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Israel [Government Investment Authority], 1978.

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ישראל

GOVERNMENT OF ISRAEL
INVESTMENT AUTHORITY

641 LEXINGTON AVENUE
NEW YORK, N. Y. 10022

CABLE ADDRESS: MEMISKAL, NEW YORK



(212) 486-8530

April 20, 1978

Rabbi Alexander M. Schindler
Union of American Hebrew Cong.
838 Fifth Avenue
New York, New York 10021

Dear Rabbi Schindler,

The contents of your recent letter to Mr. J. Vardi
have been brought to my attention.

I look forward to meeting you some time in the
near future.

With best wishes, I am,

Sincerely yours,

Uriel Lynn, Director
North America

March 23, 1978

Mr. Joseph Vardi, Director-General
Ministry of Energy & Infrastructure
35 (a) Herzog Street
Jerusalem, Israel

Dear Mr. Vardi:

It was good hearing from you. The information on Mr. Lynn is very interesting and I look forward to meeting him and to working with him.

It was also good to learn that you are now involved in the very important field of energy. I wish you every success and much fulfillment in your new post. Energy is an area which interests me greatly for in many ways it is the key to the problems of the Middle-East.

With every good wish and kindest personal regards, I am

Sincerely,

Alexander M. Schindler

STATE OF ISRAEL

MINISTRY OF ENERGY & INFRASTRUCTURE

35A Herzog Street, Jerusalem, Israel



JOSEPH VARDI
Director-General

(02) 64117

March 14, 1978

Rabbi Alexander M. Schindler
Chairman
Conference of Presidents of Major Ame. Jewish Or.
515 Park Avenue
New York, New York 10022

Dear Rabbi Schindler:

It has been only a short period of time since I returned to Israel, although with the rapid developments of the region it seems like years. During this period a real momentum towards peace was initiated which, in spite of all the inherent difficulties, cannot be halted. Major changes have come about in our economic life; foreign currency control was practically abolished and bureaucracy has been substantially minimized. The future of the region took a positive turn and every day additional areas of future cooperation with our neighbors are identified. Once peace is reached, Israel will serve as a centerpoint to the economic development of the region. It is now the time to adjust our thinking and to explore opportunities.

I would like to introduce to you my successor, Mr. Uriel Lynn, who will be taking up the position of Director of the North American Office of the Government of Israel Investment Authority as of March. Uriel was born in Jerusalem, Israel. He graduated from the Hebrew University Faculty of Law in 1958 and received the degree of Master Juris. In 1960 he was admitted to the Israeli Bar following two years of work with a law firm. In 1963 he received his Master of Law from the University of California in Berkeley, specializing in Corporation Law. He practised law in Israel and for ten years held positions in industry as the legal adviser and secretary of Ata Textile Company (the largest textile concern in Israel) and later as the General Manager of Velcro Ltd. (Israel) and Jerusalem Jersey Ltd., a vertical textile industry. In the last two years he had his own law firm in Tel-Aviv and was active in the public life of the country.

Please do not hesitate to contact him. His address is:

Mr. Uriel Lynn,
North-American Director,
Government of Israel Investment Authority,
641 Lexington Avenue,
New York, New York 10022,
(212) 486-8530.

I am at present very occupied with the country's energy matters. It is a fascinating area which includes all matters concerning the purchasing, transporting, storing, refining and distributing of our fuels as well as the generating of electricity, planning of this sector and research and development towards new sources. My address is:

Mr. Joseph Vardi,
Director-General,
Ministry of Energy & Infrastructure,
35(a) Herzog Street,
Jerusalem, Israel.
B: (02)64117; (02)69508; (03)41522
H: (02)411663.

I will be more than pleased to hear from you.

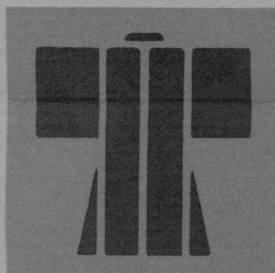
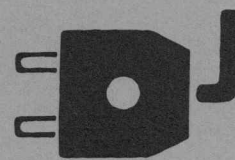
Yours,


Joseph Vardi

IsraTech 78

MARK
YOUR CALENDAR

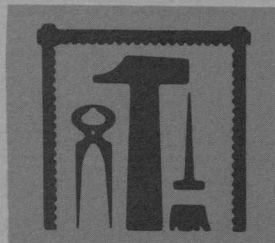
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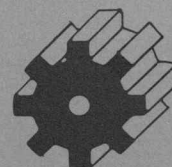
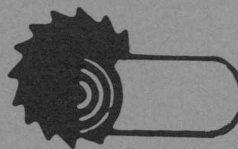
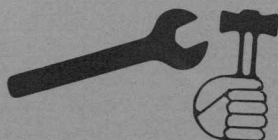
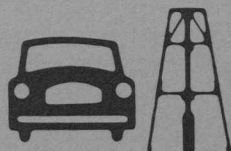
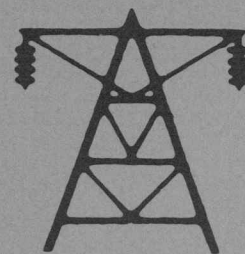
IsraTech 78

Government of Israel
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IsraTech 78

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IsraTech 78



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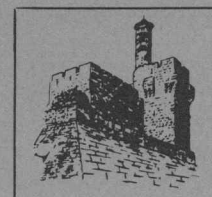
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Government of Israel Investment Authority

North American Office

PROFILE OF AREAS OF PREFERRED INTEREST FOR FOREIGN INVESTORS IN ISRAEL

GENERAL DESCRIPTION

The Government of Israel encourages the involvement of foreign businessmen in Israel. Special emphasis is being placed upon foreign involvement in the industrial development of the country. In most cases, a non-resident can invest in any project of interest in Israel (industrial or non-industrial) and be granted the status of an approved investment. This status assures the investor of his right of repatriation of profit and principal. (Additional information about approved investments are available from this office.)

Certain activities are actively encouraged by the Government through various means such as financial assistance, investment grants, long and short term loans, tax concessions among others. (Information available.) The purpose of this paper is to point out the areas of high priority.

AREAS OF PRIORITY

A. Exporting Industries:

Highest priority has been given to the establishment of exporting industries, in all branches of industry, such as pharmaceuticals, fine and heavy chemicals, metalworking, highly technological industries, electronics, optics, instrumentation, manufacturing of machinery and equipment, plastics, food processing, textiles and ready-to-wear clothing, arts and crafts, leathergoods, films, wood, paper, printing and publishing, etc.

According to our experience, the higher the local content in the product, the higher the economics of a project. Thus, we are not interested in stright assembly or mixing operations. (Example: We are interested in manufacturing electronic systems or components when some of the parts are manufactured in Israel. We are not interested in importing knocked-down whole kits for the purpose of assembling them for export.)

The Government has special programs to promote and assist export in various ways (Information available.)

B. Science-Based Industries:

Highest priority is given to science-based and highly technological industries. Those industries will generally be in the areas of fine chemicals, electronics, instrumentation, pharmaceuticals and others. Special research and development grants are available for such industries, as well as financial support and participation to finance the investment.

C. Defense Related Products:

High priority is given to industries providing goods, systems, sub-systems, and parts to the defense related market. Government support is available.

D. Industrialization of Construction:

High priority is given also to this area. The emphasis is on the industrial production of various elements which are used in the building industry (such as plumbing, doors, windows, stairs, sanitation equipment, modern flooring and walls, methods and other elements). Manufacturing methods which introduce new advanced and mass-produced methods are entitled to government support and may enjoy the benefits of a fast-growing local market.

E. Tourist Facilities:

High priority is given to the establishment of facilities to serve the tourist industry (apart from hotels). Entertainment and servicing operations are sought.

F. Recycling Operations

Operations involving the recycling of materials enjoy a high priority and are entitled to government support.

SIZE OF OPERATION

The size of an operation makes no difference as long as the operation is economical. Both small and large scale operations of foreign ownership are successful in Israel.

LOCATION IN ISRAEL

Industries are welcome in all areas of Israel and government support is available to all preferred industries. There are, however, special benefits given for development locations (additional grants and loans, industrial accommodations at reduced rates). These special benefits are given to industries whose locations start approximately 20 miles from Tel Aviv (Israel's largest city). Maximum benefits are available to industries located in various areas starting approximately 40 miles from Tel Aviv.

TYPES OF OWNERSHIP

Ownership can be in various ways: wholly-owned subsidiary or joint venture with an Israeli company: personal-holding or company-holding; single or group of investors. All are acceptable and welcome. Since Israel enjoys the special L.D.C. status according to the United States I.R.S. Code, the decision as to the most suitable structure should be evaluated in light of both U.S. and Israel tax laws. (Information available).

The Government of Israel doesn't limit in any way the amount of foreign ownership (it can vary from zero to 100%). Special rights of minority shareholders (those shareholders possessing over 25%) are provided for according to Israel's corporation law.

MARKETS

A special agreement with the Common Market, to be ratified shortly, eliminates tariffs on most industrial products manufactured in Israel from July 1977. This will give Israel a major advantage in this big market. Israel already has excellent commercial relations with most countries in western Europe, Iran, the Western Hemisphere, the Far East, and many African countries. Industries aimed at exporting to these markets are welcome.

Local markets are also available. Government encouragement and financial support are available to industries aimed at the local markets only of some of their production is exported (20-50% depending on location). In the case of industries for defense, building industries, recycling industries, and science-based industries, no minimum export is required. If however, they do export, they are entitled to an export encouragement.

MANAGEMENT

The foreign investor may set up the management in Israel according to his judgement. There are no requirements as to the nationality of the management and/or the members of the board. Israeli management is familiar with American methods and techniques.

FINANCING THE INVESTMENT

For the above mentioned industries, financial assistance is available from the Israeli Government. Up to 70% of the finances needed for fixed assets is provided by the Government (up to 40% as a long-term loan and 30% as a grant). Even though a grant may be issued, a voice in the company (neither shares nor voting rights) is required by the Government. Industrial accommodations may also be provided by the Government. Exact amounts of grants and loans vary according to the kind and location of project. (Information available.)

KNOW-HOW & MARKETING ABILITIES

Although know-how and marketing abilities are not pre-requisites for government financing, the investor's ability to guide the project is an important consideration in the Government's decision. So it is advisable that the investor possesses know-how and/or marketing abilities or can be backed-up in those areas.

PASSIVE INVESTMENTS

Several industrial companies in Israel are planning expansions in order to increase their manufacturing capacities, and the looking for foreign participation in their projects. Usually the amounts involved are from several tens of thousands of dollars, in the small projects, to several millions of dollars in large projects. Investors are sought for such projects. (Information available.) In these instances, the foreign investor need not have a specific background, technical know-how or marketing abilities in the field, though it is, of course, advantageous if such are available.

ISRAEL INVESTMENT NEWS

1977

ISRAEL INVESTMENT NEWS

Israel's emergence as an attractive location for investment by U.S. companies has begun receiving attention from the media. On the pages that follow, you will find a cross-section of articles from major business, daily, and trade publications focusing on this growing trend and the reasons underlying it. They fall into the following categories:

- **Successful U.S. Ventures in Israel**
- **What Israel Offers:**
 - Favorable Investment Climate
 - Duty-Free Trade Zone
 - Investment Incentives
 - Low Labor Cost
 - Tax Advantages
- **Israel's Growing Export Industries:**
 - Metalworking
 - Electronics
 - Aerospace
 - Chemicals
 - Agricultural Equipment
 - Fashion
 - Diamonds
- **Israel's Technology At Work**

SUCCESSFUL U.S. VENTURES IN ISRAEL

THE JOURNAL OF COMMERCE — January 24, 1977

US Companies Invited To Set Up Shop in Israel

To Tap Big Export Markets

By ARNOLD McKAY

Journal of Commerce Staff

Exporting to Israel? The Israeli pitch these days to selected export-minded firms in the U. S. goes something like: "Don't count on us for whopping sales. We're too small and too broke. Instead, come in, set up shop, and, together, we'll clean up in the really big export markets."

The same message has gone out to potential investors, large and small, who are not manufacturers, as indeed it has done for years. Only there's a new urgency to it.

Principal Markets

The markets referred to principally are Western Europe and the United States, where, say the Israelis, their flair for turning out highly sophisticated products at surprisingly low cost will pay off handsomely, in principle, thanks to recent tariff concessions and an attractive package of Israeli incentives.

It's not the easiest line to peddle, and Joseph Vardi, director of the North American office of the Government of Israel Investment Authority, says he needs a good two hours to do it justice on his calls. But it is getting results, he says.

