice Department for passing classified military information to Israeli officials. Before assuming his Pentagon position, he worked for the Jewish Institute for National Security Affairs, which promotes Israeli military interests in the US.[43]

The capacity or potential to produce weapons generally coincides with a country's overall industrial base. Israel is exceptional in this regard. As one proponent of close US-Israeli military ties has noted, "the real significance of Israel's arms industry lies not in its size, but rather in the disparity between the general sophistication of the defense companies compared with the relative backwardness of much of the rest of the economy."[44] This is no small ingredient in the overall militarization of the Israeli economy and society. The US government and private arms contractors have played a big role in giving the Israeli arms industry this disproportionate weight. ■

Footnotes

1 Michael Brzoska and Thomas Ohlson, *Arms Production in the Third World* (Stockholm: SIPRI, 1986), p. 10.

2 *Guardian* (London), December 3, 1984. Some Israeli economists put the actual military expenditure well above the official figure—"because of hidden costs and official bookkeeping that pays many defense-related expenses out of other budgets," in the words of Ya'acov Arnon, former director-general of the Israeli Treasury.

3 US General Accounting Office, *US Assistance to the State of Israel, 1983*, pp. 37-38. The GAO study found that about 35 percent of the technology of Israeli electronics exports—a principally military export sector—came from the United States through licensed production or other forms of technology transfer.

4 *Armed Forces Journal*, December 1977, p. 14, as cited in Bishara Bahbah, *Israel and Latin America: The Military Connection* (New York: St. Martin's Press, 1986), pp. 44-45.

5 Esther Howard, "The Sorcerer's Apprentice," *MERIP Reports* #112 (February 1983), pp. 20-21.

6 W. Seth Carus, *US Procurement of Israeli Defense Goods and Services*, Washington, DC: AIPAC Papers on US-Israel Relations, No. 8, 1984.

7 GAO Study.

8 GAO Study, p. 10.

9 Carus, p. 26.

10 *New York Times*, April 23, 1985; *Department of State Fact Sheet*, March 5, 1985.

11 Peter Hellman, "Israel's Chariot of Fire," *Atlantic*, March 1985.

12 Maj. (Res.) Louis Williams and Lt. Col. Yehuda Weinraub, "Israel's Merkava: A National Enterprise," *Defense and Foreign Affairs*, September 1984 (reprinted from *IDF Journal*, May 1984).

13 *Jerusalem Post*, June 22, 1986.

14 *Defense News*, December 8, 1986.

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21 *Ha-Olam Ha-Zeh*, February 22, 1983. Translated by Elfi Pallis.

22 Michael C. Dunn, "Israel's Elbit is a Surprising Leader in Defense Computing," *Defense and Foreign Affairs*, February 1984.

23 *Ibid*, p. 82.

24 *Elron Annual Report*, pp. 8-9.

25 Amnesty International, *A Government Program of Political Murder*, February 1981; *Amnesty International Report 1982: A Survey of Political Imprisonment, Torture and Executions* (London: Amnesty International Publications, 1982), pp. 139-140.

26 *Davar*, August 13, 1982; *Guardian* (London), November 29, 1981; *Latin American Weekly Report*, November 6, 1981; *Manchester Guardian Weekly*, January 10, 1982; and *Washington Post*, January 22, 1982.

27 *Excelsior*, October 11, 1983; *Enfoprensa*, January 6, 1984; *New York Times*, July 7, 1984; Latin American Newsletters, *Special Report*, March 1983.

28 James Adams, *The Unnatural Alliance: Israel and South Africa* (New York: Quartet Books, 1984).

29 *Chicago Tribune*, May 31, 1985.

30 *Financial Times*, July 8, 1986; see also *Financial Times*, April 19, 1985; *Jerusalem Post*, April 18, 1985 and May 5, 1985.

31 *Chicago Tribune*, May 31, 1985; *Israel Economist*, September 1984.

32 *Israel Investment Letter*, July 1985.

33 *Ibid.*

34 *The IsraelStock Letter*, June 1985; *Israel Economist*, July 1981, p. 29.

35 *National Defense*, March 86.

36 Carus, p. 27.

37 *Defense News*, March 10 and March 24, 1986.

38 *Journal of Commerce*, March 18, 1986.

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41 Carus, p. 20.

42 GAO, p. 44.

43 Michael Saba, *The Armageddon Network* (Vermont: Amana Books, 1984); Lee O'Brien, *American Jewish Organizations and Israel* (Washington, DC: Institute for Palestine Studies), 1986, pp. 167 and 203.

44 W. Seth Carus, "Israel: Some Economic and Social Considerations," in James E. Katz, ed., *The Implications of Third World Military Industrialization* (Lexington, MA: Lexington Books, 1986), p. 137.