And Philip Opher, executive director of the American-Israel Chamber of Commerce and Industry, Inc., concedes that it's the only course the Israelis have found so far — short of peace — with a reasonable chance of leading them out of chronic payments deficits that have pushed their external indebtedness to some \$10 billion.

Can the gap be closed without peace? "Let's not kid ourselves," replies the Romanian-born Dr. Opher.

Yet it is being narrowed, points out Michael Avnimelech, a New York representative of Israel's government Economic Department, and by no mean amount. The 1976 deficit of \$3.2 billion reflected a 20 per cent shrinkage (\$800 million) over 1975, thanks to a clamp-down on imports of non-essentials and an increase of 26 per cent in exports. Exports to the United States rose by 34 per cent.

Best Mideast Customer

Moreover, Mr. Avnimelech points out, although no growth, or only negligible growth, is foreseen for U. S. exports to Israel in 1977, the 1976 level of \$1.4 billion made Israel the United States' best customer in the Middle East after Saudi Arabia and Iran.

But the Israeli strategy these days, and probably for some time to come, is to encourage American investment, rather than sales, on the grounds that it will

ternally generated out of the Israeli subsidiary's profits and that further expansion is under way to meet the demands of a growing market in precision resistors.

Mr. Vardi reels off 10 recent or, in some cases, forthcoming developments that ought to make success stories like Vishay's more common in years to come.

The major ones are the fact that, starting on July 1, virtually every category of Israel-produced goods will enjoy duty-free access to the Common Market, and that, since Jan. 1, 1976, 2,700 Israeli products have enjoyed duty-free access to the United States under the generalized system of preferences (GSP).

The combined markets represent more than 475 million people.

With Israel's appreciably lower labor costs, Mr. Vardi notes, U. S. firms operating there stand to reap substantial advantages in these giant markets.

In addition, a series of benefits to foreign investors, on the books or enacted by the Knesset (parliament) last year, relating to taxation, loans and grants, depreciation allowances, etc., constitute, according to Mr. Vardi, "not one of the best — the best — package of incentives for American companies going overseas available anywhere."

Shortly, Mr. Vardi expects, the U. S.-Israeli tax treaty will be ratified by the U. S. Senate, and, probably after the next elections, the Knesset will enact a measure designed to preserve the real value of equity against the effects of a falling Israeli pound.

Cautious On Outlook

Mr. Vardi is cautious on the whole about the immediate outlook. "I have hopes for '77, but between (new industrial) plants and hopes there is a difference," he says. "Nevertheless I think '77 will be a good year."

He declined to make any projections. The figures on U. S. equity investment in Israeli industry in 1976 will not be known for some

months, he said. They have been fairly constant over the previous five years — \$58 million in 1971, \$61 million in 1972, \$51 million in 1973, \$45 million in 1974 and \$65 million in 1975.

"In '77 the cash will be available," he said, "but it's a small numbers kind of game."

Samuel Rothberg, president of **Israeli Investors Corp.** of New York, whose firm handles a diversified portfolio with between 30 and 40 investments in Israel, was similarly cautious.

"Every year is a difficult year with Israel," he said.

Max Ratner, chairman of **Forest City Enterprises, Inc.**, in Cleveland, a diversified company in lumber, building materials, contracting and retailing, told **The Journal of Commerce** his firm's Israeli subsidiary, a flavors and essential oils concern called **Frutarom**, is expanding into polyvinyl chloride (PVC) production.

\$60 Million Invested

A \$60 million investment, including \$30 million from the Israeli Government, is creating a plant on Haifa Bay that will produce 83,000 tons of PVC resins. **Electro-Chemical Frutarom**, as the company will be known, expects to have export sales of \$40-\$50 million a year, Mr. Ratner said.

George Klein, president of **Barton's Candy Corp.** in Brooklyn, N.Y., says his company is "giving serious consideration" to setting up a plant in Israel to boost export sales. He said available local raw materials and labor were factors, too, along with "a more and more enlightened (Israeli) government policy."

SUCCESSFUL U.S. VENTURES IN ISRAEL

BUSINESS INTERNATIONAL — February 25, 1977

How Israeli R&D Work Boosted Motorola's World Product Line



Corporate background. The story of Motorola's Israeli venture begins with the parent company's initial entry into the country's market in the 1940s, when the US firm worked through a distributor. During the 1950s, the company licensed its technology to a manufacturing company in which Motorola had a small equity. Throughout the 1960s, Motorola bought up the Israeli partner's stock until the venture became a wholly owned subsidiary, Motorola Israel, in 1974. The subsidiary's production of telegraphic data transmission equipment and modems for data transmission, plus computerized supervisory control systems, was originally intended for the domestic market. However, when Motorola's R&D teams designed an agorelated product line, new vistas opened up.

The problem. An arid country, Israel has always had to struggle to find efficient irrigation systems to maximize resources and crop yield. However, there was an extra twist in Israel's case: *kibbutz* farmers located in war zones had to irrigate their crops at night. Conventional systems—like those commonly used throughout both developed and developing countries—generally rely on field flooding. Under this system, however, water is used inefficiently, and the pipes require constant surveillance in order to detect the small leaks and breakdowns that—undetected—could lead to large repair bills. In the Israeli environment, this irrigation system did not yield maximum growth for crops and constantly needed repairs.

The R&D solution. According to Motorola, Israel offers companies unique opportunities to profit from agricultural-engineering problems of this type. The country has an environment similar to those found in many other developing countries, but Israel has large cooperative farm units (*kibbutzim*), as well as a farm labor force sufficiently sophisticated both to go along with on-the-spot research and to be acquainted with agricultural-engineering principles. In addition, the government is ready to help with technical assistance and grants worth up to 50% of the cost of the project.

To solve the irrigation problem, Motorola worked closely with *kibbutz* farmers and a government research team. This close cooperation resulted in a very small lead time between the original research and its practical application through Motorola's manufacture of a new product line.

The solution came in stages. First, Motorola developed an electronic-alarm reporting and manual-control system so that breaks in the irrigation system were detected while still insignificant. This resulted in smaller repair bills in the long

run. After initial success with this system, Motorola designed a fully computerized irrigation system in an attempt to maximize use of water and crop yield without constant surveillance by the farmer. The system measures the exact amount of water needed by an area of a field by measuring the amount of soil moisture, humidity and temperature. The system is programmed to stop and start irrigation under various conditions.

Initial applications of both systems in Israel were highly successful, and farmers reported that the equipment paid for itself within a year. Motorola states that its system led to a 10% increase in the area of the field covered by irrigation, as well as a 5% increase in water conservation, a 25% power saving and a 4% increase in crop yield.

Because of its success with the computerized water system, Motorola—again in conjunction with the government and *kibbutzim*—went on to adapt it for use in controlling both the amount of fertilizer and the water needed to dissolve it to maximize crop yields.

Overseas marketing efforts. Markets for such high-technology farm equipment are just now opening up worldwide, according to Motorola. However, it thinks the system has wide applications throughout both LDCs and developed countries.

The division's first large-scale overseas efforts to market the supervisory control system were in Canada, in which Motorola Israel handles sales. The US, however, was selected for an initial attempt at marketing Motorola Israel's irrigation equipment, however, because of its large agrobusiness sector.

Motorola Israel reports that entering the US market is proving more difficult than it at first appeared. The division began marketing efforts with the alarm-reporting system only, because conservation of water resources is still not recognized as an acute problem by farmers in the US. Initial investment in the system is quite high, but Motorola reports that price competition is not the stickiest problem. Rather, customers are wary of a technology not developed in the US and not backed by a proven reputation. Motorola Israel has an advantage over smaller Israeli companies, however, because its parent company's name is well known. Furthermore, the parent company will cooperate closely and help provide back-up service for the system.

The Israeli government also has helped Motorola's overseas efforts through grants, loans and tax concessions toward Motorola Israel's \$9 million expansion program. This growth will increase sales volume to \$35 million, of which one third will be export-related.

Motorola Israel also sees potential for marketing the irrigation systems in the developing world, especially in the Middle East. High-technology equipment is already sought by some Arab nations, despite the boycott. Also, Motorola hopes to benefit from World Bank loans for irrigation.

SUCCESSFUL U.S. VENTURES IN ISRAEL

JEWISH EXPONENT — May 9, 1975

WHY WE CHOSE ISRAEL

An Interview With John R. Bunting

By
Frank F. Wundohl
Editor, Jewish Exponent

John R. Bunting, chairman of the board and chief executive officer of First Pennsylvania Corporation, looks with confidence on his institution's investment in Israel. He does so in the face of a global economic crunch and, more particularly, despite the rising pressure of Arab petrodollars on the West.

First Pennsylvania's 1975 investment is at \$13.5 million, and that's slated to peak at about \$15 to \$16 millions after January, 1976.

The logic he uses to bolster his confidence is best related by Bunting himself.

"I'm not an expert on Israel," he told the Exponent, "but I do recall that prior to 1972, our firm had never been involved extensively in the Mideast. Those banks that were there, were attracted because of oil interests.

"We began looking at that part of the world in 1972 after the others—European financial houses and the major New York banks—were already solidly entrenched. I remember consulting with Phil (Philip R.) Zinman, a member of our board who also serves on the Federation of Jewish Agencies' board.

"We'd been thinking about opening a bank in Israel. Well, Phil went to Israel and investigated. He came back to Philadelphia and we had a lot of discussion. I suggested that instead of opening a bank, it might be a good idea to play a part in an amalgamation of smaller banks already there.

"That's what we did, with the help and encouragement of the Israeli government. I was really impressed then, as I am now, with the tremendous industriousness of the Israeli people. Phil and a lot of other people played important roles. In October, 1972, FIBI opened for business. First Pennsylvania International Capital Corporation was established as our intermediate holding company for FIBI, our Israeli subsidiary. We had 33 branches employing 950 people throughout Israel with an initial investment of \$5.5 million.

"Under the Israeli law, we are permitted to own up to 51 percent of FIBI. Right now, we have a 42 percent interest. The next largest stockholder in FIBI is the State of Israel itself. It all started, as I said, with 33 offices. We're up to 49 today and, we have 1,200 employees."

On Oct. 1, 1972, the 33 FIBI branches had assets in Israeli pounds equaling \$282 million American dollars. As of Dec. 31, 1974, those assets

had grown to the equivalent of \$522.7 million U. S. dollars.

Deposits in Oct., 1972, were at 848 million Israeli pounds (\$202 million U. S. dollars). Deposits at Dec. 31, 1974, had swelled to 2,249 million Israeli pounds (\$374.8 million U. S. dollars), this also taking into account the 43 percent devaluation of the Israeli pound late in 1974.

FIBI in Israel is First Pennsylvania's biggest overseas investment. The corporation owns the Virgin Islands National Bank with 11 offices, has a 15-office consumer loan organization in Puerto Rico, a branch in London, representative offices in Frankfurt, Singapore, Montreal, Mexico City and San Paolo and 2 subsidiary companies in Grand Cayman Islands, as well as 79 banking offices in the Greater Philadelphia area.

U. S. operations include investments in the Southeast, Southwest and even the Far West, and 175 consumer loan offices throughout the country.

So, First Pennsylvania and its chairman have a gilt-edge reputation for making the right decisions.

Does John Bunting ever skim through First Pennsylvania's financial projections and annual reports and have cause for second thoughts on its Israel venture?

"No sir," he answers crisply. "I know that there are three to four million Israelis surrounded by 30, maybe 35 million hostile Arabs. I've thought about this situation often. To consider how I think the future is going to turn out, I'd like to point to the past.

"I liken the situation to Japan and China, 75 to 100 years ago. There were the Japanese on a chain of small islands with apparent scant resources. But, they did have a homogeneous population and a common religious heritage. They were a bright and industrious people.

"China, at the same time, had vast geography, tremendous untapped resources, more than 20 times the population. But this sprawling land mass also had the great conflicts of warring factions, warlords struggling for power. The homogeneity was lacking. Obviously, Japan's progress to date has been sharply more significant. Not that China, too, may not some day achieve its great potential.

"Similarly, I am certain that the future of Israel will show growing economic stability and continued civil progress. Israel, I believe like Japan, come to influence in

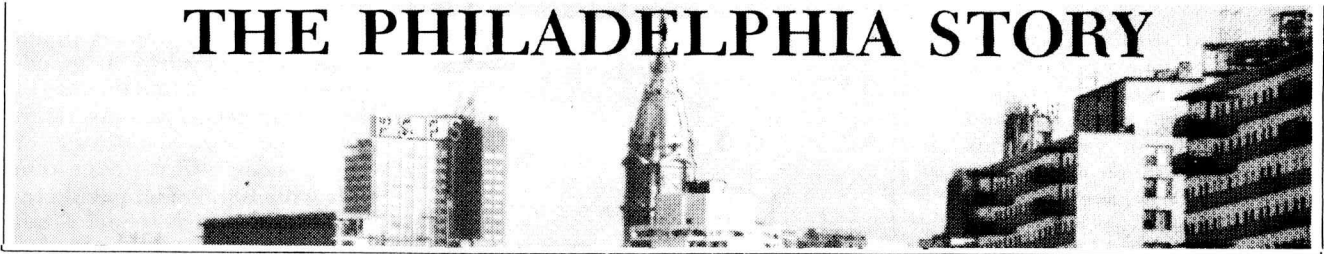


Photo by Bruce Stromberg

SUCCESSFUL U.S. VENTURES IN ISRAEL

JEWISH EXPONENT — May 9, 1975

THE PHILADELPHIA STORY



Links With Israel Industry

Helping to boost Israel's industrial capability, a number of Philadelphia firms have established ties with counterpart industries in Israel. They range from electronics to transportation equipment, include many first-time ventures into overseas expansion. Here, an overview.

The oldtimers still remember how the first calls went out, in the early days of the infant State of Israel, for American manufacturing expertise, American know-how, American aid. To provide the beginnings of a manufacturing capability in the infant State.

True, many of the newcomers to Israel—primarily Holocaust refugees—brought with them industrial know-how gleaned from European companies. But more help was needed.

The response was immediate, and continuing. And American ingenuity, American efficiency, have found their way into Israel's manufacturing establishment.

Over the years, a great number of Philadelphians have helped boost Israel's industrial scope. Their ties range from one-shot contributions by experts called in on specific contracts to ongoing know-how agreements, from limited specific component-production contracts to capital investment in establishment of independent companies, charged with the manufacture of full, science-based product lines.

Technology, Chemicals, Accounting Services, Lighting

Philadelphians figure in the development of Israel's burgeoning electronics industry, in chemical exports, even accounting services.

In Bnei Brak, where Rabbi Akiba lived, there are still ultra-Orthodox residential areas where it is inadvisable to drive an auto on Saturday. Yet strangely, Bnei Brak is the home of one of Israel's most sophisticated electronic parts producers, *A.E.L. Israel Ltd. Electronics Industries*, established in 1966. A principal owner is *American Electronics Laboratories, Inc.*, Dr. Leon Reibman of Colmar, Pennsylvania. The Israel firm produces RF components and systems; microelectronics, communications systems and telephone exchanges. Dr. Leon Reibman, President of AEL America, describes the firm's experience with its Israeli subsidiary as positive: Bnei Brak plant, now the third largest of its kind in Israel, employs 900 people and exports to a growing list of science-based industries in Europe. Relations between the two firms are close—so close, says Dr. Reibman, that “when some of the men at Bnei Brak were killed during the Yom Kippur War, we were sitting *shiva* here, in Philadelphia.”

Vishay Intertechnology Inc. of 63 Lincoln Highway, Malvern, Pa., established its ties with Israel in 1969. *Vishay Israel Ltd.*, with more than 400 employees, now occupies four plants in the Tel Aviv area. Most of its output—easily 90 percent—is exported to west Euro-

pean, American and Japanese consumers of precision resistors and related components used in computers, experimental stress analysis instruments for aircraft and automobiles, and other electronic equipment. The Israel firm produces nearly the identical product line as its American counterpart. A combination of high productivity, Israel Government assistance and low, subsidized interest rates make the Israeli output more economical than that of similar operations in the States.

From Vishay comes an interesting story, typical of how Israeli industry responded during the Yom Kippur War. On the first day of the war, production virtually ceased. The executive staff, and most of the male production workers, had been called to arms. By the second day, the company wives had matters well in hand. To solve the sudden transportation problem, they organized a carpool which brought unmobilized workers to the plant, thus saving hundreds of man-hours. The wives filled in with clerical work, packaging and other tasks. Production dropped by only 25 percent during the war—unavoidable because the night shift had to be shut down while the blackout continued. Shipments went out on time; offers from the American plant to send people to help during the emergency were declined with thanks.

Most important, reports Dr. Felix Zandman, president of Vishay Technology in America—Israeli professional skills are top-notch; “We’re enjoying a two-way research and development exchange—good ideas originating in Israel are being implemented here; and vice versa.”

Vishay reports that it had considered opening subsidiaries in other countries; nowhere, though, was the same combination of know-how and productivity available—and so plans were dropped.

In partnership with Ha'argaz, a major Israeli producer of transportation and shipping equipment, Banner Industries of Montgomeryville, Pa., has opened the *Delta Ha'argaz* plant in Tsrifin, on the Tel Aviv-Jerusalem highway. The Delta plant was established two and a half years ago to manufacture aluminum truck bodies. Some parts are locally produced; others shipped from America. The entire assembly operation takes place in the Israel facility.

Kulso Ltd. of Haifa is an offshoot of *Kulicke & Soffa* of Horsham, Pa. Kulso produces semi-conductor ma-

Continued on next page

SUCCESSFUL U.S. VENTURES IN ISRAEL

Continued from preceeding page

Dead Sea Periclase Company, in which **General Refractories** Austrian subsidiary is a one-sixth shareholder, is the outcome of those negotiations. So successful has been General Refractories' experience with *Dead Sea Periclase* that a large expansion operation is currently underway.

Fischer & Porter of Warminster, Pennsylvania, established their subsidiary, *Fischer & Porter Israel*, in 1967. The company produces process control flow meters and water treatment equipment. Located near Ramat Gan, the company presently employs 50 people in turning out equipment primarily intended for the Israel market.

To provide international services for its clients, **Laventhol & Horwath**, 18th and Walnut Streets, Phila., are linked with other top accounting firms in cities throughout the world. Their Israel affiliate is *Horwath, Bawly, Millner & Company* of Haifa and Tel Aviv. The Israel affiliate provides accounting, audit and management advisory services for the Philadelphia firm's clients who have business and financial interests in Israel. Offices in Haifa and Tel Aviv are operated and staffed by Israelis who are familiar with local laws and customs.

A different dimension of aid is provided by other Philadelphians who have helped establish educational and training facilities important in the development of technological expertise. Typical is a new food technology center at the Technion/Israel Institute of Technology, soon to begin construction. The \$1 million facility, presented by Philadelphian Louis Stein of Food Fair Stores, Inc., will be called the Louis Stein Food Engineering Building and will house, in the main Technion City complex, the Food Engineering and Technology Department, now housed in the old campus in Haifa.

Progress Lighting, a division of **LCA Corporation**, is the world's largest manufacturer of residential lighting fixtures—and Israel figures in its worldwide business activities.

The company was founded in Philadelphia in 1906 and is still headquartered in this city at G St. and Erie Ave. Internationally, *Progress Lighting's* operations reach into Europe, Latin America and Asia, as well as Israel.

Progress is the major division of **LCA Corporation**, headquartered in Bala Cynwyd, Pa. Another LCA division, *Farberware*, manufacturer of cookware and electrical kitchen appliances, also has strong merchandising ties with Israel. Some years ago, *Farberware* licensed Soltam, a Haifa company, to make and sell its products in Israel. The relationship has been very successful for both parties.

TEXTILE WORLD — April, 1975

U.S. textile firms seek Israel investment

More than a score of U.S. textile and apparel-related companies are negotiating with the Israeli government to invest in manufacturing facilities.

Abraham Kiperman, vice consul of the Government of Israel Investment Authority, reports that the companies include singleknitters; printers, dyers, and finishers; hosiery producers, and makers of sweaters, overcoats, children's apparel, men's apparel and zippers. Since the Israeli government puts no limitations on ownership, facilities may be jointly or completely owned.

Multinational companies are especially interested in Israeli investment, reports Kiperman, because the Israeli currency devaluation in November 1974 increased the profitability of exporting goods abroad. In addition, a recent agreement with the Common Market will enable goods coming from Israel to be shipped duty-free as of July 1977.

Exports of knits and apparel totaled \$106-million last year; yarn and fabric exports hit \$46-

million.

Total exports, he continues, equal 25-30% of production now, but the government hopes to boost the percentage to 40% by 1977.

There are already a number of U.S. textile companies with manufacturing subsidiaries in Israel, including **Glenoit Mills Inc.**, **IMI Associates Inc.**, **National Spinning Co.**, **Kayser-Roth Pioneer Systems Inc.**, **Puritan Fashions Corp.** and **United Merchants and Manufacturers**. The latter has invested in a new textile mill, a joint venture with Argaman Ltd., one of Israel's major fabric converters. The mill, which will open in June, is a completely computerized finishing plant.

The Israel government is also interested in acquiring U.S. investments in denim and terry-cloth plants.

SUCCESSFUL U.S. VENTURES IN ISRAEL

THE JOURNAL OF COMMERCE — April 16, 1975

Witco Chemical Expanding Operations in Israel

By AL WYSS

Journal of Commerce Staff

Investment in manufacturing facilities in Israel is part of the global production and marketing strategy of Witco Chemical.

Besides production facilities in Israel, the company has plants in a number of other countries, including Belgium, Canada, the United Kingdom, Holland and France. In addition, Witco has equity interests in other chemical companies throughout the world.

Dual Advantage

William E. Leistner, executive vice president of Witco's Chemical Group, points out that production of chemicals and allied products in Israel offers the company the dual advantage of the growing Israeli market, which is adequately protected by tariffs, along with export sales to important markets in that area of the world.

An added incentive to export also is provided by the Israeli Government in the form of an automatic rebate of up to 27

per cent of every dollar of export sales.

Witco's role in the dynamic, growing economy of Israel began on January 1, 1969 when it acquired a 60 per cent interest in what is now called Witco Chemicals Ltd. in Haifa from Chemicals and Phosphates Ltd., a government company. The latter still owns the balance, or 40 per cent, of the Haifa manufacturing facilities.

Growth of Sales

Mr. Leistner noted that steady growth of sales since then has necessitated a number of expansions of production facilities which have a total capacity of about 2500 tons annually.

The product line at the Haifa facilities actually involve two broad product groups, detergents and specialty chemicals, both of which have experienced a growing demand in Israel and in world markets.

In the detergent area, a broad line of household and industrial cleaning products — including dishwashing compounds, laundry products and other light and heavy duty detergents — have gained substantial acceptance in Israel. The detergent products of Witco have, in fact, made the company's name practically a household word in that country. The various products, merchandised under the brand name of "Kleen," are widely distributed in groceries and supermarkets. Just about 50 per cent or more of the detergents found on practically any grocer's shelf in Israel are likely to be manufactured by Witco.

The consumer distribution setup for Witco's detergent products in Israel has become so effective that the company plans to look at other consumer market areas there.

Witco also is manufacturing industrial products at the

Haifa site facilities in the form of various specialty chemicals. Facilities were constructed two years ago for the manufacture of the Emcol line of agricultural surfactants and emulsifiers.

Another important product line manufactured in Israel by Witco is the company's urethane systems based on the know-how of its Isocyanate Products Division. These products also are marketed both in Israel and in neighboring countries.

A big potential market is seen in that area of the world for rigid urethane as heat insulating material, both to keep heat out in the hot weather and to retain interior heat in the cooler season.

Israel offers a number of incentives to companies such as Witco which have important technological capabilities for the production of products essential in con-

AVIATION WEEK & SPACE TECHNOLOGY — March 31, 1975

Manufacturing Subsidiaries in Israel

New York—U. S. currently has 63 manufacturing subsidiaries in Israel, the largest component represented by the avionics/electronics industry.

Israel is driving to expand the number of U. S. high-technology manufacturing subsidiaries in the country to advance technology in the export market.

The 19 avionics/electronics companies now doing business in Israel are American Electronics Laboratories, Inc., Astronautics Corp. of America, Control Data Corp., General Telephone and Electronics, Gerber Scientific Instrument Co., Information Magnetics Corp., International Business Machines, Intel Corp., Ittek Corp., KMS Industries, Inc., Kulicke & Soffa Industries, Mennen-Greatback Electronics, Mica, Microwave Associates, Motorola, Teledyne, Three H, Vishay Intertechnology and Whitaker.

Another 15 U. S. manufacturers are in metals and metals processing, 10 are in chemicals and oil, six in textiles, five in pharmaceuticals, five in paper and six in miscellaneous categories. Seven U. S. firms are in financial and six in hotel operations.

American Electronics Laboratories started its manufacturing operations in Israel seven years ago. In its first year, it did \$60,000 worth of business, and sales last year amounted to \$20 million.

Control Data, which took over an Israeli company, Elbit, four years ago, also reached \$20 million in sales in 1974, he said. GTE's Israeli subsidiary, Tadiran, is one of Israel's largest industries, with \$100 million in sales of military communications equipment and appliances.

Midwest Has Large Stake in Israel

Israel's economy will not suffer from the war, and will continue to offer excellent opportunities for Chicagoland businessmen.

by Gordon A. Moon II

MIDWEST economic ties to Israel are numerous and close, particularly in the greater Chicago area. And concern among local businessmen runs high as a shaky cease fire is being implemented while this article is going to press.

What will be the effect of this latest, and most costly, Israeli fight for survival? It appears to be another Israeli military victory, but what about economic consequences?

R. N. Carlen, president, **Jos. T. Ryerson & Son, Inc.**, sees the economic effects of the latest war as very similar to those following the Six Day War or the war of 1956 and not different from the situation in the U.S. after World War II and the Korean War. "There will be unstable times and dislocations," he said. "Then the economy will continue to grow as it did before, and the war might even give it a little boost." Carlen also believes the Israeli economy can continue to support disproportionately large military forces in relation to the size of the country.

"I believe it can, but whether it should is another question," he said.

"The Israelis would be better off if they didn't have to, but I don't believe anyone is going to solve in a few years what has been going on for 2,000 years. I just don't see any early relief from those kinds of tensions."

Nevertheless, American businessman Carlen is highly optimistic about Israel's future. "All you have to do is look at what they have done with the land since 1948 and then look around at Lebanon, Syria, Jordan and Egypt and see how little the Arab countries have accomplished," he said. "The Israelis are a progressive, innovative and dedicated people. I think the greatest thing that could happen to the Arab world is that they allow themselves to trade with Israel. It would increase their standard of living and improve the lot of their citizenry."

Carlen sees no obstacles to continuing trade between the U.S. and Israel, and reacts strongly against the threat of Arab oil sanctions unless America cools the relationship. "I just find this kind of international behavior reprehensible," he said. "I am less surprised than infuriated. Blackmail is blackmail."

Israeli Consul General in Chicago Shaul Ramati says that economic effects, of course, will depend on the final outcome of the war. Although there has been no destruction in the Israeli civilian sector—and none is anticipated—the arms industry will have a huge task in replenishing all that has been expended. "Also, labor may become shorter than it was because we may have to maintain a larger standing army and part of the reserves may not be released," he said. "This will create a situation of manpower shortage, although I believe we can cope with it through volunteers from abroad."

Ramati feels the economy is strong enough to maintain present defense expenditures. "Whenever a war like this happens, we find that the response from all those concerned with Israel is so great that we manage to recover from the immediate economic effects very rapidly," he said. "There is a great desire to help. Investments tend to grow very fast and the free flow of capital is increased. We have never really found that a period of conflict has been a setback to our economy."

Jack Hoffman, president, **Hoffman Rosner Corp.**, and chairman of Shuleah Development and Construction Co. in Israel, sees an extremely bright housing market in the country. "It was while participating as a delegate to one of the economic conferences in Jerusalem that I became aware of the crying need for housing in Israel," he said. "There has been a housing boom going on for years and today it is moving faster than ever. With half the population of Chicago, Israel is now

Jack Hoffman (right) at housing construction site in Israel, where housing boom continues unabated.



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SUCCESSFUL U.S. VENTURES IN ISRAEL

Continued from preceding page

Pecker Plada service center at Kfar-Saba, Israel.

building more houses than Chicago. . . . But they need techniques to expedite building time . . . more standardized components, more easily applied materials and more mechanical equipment."

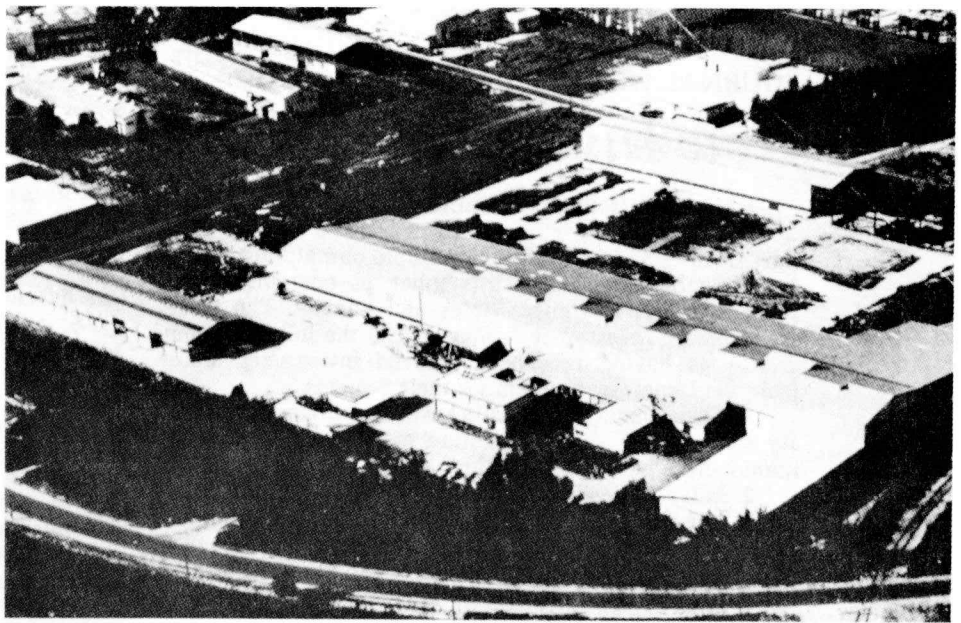
Many Companies Involved

The list of Chicagoland firms with investments in Israel or trade relationships goes on and on. RCA subsidiary Shelby Williams Industries has no investments in Israel but has close import and export ties. "We have a line of desks that are made in Israel and also get some of our furniture component parts there," said Manfred Steinfeld, former 82nd Airborne Division paratrooper (World War II) and now corporation chairman. "We export furniture to the country also, particularly for a number of hotels now under construction, including the new Jerusalem Hilton. Incidentally, the architect and investment group for the Hilton are also out of Chicago."

Steinfeld says that in many cases Israelis cannot find furniture in home or nearby markets of comparable design or quality to that made in the U.S. "Also, with the rapid rate of inflation in all European and Middle Eastern countries, although our prices have gone up they are extremely competitive," he said.

A success story for a company that was started on a shoestring in Israel is that of the Chicago Specialty Manufacturing Co., which entered into a joint venture in 1966 in Tel Aviv to form **Unitrol, Ltd.** The new firm manufactured and distributed water flow controls used in conjunction with agricultural irrigation. Today the company is completely viable and on a sound economic footing. They also produce a wide range of household plumbing specialty products and are considered experts in the field of irrigation water control flow.

The A. Epstein Companies, Inc. began work in Israel in 1968 with a project for Sunfrost, Ltd. in Ashdod. A full service regional office was opened in Tel Aviv in 1970, and the original staff of three people has now expanded to some 40 professional and technical employees. At present, Epstein has more



than 30 projects in design or under construction in Israel and Tel Aviv has become the starting point for additional expansion into Mediterranean and African countries, including Greece, Kenya and the Ivory Coast.

Walter E. Heller Overseas Corp. established a subsidiary in Israel in early 1972, a joint venture with two Israeli firms: Clal Israel Investment Co. and Israel Sacharov and Co. As a Heller executive put it, "We were attracted by the dynamics of the Israeli people and by their enthusiasm and perseverance in the creation of new industries."

Ten years ago the management of Joseph T. Ryerson & Son looked at Israel and liked what they saw: a vigorous and growing economy and a government favorable to industrial development and foreign investment. So Ryerson acquired an equity interest in 1963 in the Tel Aviv company then known as Solpeck Steel Corp. The affiliation proved fortunate for both companies. Solpeck (now Pecker Plada, Ltd.) was itching to expand into broader steel processing operations and Ryerson provided added financial resources and metal processing expertise.

In 1972 Ryerson, a wholly-owned subsidiary of Inland Steel Co., opened a new plant at Keriyat-Malachi for galvanizing pipe, light structural shapes and other steel products and entered an entirely new field—production of ceramic wall and floor tile. For this operation, Pecker Plada built another new plant at Yeroham in the Negev area.

Not Just Chicago

Going beyond the Chicago area, other Midwest involvement in Israel is illustrated by activities of **Miles Laboratories**, Elkhart, Ind. Miles made the decision to establish a citric acid manufacturing operation in Haifa in 1960. Then, during 1967-1968 Miles formed joint ventures with two distinguished scientific institutions in Israel: Yeda Research and Development Co., and Yissum Research and Development Co. More recently, Miles Israel has become responsible for the whole product line in Turkey, Iran and Cyprus.

In an entirely different field, **Astronautics Corp.** of America, Milwaukee, established in 1970 a wholly owned subsidiary at Bnei-Brak, Israel—Astronautics C. A. Ltd. The firm specializes in design and production of cockpit instrumentation for aircraft. Its products range from engine and flight parameter instruments to the most sophisticated electronic and electro-optical displays.

Another Midwest organization which should not be omitted in mentioning ties to Israel is the American-Israel Chamber of Commerce and Industry, Midwest Chapter. Organized in 1958 by a group of interested businessmen, the non-profit chamber assists in the establishment of commercial relations between the two countries and acts as a clearing house for information on economic opportunities. Members range from patent attorneys and management consultants to owners and operators of manufacturing enterprises.

SUCCESSFUL U.S. VENTURES IN ISRAEL

JOURNAL OF COMMERCE — May 5, 1976

New Investments Listed

Journal of Commerce Staff

In the year since Israel concluded the interim Sinai agreement with Egypt, the more stable climate for foreign investment has attracted a number of new investment projects from the United States and Canada. The Israel Government Investment Authority lists the following companies as having received approved investment status from the Israel Government for their projects.

1. **Globe Union Inc.** of Milwaukee has taken the minority share in a 35-65 joint venture with Koor Industries to manufacture batteries in a plant that opened last year.

2. **Miles Laboratories, Inc.**, of Elkhart, Ind., which already operates three plants in Israel, established two more in the last year. The first was opened near Jerusalem in May 1975 and is manufacturing diagnostic kits. The second opened in Haifa in February of this year and is producing dextrose.

Joint Venture

3. **Teledyne Inc.** of Los Angeles, opened a plant in Maalot in October, 1975, in a joint venture with Discount Bank Investment Corp. producing electrical wiring for electronic and aviation control systems.

4. **Phillips Brothers Inc.** of Springfield, Ill., acquired the Israeli firm Folkmand and Dr. Kaffler Ltd. of Tel Aviv for \$2.8 million.

5. **United Merchants & Manufacturers Inc.** of New York is building a textile complex in Tel Aviv in association with Argamon Inc. of Israel.

6. **Babcock Electronics Corp.**, a subsidiary of Esterline Corp. of New York, inaugurated a new plant in February, 1976, which is manufacturing relay switches in a joint venture with Koor Industries.

7. **Griffith Laboratories, Inc.**, of Chicago, has received approved investment status for a plant to produce chemical additive for the food industry.

8. **Refac Technology Development Corp.** of New York will open a plant this month in Israel producing fasteners for the aeronautic industry.

Plant Expansion

9. **Mica Corp.**, a subsidiary of Micaply International, Ltd., of Culver City, Cal., is expanding an existing plant in Israel to manufacture the boards on which printed circuits for the electronic industry are imprinted.

10. **Standard Textile Co.** of Cincinnati is manufacturing hospital sheets and towels in a plant opened in Arad in 1975.

11. **Intel Corp.**, of Santa Clara, Cal., opened a plant for the design of integrated circuits which are shipped to the U. S. for manufacture.

12. **Commercial Credit Co.**, a subsidiary of Control Data Corp. of Minneapolis, is awaiting the grant of new incentives to enlarge its leasing operations.

13. **Damon Corp.**, of Needham Heights, Mass., has received approved investment status to expand its plant for production of poultry vaccine.

14. **Mundi International Ltd.**, has acquired 50 per cent of Raffa Pharmaceuticals Ltd.

15. **Dexter Corp.** of Windsor Locks, Conn., is building a plant for production of chemical additives in Israel.

Microwave Laboratory

16. **Microwave Associates, Inc.** of Burlington, Mass., established in 1975 a microwave laboratory on the site of the Intertechnion in Haifa.

17. **Three H Corp.**, a New Jersey manufacturer of industrial gases for the electronics industry, is building a plant in Israel and is already considering expansion.

18. **General Telephone & Electronics Inc.**, which owns 50 per cent of Tadiran Electronics, is expanding its plants.

19. **Control Data Corp.**, which owns 50 per cent of Elbit Computers Ltd., is planning an expansion of electronics component manufacture.

20. **Motorola, Inc.**, which owns a majority of Motorola Israel Ltd., has completed an expansion of its electronics plant.

21. **Vishay Intertechnology Inc.**, of Pennsylvania, is opening a new plant this month to supplement its Israeli manufacture of resistive systems for export to the U. S.

22. **Hilton International Co.**, a subsidiary of Trans World Airlines, Inc., took over management of the newly constructed Jerusalem Hilton.

23. **John Labatt Ltd.** of Canada acquired Israeli Breweries Ltd. for \$8.2 million.

EXPORT MAGAZINE — July/August, 1975

Tadiran There's Electricity in the Air

by Peter Royston Allen-Frost
EXPORT Correspondent, Tel Aviv

Tadiran, a top Israeli producer of electrical goods ranging from washing machines and batteries to telecommunications systems and computer terminals, has grown to prominence rapidly since it was founded 13 years ago. Established as a result of a merger between two small companies in Tel Aviv, it has pushed its total sales from under half a million dollars in 1962 to U.S. \$190,000,000 in 1974. The projected figure for 1975 is one billion Israeli pounds — U.S. \$150 million.

Among large privately owned firms Tadiran is unique in that it has never had a strike or even a work dispute, according to Managing Director Elkana Caspi who has headed the company since the beginning and is a driving force behind its expansion. "Our workers are our best asset," he explains, "and we make every effort to keep them happy since without them, we are in trouble."

This involves offering non-voting stock to the employees (Tadiran is probably the only firm in Israel to

do so); a five-day work week (virtually unheard of here); regular bonuses for productivity, and top rate working conditions. "Consequently," Caspi says, "our productivity is far higher than the national average." Tadiran now has 6,000 employees.

The philosophy behind the labor-management relations is American, according to Caspi. Many of the key personnel are U.S.-trained and an American firm, **GTE International**, is a half owner of Tadiran. GTE bought into Tadiran in 1974.

SUCCESSFUL U.S. VENTURES IN ISRAEL

THE JOURNAL OF COMMERCE — April 16, 1975

Bedspreads Mill

UM&M, Argaman Invest In Joint Israel Venture

By WILLIAM H. LANDER

Journal of Commerce Staff

United Merchants & Manufacturers, Inc., which is one of the largest diversified textile concerns in the United States, and Argaman Ltd., a veteran Israeli dying and finishing firm, are cooperating in the building of a weaving mill at Ashkelon, Israel.

The joint venture did not just happen. It is not a random investment or a speculative move by somebody looking for a place to put some capital to work. It follows a logical sequence of events, starting with the fact that in the United States there are some people with good taste who are willing to pay something extra for high quality, colorful, 100 per cent cotton quilts for bedspreads. United Merchants found this out through its Kenneth Home Fashions Division. Kenneth said it began importing bedspreads from Israel five years ago, and discovered that there was a good market for them.

that Kenneth Home Fashions has become one of the leading resources to supply department stores with high quality draperies, bedspreads and curtains.

Mr. Nathanson said the new weaving mill, 30 miles south of Tel Aviv, is scheduled to start up in June, and this will help in meeting the increasing demand for Israel goods. It will be operated by a joint company called Umar Textiles Ltd., which is owned 65 per cent by Argaman Ltd., and 35 per cent by United Merchants & Manufacturers. Its name is derived from UM of the U. S. company, and the AR of Argamon. Its full capacity of six to seven million yards per year is expected to be reached in September. And, later on, it may be expanded.

The plan is for Umar to weave greige goods which will be printed by Argaman on designs by Kenneth Home Fashions. The job of manufacturing is guided out-

CONTROL ENGINEERING —

February, 1977

Computer-Controlled Irrigation System to Be Introduced in U.S.

Tel Aviv, Israel—The MIR 1000, an automatic irrigation control system developed by Motorola Israel Ltd., will be introduced in the U.S. this year. Motorola Israel is a subsidiary of Motorola, Inc., Chicago.

The system's master control station contains the central processor, supervisory console, a synoptic map of the irrigation network, and a teletype-writer. Field units execute the instructions provided by the master station. The master station and all field units are connected by a single three-wire cable.

The central processor has an 8k-bit memory, which is expandable to 32k. Two options are available: the Hewlett Packard 2105 minicomputer or the Motorola Semiconductor MC6800 microprocessor. The minicomputer allows for the execution of other programs, while the microprocessor is dedicated to the irrigation network. Irrigation instructions are entered via the operator's keyboard or optional control console. The map display provides information as to which fields are scheduled for irrigation, which are currently being irrigated, and which have been finished. An ASR-33 teletype provides a continuous record of network performance.

THE JOURNAL OF COMMERCE — May 5, 1976

Joint US, Israeli Firm To Sell Industrial Gas

By MACABEE DEAN

Journal of Commerce Special

TEL AVIV — One of the first American firms to take advantage of Israel's highly advantageous agreement with the Common Market was the "3H Corporation," of New Jersey.

It set up a joint firm called "3H Industrial Gases" with Vered Rosenfeld Investment Ltd., itself a wholly owned subsidiary of Aaron Rosenfeld and Sons, the first and largest general agents in this country for private shipping lines (including American Export Lines, of New York;

SPECIAL ADVERTISING SECTION

"This gives us a considerable advantage over the mother company itself," he says. "We are not only nearer geographically to Europe, but we pay only 0.7 per cent to 1.7 per cent customs duties on our products, and, in July, 1977, we will be exempt from all customs duties. The identical products shipped from the U. S. must pay from 15 per cent to 17 per cent duty.

"Moreover, we can take advantage of Israel's lower labor costs, many less strikes, and Israel's highly skilled, technologically advanced manpower."

The 3H plant, erected at a

grant; another 40 per cent was granted by the Government as a long-term loan at low interest rates. Moreover, the government paid for the erecting of the actual factory building, and it charges a low rental. (If 3H decides to buy the building, all rentals paid will be deducted from the purchase price.) The land on which the factory stands also is rented to 3H at a low cost.

Factory in Carmiel

The 3H factory is in Carmiel, a development area, near Haifa.

Vered Rosenfeld Investment also has established (with its own funds)

new ideas about joint ventures, especially those which can benefit from the Israeli Government's grants and also the Common Market."

Founded in 1919

David Shany, deputy general manager of Aaron Rosenfeld and Sons, adds that, as the largest agent for private shipping lines in Israel, the company is very "flexible" and can offer the largest variety of services including handling of "and 40 foot containers, roll-off

WHAT ISRAEL OFFERS • FAVORABLE INVESTMENT CLIMATE

ST. LOUIS GLOBE-DEMOCRAT — June 5, 1976

Israel emerging as Japan of Mideast

By DAVID M. GREBLER
Business Writer

Think of a small developing country which must import almost all of its industrial raw materials. Utilizing a modern, rapidly growing manufacturing industry, characterized by innovation and advanced technology, it then produces industrial and consumer products to meet its own needs and growing export demand. No small proportion of the resulting products are new inventions.

While this description obviously applies to the historic economic performance of Japan in the last two decades, it also applies to the State of Israel.

The story of Israel's development as a Mideast industrial center, and its efforts to increase foreign trade and investment, was brought to St. Louis this week by Ben Zion Golan, Israel's Consul for Economic Affairs.

The rapid growth of the Israel economy is apparent from just a few comparative statistics, Golan said. For instance, for the 23 years, 1950-73, the average real growth of Israel's gross national product was about 9.5 per cent annually. The comparative figure for Germany is 7.5 per cent; for Holland 4.5 per cent; and for the United States, 3.3 per cent.

Over the same period, Golan said exports have grown from \$35.1 million in 1950 to \$1.38 billion in 1973. Israel still imports more than twice as much as it exports, with imports growing from \$300.3 million in 1950 to \$2.94 billion in 1973. Exports as a per cent of imports, however, have grown from 11.7 per cent in 1950 to 46.9 per cent in 1973.

Israel's economic progress was fueled by the three-fold expansion of the country's population and labor force, Golan said, together with an even more rapid increase of its total investment. Mass immigration was credited with the population increase,



This STOL (Short Takeoff and Landing) transport plane, built by Israel Aircraft Industries, Israel's largest industrial enterprise, has been exported throughout the world. Shown in inset is Ben Zion Golan, Israel's Consul for Economic Affairs.

while large scale capital imports permitted required growth of industry.

Speaking to a small group of St. Louis industrialists at the Colony Hotel, Golan described Israel's metal industry as a pillar of that growth. It is the fastest growing segment of the nation's economy. With investment in the metals industry projected at \$850 million from now through 1979, an annual growth rate of 13 per cent is anticipated, Golan said.

Total turnover of Israel's metal working production reached \$1.9 billion in 1974 compared to \$570 million in 1970. The number of employees in the industry grew from 30,000 to 90,000 in the same period, and metals exports increased from \$56.5 million to \$154 million. Major markets include the United States, Canada, West Germany, Iran, Australia, South Africa and Greece.

Golan said major market gains will be made in Europe as the benefits of the recent agreement with the European Economic Community (EEC/

Common Market) are recognized. Some import duties for goods from Israel have already been reduced, and the agreement projects no duty on most Israeli industrial products as of July, 1977.

While substantial amounts of the imported capital mentioned previously have come from the United States, much of it from sales of State of Israel Bonds, the trade balance between the two countries remains in the favor of the U.S. In 1974 Israel exported \$300 million in goods to the U.S. while buying \$750 million in U.S. products, not counting military purchases.

In the metals industry in 1974, the U.S. imported \$52 million in Israeli products, and sold Israel \$300 million in equipment for the industry.

Other Israeli imports from the United States make it one of only 19 countries to import more than \$1 billion in U.S. goods in 1974. It is the U.S.'s 17th largest market in the world. On a per capita basis, Golan said, Israel is the U.S.'s second largest market, after Canada.

With this market and growth potential, Israel is naturally promoting both its exports and opportunities for investment in Israel. Recent changes in Israel's Law for the Encouragement of Capital Investments, first passed in 1950, have improved the extensive incentive program. Included are grants and low cost loans for fixed asset investments. Export support includes automatic rebates of up to 27 cents in cash to exporters for each dollar of export sales.

Research and development expenses can be deferred by 50 per cent government grants on the condition that the resulting product will be manufactured in Israel, Golan explained.

Depreciation rates, training grants, exemptions from duties, tax concessions and financing benefits have also been improved, Golan said.

Commenting on the presentation, Irving Shepard, Golan's host and president of Chromalloy American Corp., said, "I have a private vision of Israel emerging as the Japan of the Middle East." Chromalloy has had operations in Israel for at least five years, Shepard said.

Those operations have been expanded three times, most recently to start a metallurgical process to fabricate products to export to the United States.

Golan extended an invitation for industrialists to attend a metals trade show, Metal Industries Week (ISMETAL '75), Oct. 5-10 in Tel Aviv. More than 200 major Israeli manufacturers in nine categories of metal industries are expected to be represented at the event.

Asked about projections for possible Israeli trade with its Arab neighbors, Golan said, "That would be the answer to our hope, and, I think, that of most people concerned about the area. Then we would all have peace and prosperity."

THE JEWISH WEEK-AMERICAN EXAMINER — March 13, 1977

Growth rate of Israel industry called among world's top 10 nations

Headlines in the press relating to Middle East hostility have obscured the fact that Israel has created the greatest industrial miracle story of the age, according to Avraham Shavit, president of the Israel Manufacturers Association, who spoke Friday at a press conference at the American Jewish Committee, 165 East 56th street.



Avraham Shavit

Israel's exports rose by 26.4 per cent in 1976, he said, ranking second to Iran among all countries in the world in rate of growth. In the whole period since 1948, he said, Israel has had the best record in the world, achieving a doubling of the economy every four or five years, except for a slowdown two years following the Yom Kippur War due to the cost of the war.

Asked whether the Arab boycott threatened Israel's growth, Shavit said that Israel would manage to keep on growing despite any obstacles put in her path, but that the boycott issue is like the problem of terrorism. He said:

"The world was indifferent when they killed people at our airport and in frontier towns, but now there is terrorism wherever you turn, in many countries. If the world does not stop the boycott when it is directed at Israel, the whole world may become embroiled in trade war." He said, in answer to a question, that the pending anti-boycott measures being considered in Washington are on the right track.

Opportunities for profit

Shavit deplored the impression that Israel relied for her industrial development on non-profit investors who were starting little businesses just to help out. "When they set up an industry not to make a profit, they are certain to lose money and fail," he said. "It is only when they want a profit that they will become successful, give employment to our people and help our exports." The government, to encourage profit-seeking enterprises, he said, gives liberal assistance and privileges.

"There is not enough realization," he said, "that Israel has been successful in the most sophisticated enterprises, producing items that only highly-advanced countries are able to produce. 'We are,' he said, 'among the ten coun-

tries that are first in the world in their ability to produce such products.'"

Paying tribute to the achievement of the Germans and Japanese in creating their economic miracles, he said that Israel had in proportion to its population, advanced at a far greater pace. He pointed out that Israel could have moved even more rapidly, but for the fact that she tailored her industries initially, not primarily to compete with other nations, but to employ the immigrants who were coming to the country from backward areas where they had not been able to learn skills.

Industries for the unskilled

"We didn't need great experts," he said, "to convince us that all the investment we made in textile enterprises would not solve our balance-of-trade problems. We knew that too well, but we had to create the kind of jobs that our newcomers could readily fill."

Breakthroughs before long in the easing of Israel's energy problem through the further development of solar energy were predicted by Shavit. He said that he was himself interested in a company that seemed to be on the verge of significant developments. "We are already first in the world in the use of solar energy," he said. "We do not expect that it will be our total solution, but it should ease the problem."

On the prospect for finding oil, he said that most Israelis are of mixed emotions. They want to find oil, but they have some philosophical reservations and they are not sitting back waiting for new discoveries to solve their problem.

Incentives to investors

Shavit, who is Managing Director of Shavit Oven, the largest oven and oven accessories factory in Israel, added that \$250 million of Israel's exports were products of industrial research and development.

"In other words," he said, "twenty per cent of our industrial exports are the direct outcome of Israeli initiative."

Israel's research and development potential, together with its intensive industrial incentive program, has been largely responsible for attracting investments by major American companies despite efforts by Arab countries to enforce boycott restrictions, Mr. Shavit continued.

He listed some of the incentives Israel offers to American investors: "government financing of up to 70 per cent of the investment in fixed

assets at the time of investment, with an additional 24 per cent at the time of export; research and development grants covering 50 per cent of R & D costs; indirect-tax rebates and significant tax concessions, including the opportunity for U.S. manufacturers to minimize taxation on their overseas operations to the lowest possible level."

A further incentive will be added as of July 1, 1977, he said, when Israel's agreement with the Common Market countries is to go into effect, "giving U.S. firms duty-free access to the E.E.C. for virtually every category of Israel-produced goods."

Common Market access

Duty-free access to the European Common Market, combined with Israel's eligibility for the Generalized System of Preferences, which allows more than 2,700 Israel-made product categories duty-free entry into the United States, "makes Israel a duty-free gateway to a 475,000,000 people market — the largest duty-free trade zone in the world," he declared.

As an example of what he called a "typical success story of an American company in Israel," Shavit cited the experience of General Telephone and Electronics, whose Israeli subsidiary "increased its total manufacturing volume from \$90 million in 1974 to \$180 million in 1976, of which it exported \$17 million in 1974 and \$85 million in 1976."

Shavit listed other U.S. companies that maintain substantial interests in Israel. These include, among others, Control Data Corporation, Motorola, Zenith Radio, Miles Laboratories, Monsanto Company, Witco Chemical Corporation, American Can Company, Ryerson Steel, Hudson Pulp & Paper, United Merchants and International Business Machines.

WHAT ISRAEL OFFERS • FAVORABLE INVESTMENT CLIMATE

ISRAEL

U.S. Seen Likely To Maintain Top Share Of Import Market

Israel will continue to be the third largest market for American exports to the Near East during 1977, exceeded only by Iran and Saudi Arabia, according to Gayle Reichhardt of the Bureau of International Commerce. The United States is expected to maintain both its current level of exports to Israel and the largest share of the Israeli import market during 1977.

Israel's economy last year was characterized by moderate GNP growth, an inflation rate of about 35 percent, nearly full employment, and a somewhat improved balance of payments position. The level of Israeli exports last year rose an estimated 15 percent over the previous year, while imports declined 3 to 4 percent. This decrease in the country's total imports was reflected in the lower volume of U.S. sales to Israel. Trade and payments data for the first nine months of 1976 indicate that Israel's balance of payments deficit for the year will total \$3 billion, \$800 million less than the 1975 deficit. This improvement was influenced by a partial recovery of demand in the world marketplace and by several economic measures taken by the Government of Israel.

To discourage speculation and consumption and to promote exports, the government implemented a system of small, regular currency devaluations in June 1975. Since the program began, the Israeli pound has been devalued 15 times by a total of about 45 percent. Furthermore, last July, the government changed the linkage of the pound from the U.S. dollar alone to a basket of five foreign currencies, weighted in part according to Israel's export pattern. Another economic measure adopted in 1976 was the institution of a value-added tax on transactions involving most goods and services, including all imports.

Forecasts for 1977 indicate a slow rate of GNP growth coupled with continued high inflation and a large balance of payments deficit. Consequently, the new year will find Israel continuing a policy of economic restraint. Actions taken by the government in the coming year will be directed largely at encouraging exports, cutting back imports and consumption, and attracting foreign investment.

Israel hopes to attract foreign investment dollars by providing loans at subsidized interest rates, cash grants, and tax concessions to qualified projects under the Law for the Encouragement of Capital Investment. Foreign manufacturers may also wish to consider a location in Israel to take advantage of the

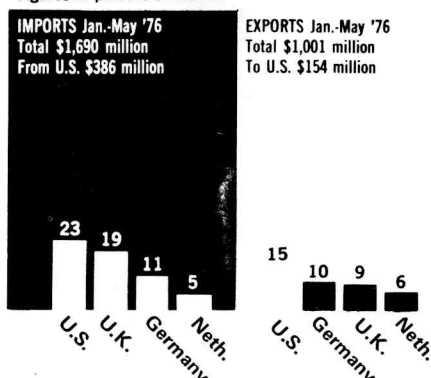
COMMERCE AMERICAN — January 31, 1977

duty-free treatment which Israeli industrial exports will receive in the European Economic Community, effective in July, under the terms of a special trade agreement. On Jan. 1, 1976, Israel became eligible for the United States' generalized system of preferences (GSP). Countries qualifying for GSP may export some 2,700 products duty-free to the United States. In addition, the Governments of the United States and Israel have initiated a treaty which would end double taxation on investments. The treaty has been presented for ratification according to each country's constitutional procedures, and currently is before the U.S. Senate.

Israel hopes to increase its industrial production in the coming year—particularly for exports. Israeli industrial development in recent years has emphasized high technology industries, with the defense sector receiving a high priority. Some of the most promising markets for U.S. products and technology in Israel this year will be for electronic components; computers and peripheral equipment; electronics industry production and test equipment; metalworking and finishing equipment and machine tools; chemical processing equipment and supplies; process control instrumentation; avionics and aviation support equipment; and textile machinery.

Certain American-origin products will have a competitive edge in the Israeli marketplace next year as a result of the U.S. Government's commodity import assistance to Israel. Under the commodity import program for FY 1977, Israel will receive some \$585 million in grants and loans which must be used to purchase designated U.S. products at market rates. American commodities which are eligible for financing under the program include chemical products, agricultural equipment and products, pharmaceuticals, textiles, structural steel and metal goods, electrical equipment, paper products, scientific instruments, transport equipment, rubber and other goods.

Figures in percent of market



JOURNAL OF COMMERCE —

February 17, 1977

Israel Hopes To Hike Exports To US by 37 PC

Journal of Commerce Staff

Israel hopes to increase its exports to the United States by as much as 37 percent in 1977, a top Israeli trade official said here Tuesday.

Dr. Yaagov Cohen, deputy director general for foreign trade in the Israeli Ministry of Commerce and Industry, predicted exports to this country would be worth \$500 million to \$550 million in the current year.

Israeli exports to the United States in 1976, Dr. Cohen said in an interview, should reach \$400 million in 1976 when all the figures are in. They totaled \$306 million in 1975.

Forecast for 1977

Israel's inclusion in the U. S. Generalized System of Preferences (GSP) on Jan. 1, 1976, was a spur to exports to this country. Tariff concessions by the European Communities (EC) — Israel's largest market — also boosted exports and the forecast for 1977 is for an increase of exports to all markets of 16 to 29 percent.

Dr. Cohen, who is visiting Israeli trade missions here in connection with the new export target, indicated that sophisticated industrial goods are expected to represent an increasingly larger portion of Israeli sales here.

Exports, to all countries, of Israeli metals and electronics, rose to about \$435 million in 1976 from \$300 million in 1975.

"The forecast for 1977 is \$590 million in this area," Dr. Cohen said.

WHAT ISRAEL OFFERS • FAVORABLE INVESTMENT CLIMATE

COMMERCE AMERICAN — August 2, 1976

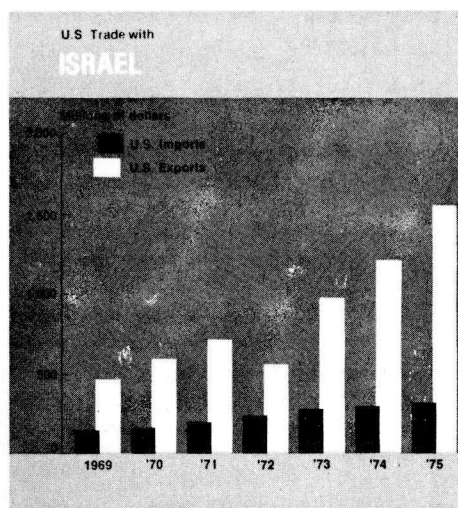
ISRAEL

Foreign Investment, Capital Goods Sought

U.S. exports to Israel in 1975 rose 28 percent over the year before to a level of nearly \$1.6 billion, reports G. Gayle Reichhardt of the Bureau of International Commerce. This made Israel America's second largest trading partner in the Middle East during 1975, exceeded only by Iran.

During last year, the United States also improved its position as Israel's leading foreign supplier, increasing its share of Israel's import market to 22 percent, a 4 percent greater share than in the previous year.

This trend of increasing U.S. exports to Israel is due principally to large



Although interest in high-quality, high-technology American products is as strong as ever in Israel, U.S. suppliers

This development, combined with Israel's duty-free arrangement with the EEC, would enable a U.S. investor engaging in a joint venture in Israel to export a number of products duty-free to both the U.S. and EEC markets. In addition, if ratified by the U.S. Senate, a treaty for the avoidance of double taxation on U.S. investments with Israel will take effect later this year.

Increased U.S.-Israel trade can economically benefit both countries. The governments of the two countries have been working together through a U.S.-Israel Joint Committee for Investment and Trade.

In addition, a joint Israel-U.S. Business Council has been formed to provide a valuable private sector complement to official government-to-government deliberations. The Council held its first plenary session in Jerusalem in June.

Throughout 1976, areas of greatest opportunity in Israel for U.S. exporters will be in the areas of chemical processing equipment, electronics, process control instrumentation, avionics and avia-

NEW YORK POST — January 17, 1977

Israel Output Increases

Israel ranked second among the world's leading industrialized nations in the growth of industrial production, according to figures released by the McGraw-Hill Department of Economics World Business Outlook — 1977.

The figures, representing the period 1966 to 1975 (the latest year for which actual data are available), show that only Iran ranked higher than Israel in industrial growth, making Israel's growth the highest among the non-oil producing countries.

In addition, during the period 1967 (the base year) to 1975, Israel's industrial growth, on a compound basis, was higher than 10.

Also released were McGraw-Hill forecasts for 1976 and 1977, which predict that Israel will maintain its leading position in the growth of industrial production, being surpassed in only by Iran and Poland.

The McGraw-Hill report studied the growth of industrial production in 24 countries, including Japan, the United States, West Germany and Israel. During the period discussed, when

Israel's industrial production grew 2.3 times what it was in 1967 (the base year), Japan's grew 1.7 times, West Germany's grew 1.4 times and the United States' grew 1.8 times.

Israel was the only country of these four to enjoy industrial growth in 1975; industrial production declined in the other three countries during that year.

THE JOURNAL OF COMMERCE — April 16, 1975

Israel Seen Filling Unique Export Role

Journal of Commerce Staff

Israel fills a unique role in the export world; it possesses highly sophisticated technological skills, available at prices beneath those charged in Europe, while its industry is geared to small individual orders — and not to mass production.

This is how Yeheskel Kassif, head of the Government of Israel's Trade Center (which has a permanent exhibition at 111 West 40th Street) defines Israel's situation vis-a-vis Europe's industrialized nations.

Imports Tires from Israel

For example, he notes that the U. S., a worldwide leader in the production of tires for vehicles, imports tires from Israel, as do several other tire-producing countries.

Since Israel's tire plants are small, they can easily be retooled to produce small quantities of high quality "odd-sized" tires for a variety of specific purposes.

It would hardly pay for an

American plant, geared to large production runs of standardized tires, to try to do this he notes. "But we cannot compete when it comes to mass production; we do not try," he says.

Fashions and Styles

Textiles are another example. Israel cannot match the prices of cheap cloth, mass produced, which comes from the Far East.

But when it comes to fashions and styles, Israel's foothold in both the European and American markets is secure.

And here again, due to lower labor costs, Israel manages to offer goods at lower prices than those charged by Italian and French exporters of fashions.

Although, there was a slowdown in growth in food and agricultural exports, due to the Yom Kippur War, prices paid for agricultural delicacies from Israel remained constant during this past year. Export also grew by 4 per

cent to the United States during the past year.

Increasing Demand

In certain other fields, namely chemicals and fertilizers, there is an ever increasing demand by agricultural countries interested in phosphates, potash, insecticides and pesticides.

In still another field, electronics, Israel's output is eagerly sought for, its competitive price, excellent design, high quality and sophistication. However, in this field, due to heavy demands of the Israeli market itself, orders must be placed well in advance. One exception is nuclear medical equipment which is produced mainly for the export market.

Metal products have one of the highest growth rates in the export area. The industry has grown from one which utilized exports only to dispose of temporary overproduction to one in which overseas sales are the main consideration.

THE NEW YORK TIMES — January 25, 1976

Israel Seeks Niche in Special Exports

By MOSHE BRILLIANT

TEL AVIV—At a recent metals trade fair here, overseas buyers, salesmen and potential investors streamed to a section where the latest Israeli inventions and innovations were displayed.

They inspected exhibits ranging from an instrument developed by the Weizman Institute of Science to make photographs of the identifying characteristics of precious stones to a device invented by Eleizer Benimetsky permitting riveters to drill holes and settle rivets with the same tool in seconds.

Overseas buyers spent an estimated \$300 million last year for products conceived, innovated or developed in Israel. "If the trend continued a few more years," said Prof. Yosef Yaakov, chief scientist of the Ministry of Commerce and Industry, "exports of science-based industries at the beginning of the 1980's could exceed \$1 billion and help close the trade gap."

The gap in the balance of payments last year was nearly \$4 billion. It was plugged by foreign grants, credits and donations, mainly from the United States. The main cause of the staggering deficit was the increase of arms imports from \$700 million annually to \$2 billion since the 1973 war that erupted on Yom Kippur.

Because of the burgeoning defense expenditures, the Israelis are trying to reduce their dependence on foreign aid by consuming less and exporting more.

The country is too advanced to compete on world markets in primitive industries but not enough to compete with the world's industrial giants. So it is seeking a niche in areas that are highly sophisticated but too specialized to interest the giants. For example, the Israeli computer industry does not hope to sell mass-produced units for commercial use but rather tailor-made ones for such uses as medical

diagnosis, quality control or physics.

Israel's industry still lags behind its highly developed agriculture. In the first hectic years after the country's independence in 1948, Israel was preoccupied with raising food, building houses and providing basic necessities for immigrants who doubled the population in three years. Industry's function was to produce consumer goods and create employment for unskilled immigrants. Efficiency did not matter since the Government fixed prices on a cost-plus basis. There was practically no innovation and no investment in research and development.

So the young scientifically trained either went into abstract research or moved abroad.

The Government has been trying in recent years, however, to lure this brainpower to domestic industry. "Industry does not mean hard physical work or operating a machine," said Dr. Moshe

Mandelbaum, director general of the Ministry of Commerce and Industry. "Industry means innovation. Industry means new technologies and adapting old ones. It is a challenge to our young people."

The Government has offered to match entrepreneurs' investments in industrial research and development dollar for dollar. Consequently such investment rose from \$500,000 in 1967 to \$15 million last year. Seventy-five companies have programs, and 34 of these have technology agreements with foreign investors.

Dr. Mandelbaum said that in the last two years Israel had graduated into the league of the 10 or 15 top industrialized countries with laboratories, testing and quality-control facilities, a reservoir of skilled manpower and an infrastructure enabling work in the most advanced

The sophisticated industry

WHAT ISRAEL OFFERS • DUTY-FREE TRADE ZONE

BUSINESS INTERNATIONAL — May 7, 1976

Israel Emerges Anew As An Export Base For the US and Europe



The fragility of Middle East politics notwithstanding, Israel seems to be re-emerging as an attractive investment site for certain foreign investors, mostly US companies. According to Israeli officials, incoming foreign investments, which reached \$185 million in 1973, totaled a mere \$43 million in 1974 and almost ground to a halt in early 1975, are now on the upswing. The Israeli Investment Authority points out that over 30 firms from the US alone located or expanded plants in Israel last year and 10 more new projects are under way. Among those that have expanded existing facilities are Miles Laboratories, General Telephone & Electronics and Motorola. Those making new investments include Teledyne and United Merchants and Manufacturers (the latter having an existing investment in Israel). Encouraged by this turn of events, a new organization, the Committee for Economic Development in Israel (CED-I), was formed in March with the purpose of drumming up US investments. CED-I's major selling tools are Israel's new tax treaty with the US, its free trade agreement with the Common Market, and a new round of investment incentives (see below).

While these are all strong inducements, companies tell *BI* that the easing of Middle East tensions is the major reason why they have taken Israel off the back burner. Encouraged by the Egypt-Israeli accord, many firms now see slow but steady progress in the further easing of tensions, including the thorny Palestinian issue.

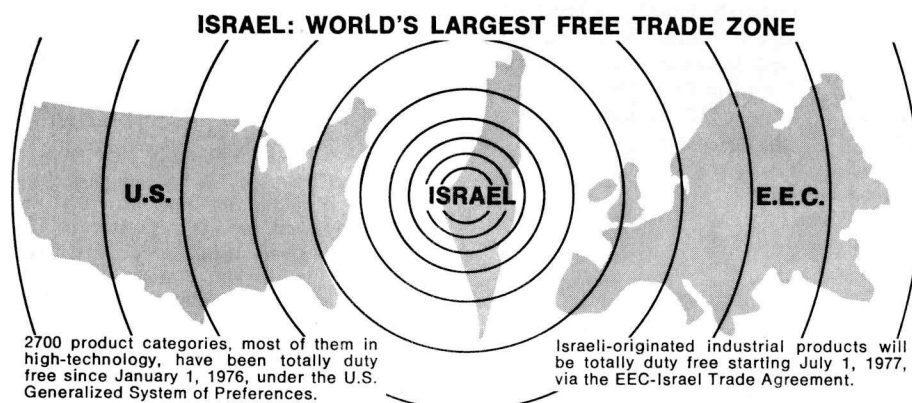
There are grounds for cautious optimism. All sorts of nuances are creeping into diplomatic parlance that suggest relaxing of previously hard postures: Syria is being encouraged in its role as a peacemaker in Lebanon by countries such as oil-rich Saudi Arabia, the financial godfather of many Arab projects, which along with most other Arab nations fears—as does Israel—the establishment of

extreme leftist elements in Lebanon; Egypt, without whose military support any Arab belligerency against Israel would be futile, is turning its attention to the ambitious task of building up a strong industrial base.

Finally, recent months have seen a modification in the Arab boycott, which, say the Israelis, was always more of a paper tiger than a major deterrent to foreign investment. In essence, an investment in Israel does not automatically put a firm on the boycott, as was the official version in the past. Egypt, for example, now stresses that it will consider investments by companies that have ventures in Israel if a project is important to Egypt or the foreign firm's stake is at least equal to its Israeli investment (such criteria are also used to get firms off the boycott list).

Political considerations aside, the protagonists, Israel included, in the Middle East peace negotiations are in no shape for a war. Israel's economic woes, in fact, are all war-related carryovers—high inflation (30%), high personal taxes (up to 70% on moderate incomes), heavy defense spending (30% of GNP) and a balance-of-payments deficit (\$4 billion) that has necessitated many minidevaluations of the pound. Without some diminishing of the prospects for war, the country's recent spate of tax treaties, free trade agreements and incentives would be to no avail.

The attractions. Israel is a small but wealthy market. While its GDP is only \$12 billion or so, and its population only 3 million, per capita income is over \$3,000—higher than the UK's or Italy's, for example, and in reality higher than that of any other Middle East country. Infrastructure and communications are excellent. Its labor force is highly skilled and educated, which is especially attractive to the high technology industries that form the bulk of the country's major foreign investments. And, in stark contrast to many other countries, Israel welcomes foreign investment. There are no limits on the percentage of equity ownership that a foreign company can hold; there is no threat of the state's taking over foreign companies; and foreign companies that can export all or most of their production can obtain very generous incentives.



THE SPRINGFIELD UNION — August 7, 1976

Israel Opens Common Mkt. To U.S. Firms

By THOMAS MARINELLI

Union Business, Industry Writer

The Government of Israel has released a list of American-made products which can be manufactured in Israel for eventual duty-free export to Common Market countries.

Among the products on the list are a large number of metal and machinery industry goods, including iron and steel, non-electric machinery and textile machinery, now being manufactured in the United States for export to Common Market countries.

On the list also are hand tools, lawn mowers and parts, air conditioners, refrigerators and bottling, canning and wrapping and packing machinery and parts.

TIME — May 26, 1975

Israeli Breakthrough

Compounding the political isolation that has beset Israel in recent months has been longstanding if less severe economic isolation; the Jewish state belongs to no trade bloc in which it can sell its products under low tariffs, a fact that aggravated a \$3.5 billion trade deficit that last year forced a 43% devaluation of the Israeli pound. But in Brussels last week Israel achieved a significant breakthrough from its loneliness. The nine-nation European Economic Community signed an agreement that greatly reduces tariff barriers on sales of Israeli goods to the Common Market and assures Israel there will be no arbitrary cutoff of supplies of such essential items as chemicals and metals in time of crisis.

Politically, the agreement is a sign that Europe has not abandoned Israel, despite its 70% dependence on oil from Arab lands and many indications that it was caving in (in 1973, for example, the Common Market drafted a strongly pro-Arab resolution embracing Cairo's argu-

ments in cease-fire negotiations). Economically, the pact should help Israeli exports of oranges, chemicals and electronic products. As of July 1, Common Market tariffs on those and other Israeli goods will be lowered 40% to 80%; by mid-1977, there will be no tariffs on Israeli industrial exports to the EEC.

Israel, however, will be permitted to retain full tariffs on many industrial imports from the Common Market until 1977. After that, tariffs will be gradually reduced, but some duties may last until 1989, by which time the Israeli economy will supposedly be able to withstand the full rigors of international competition—a sort of commercial bar mitzvah. Israel has been allowed favorable treatment in the early stages of the pact because it now imports more from the EEC than it exports. It bought \$2 billion of Common Market goods last year, mostly heavy machinery.

"The implication of this to American manufacturers is considerable. U.S. companies will be able to significantly expand their activities in the 227 million person Common Market, and do so on a much more competitive basis than is now possible. All they need do is manufacture their goods for export to the Common Market in Israel," the Israel Investment Authority said in its announcement of the list.

Total sales by U.S. companies to the Common Market of products on the list already amount to \$6.7 billion and would be even greater if U.S. companies enjoyed a more competitive position in the investment market.

NORTHEASTERN INDUSTRIAL WORLD

— September, 1976

U.S. products manufactured in Israel can enter Common Market duty free

Israel has released a list of American-made products subject to high duties when exported to the Common Market but which, if manufactured in Israel, would be eligible for duty-free entry to these countries.

This results from Israel's agreement with the Common Market which calls for Israeli-made products to be subject to one-fifth of the existing duties. And, starting July 1, 1977, they will enter Common Market countries totally duty-free.

The implication of this to American manufacturers is considerable. U.S. companies will be able to significantly expand their activities in the 227 million person Common Market, and do so on a much more competitive basis than is now possible. All they need do is manufacture their goods for export to the Common Market in Israel.

Total sales by U.S. companies to the Common Market of products on the list already amount to \$6.7 billion, and would be even greater if U.S. companies enjoyed a more competitive position in this market. Among the products on the list are a wide variety of chemical, textile, metal and machinery, electric, electronic and instrumentation products.

BUSINESS LEADER — January 5, 1976

President Ford Approves . . .

Duty—Free Israeli Imports

NEW YORK — By Executive Order of President Ford, beginning January 1 more than 2700 products manufactured in Israel can be imported into the United States duty-free.

The Presidential announcement makes Israel eligible for the Generalized System of Preferences. The G.S.P., established by the Trade Act of 1974, lists products which may be exempt from import duties. It has been made available to a number of selected countries.

As a result of this and recent trade agreements, American firms seeking an off-shore industrial location will find that Israel now offers business conditions virtually unmatched by any other country. Specifically, with this eligibility Israel has become the only country in the world where an American company can take advantage of:

- Duty-free access to many United States markets
- Duty-free access to the European Common Market
- A preferential tax position, including higher foreign tax credits and protection from double taxation.

The duty-free status applies to many metal products, fine chemicals, electrical and electronic products, computers and medical instrumentation systems. Textiles and some semi-finished goods are excluded under the agreement.

As the G.S.P. is a reciprocal agreement, Israel has at the same time agreed to reduce import tariffs on over 130 U.S. made items.

Israel government officials feel that Israel's eligibility for the G.S.P. will mean a real boost to American firms locating in Israel, especially to those seeking American as well as European markets. They argue that for certain items, Israel will now become the most economically attractive location for American manufacturing operations.

"Products will be able to reach Europe and the United States as if they were manufactured in the domestic markets—duty-free," said a senior official. "At the same time, manufacturers will be able to take advantage of U.S. tax breaks not granted to operations in either the U.S. or the E.E.C. Together with Israel's low costs, high technical skills and generous financial incentives these tax breaks

will make it more advantageous, from a 'cost of doing business' standpoint, to locate in Israel than in either the Common Market or the U.S."

Israel officials base their claims on these recent developments:

*** Admission to the Common Market - Israel** became an associate member of the E.E.C. on July 1, 1975 with an initial 60% reduction in customs duties on all Israel industrial exports to Common Market countries. By 1977, all customs duties will be phased out. The Israel market, however, will be protected from European import competition until 1989.

*** Israel Tax Treaty** - This treaty, signed November 20, 1975, will, upon Congressional approval, protect Americans investing in Israel from double taxation. The treaty also limits withholding taxes on profits to 12.5% and guarantees that grants given to American investors by the Israel government will not be considered income. For U.S. tax purposes, American investors also benefit from Israel's status as a Less Developed Country to receive higher foreign tax credits. Israel government tax example.

CHASE WORLD INFORMATION — May 26, 1975

UNITED STATES

Economic Pact with Israel

A series of economic agreements aimed at encouraging high technology industrial investment in Israel by U.S. firms was reached this month in Washington by Treasury Secretary William E. Simon and Israeli Finance Minister Yehoshua Rabinowitz.

The agreements were signed or initialed prior to completion of the U.S. "reassessment" of its Middle East policies. A U.S. official said the accords are expected to serve as prototypes for similar agreements with Arab countries.

Negotiated under the auspices of the Joint Committee for Investment, the following:

—A treaty
in...

AVIATION WEEK & SPACE TECHNOLOGY — March 31, 1975

Incentives, Rebates Offered To Lure Aerospace Facilities

By Edward H. Kolcum

New York—Israeli government has started a drive to attract high technology industries to Israel and is offering substantial economic incentives to companies that locate subsidiaries there.

U. S. aerospace component and systems manufacturers are prime targets of the drive, and the government is aiming particularly at companies with expertise in electro-optics, electro-mechanics, avionics, instrumentation and metals processing.

The objective is to pump more technology into the country to enable it to shift emphasis in its exports from textiles and agriculture to advanced industrial products, according to Joseph Vardi, director of the North American office of the Israeli Investment Authority.

Vardi said Israel will provide 70% of the capital to open a manufacturing plant. Of this, 30% would be an outright cash grant and 40% a loan for up to 10 years at an 8% interest rate.

For research and development the government will give outright cash grants of 50% for all expenditures.

Top priority in the government plan is being given to companies with products that have high export potential. Israel will add 27 cents to each dollar a company receives in export sales, and it will provide working capital for exporters at a 6% interest rate.

In addition, no import duty will be charged on raw materials whose end products are exported.

Vardi emphasized that the objective "is not to create jobs. Unlike Ireland and Puerto Rico, we do not have an unemployment problem. We want to increase our gross national product per capita, to get more dollar output per worker. The way to do this is to shift our emphasis from people working in textile plants or picking oranges to activities that make our society more technically oriented."

Overall, he said, Israel is experiencing a 10% annual growth on a national average. Technical industries are much above the national average, while non-technical industries fall well below 10%, he said.

Another lure for U. S. companies, Vardi said, is that effective July 1, 1977, the Common Market will end all duties on Israeli imports. On its side, Israel gradually will reduce import duties on Common Market commodities over the 12-year period beginning in 1977.

In addition to the incentives for locating a plant in the country, Israel is offering these other financial concessions:

- No personal income tax for five years. Corporate income tax is a flat 33% on profits, and dividends are exempt from tax.
- Machinery and equipment needed to start an enterprise will have a special 15% import duty, which is less than normal.
- Depreciation allowance will be computed at double the usual rate for the first five years.
- A special 33.3% deduction is allowable for industrial research.
- All profits from a business can be re-

patriated to the U. S. by the companies.

Vardi said terms of incorporation will not specify Israeli control or even Israeli representation on the board of directors, since the objective is gaining export dollars.

Israel last year had exports totaling \$750 million and imports of \$2 billion.

Within the aerospace industry, Vardi said, Israel is not seeking complete new aircraft or engine factories, but rather is concentrating on extending its systems and component capabilities. In regard to competition with similar manufacturers in Israel, he said: "We regard the globe as our market place; we ourselves cannot satisfy this market. So we are not concerned with competition except as it affects the domestic market."

The Israeli Investment Authority will push hard in its efforts to attract U. S. companies on two basic points:

- Technical competence in Israel.
- Lower price of the end product.

In addition to lower labor costs, the government will lease factory and space to U. S. companies at a rate of 50 cents per square foot.

Israeli

THE JOURNAL OF COMMERCE — May 5, 1976

Financial Incentives To Israel Investments

Israel is revamping its system of investment incentives to enhance its allure for foreign investors. The following description of the incentives is based on the new Law for the Encouragement of Capital Investments which is due to be passed by the Knesset this month and will be retroactive to April 1, 1976.

Grants and Loans

— The Government of Israel provides **outright cash grants and low cost loans** up to a certain percentage of investment in fixed assets. For every dollar invested in fixed assets up to 70 cents is provided by the government, the balance being the owners' paid up capital. The exact amount is determined by the location of the plant.

Additional grants of up to \$1 per export dollar for exporting enterprises are given on up to 24 per cent of the investment in fixed assets during four of the seven first years of operation.

— **Additional grants** are available on machinery manufactured in Israel.

— **A special grant** is given for infrastructure development not included in the fixed assets.

— **High-technology industries** are granted additional development loans.

Export Support

The Government of Israel
\$.27 in cash to export
This rebate is
own

BUSINESS WEEK — July 12, 1976

International business

ISRAEL

Another big push for outside capital

Reeling from a \$4 billion balance-of-payments deficit last year and forced to make repeated mini-devaluations of its currency, Israel is embarking on a new drive to boost exports and attract foreign investment. A new law to encourage foreign investment is due to pass the Knesset later this month, and Tel Aviv is busy promoting the opportunities the law may open up.

As the Israelis see it, they have more to offer than virtually any other country, despite the constant threat of hostilities with the Arabs. Foreign investors can draw on a skilled and highly educated work force that nevertheless earns only about half the wages of comparable American workers.

Israel's most important new card is its access to key markets. By July 1, 1977, Israeli industrial goods will be able to enter the nine European Community countries free of duty. And under an agreement with Washington, about 2,700 made-in-Israel items, including metal products, fine chemicals, electrical and electronic goods, computers, and medical instruments, have been allowed into the U. S. without tariffs since last January.

Even the Arab boycott, which has

kept many Western companies out of Israel for fear of retaliation by the much larger Arab market, is no longer working so strongly to Israel's disadvantage. Egypt and several other Arab countries have indicated that they do not object to companies investing in Israel so long as they put an equal amount of money into the Arab world.

New climate. Israel itself can certainly use more foreign capital. Paced by massive military spending, the country's balance of payments is running deeply in the red. Export income was badly affected by the world recession, and inflation, which hit 40% last year, is still about 25%. The government is busy dampening domestic demand with higher taxes and cuts in social spending, and has a program of small, frequent devaluations of the Israeli pound on Brazilian lines.

Israel hopes the new investment law will help to change this. Actual foreign investment last year was only \$30 million, although projects worth \$113 million were authorized, and there have been no new investment deals this year. Israel plans to boost industrial spending by \$3 billion over the next five years, of which it hopes to get \$150 million a year from U. S. investors, says Eliezer Grunewald, director of Israel's Investment Authority.

The new law increases government grants and low-cost loans to as much as 70% of a new investor's fixed assets. It

also allows the investor to depreciate all his new machinery and equipment in only two years.

Higher levies. At the same time, however, the basic company tax will be increased from 33% to 40% in cases where the entire profits are plowed back, or 49% if they are paid out as dividends. The higher taxes are part of the government's anti-inflation measures.

To help foreigners protect their assets against frequent devaluations, the Israelis may also introduce a measure allowing deductions from taxable profits.

Despite these efforts, some foreign businessmen see problems. William B. Nicholson, vice-chairman of Union Carbide Corp. and of the new Israel-U. S. Business Council, is worried about government red tape. Moshe Shamir, director of Vishay Israel, a subsidiary of Vishay Intertechnology Inc., of Malvern, Pa., thinks the new higher business tax will scare investors off. And the "foreign investors club" within the Israeli Manufacturers Assn. complains about the constant devaluations.

But Israel's new incentives and tax-free access to the EC and the U. S. is bound at least to attract attention. U. S. businessmen in 20 cities are being approached directly by members of the new council. Says co-Chairman George Romney: "We will set up a proper climate in the U. S. for increased trade and investment with Israel." ■

AMERICAN METAL MARKET — April 7, 1977

Israel Protects Foreign Investor

NEW YORK — Foreign investors in Israel now are protected against losses due to currency fluctuations, according to the Government of Israel Investment Authority, here.

The authority said that the Knesset (Israel's parliament) passed the investment measure into law in mid-March. The new mechanism, known as the "Ron-

nel Amendment" to the Law for the Encouragement of Capital Investments, enables foreign investors to "stabilize" the value of their equity in U.S. dollar terms, thereby avoiding erosion from downturns in the local currency.

The amendment allows foreign companies in Israel to establish a tax-free internal fund. A portion of before-tax profits can be allocated to this fund, reducing the tax liability of the company and stabilizing the value of the equity in dollar terms.

The authority claimed that Israel now is the only country to have instituted such currency fluctuation protection.

Rapid changes in the rate of exchange have caused serious problems to U.S. companies investing abroad.

COMMERCE — October, 1975

New Incentives For American Investors

Recent agreements make it more practical for an American businessman, from a cost-of-doing business standpoint, to sell to the Common Market from an Israel location rather than from a point within the Common Market itself.

by Samuel Wm. Sax
chairman and CEO
Exchange International Corp.
Exchange National Bank of Chicago

WHEN BUSINESSMEN consider investing in a foreign country, they look first at its business climate. In Israel the business climate is more receptive than ever to investment from overseas. In fact, two things have taken place recently which reemphasize the viability of Israel as a vehicle for profitable investment.

On May 1, 1975, Israel signed an agreement with representatives of the European Economic Community. The agreement is unique in that it is the first of its kind between Common Market partners and a Middle Eastern country. Israel now receives special trade status; and by July 1977 industrial products imported from Israel will enter the Common Market totally without restriction. The importance of this agreement to Israel's economy is self-evident. For American businessmen interested in a profitable relationship with Israel, the news of the agreement should be greeted with equal enthusiasm, for it signals that the door to 250 million Europeans has been opened wide to them.

The Common Market-Israel agreement took effect with an initial 60% reduction in customs duties on all Israel imports to the European economic community. While all tariffs will be removed on industrial exports in two years, Israel's domestic market will remain protected from foreign import competition until about 1980. Other Israeli products will continue to enjoy tariff protection, to be phased out during an eleven-and-a-half-year period between 1977 and 1989.

Simon-Rabinowitz Agreement

The second thing which American businessmen should find quite encouraging is the joint American-Israel statement signed May 12 of this year by U.S. Secretary of the Treasury William E. Simon and Israel Minister of Finance Yehoshua Rabinowitz. The statement concluded a \$20-million desalinization project agreement and reaffirmed the long-standing U.S. Government policy of opposition to restrictive trade practices, of which the Arab Boycott has stood as an infamous example. In addition, the joint statement agreed to a dual tax-concession treaty whereby tax credits will be allowed by each participating country against taxes paid in priority to the other.

Viewed together, the accords present unique opportunities for enterprising businessmen. America does not now enjoy a favored position with the EEC in that we cannot compete on an equitable basis with Israel for European sales. However, the problem can be eliminated by establishing a subsidiary in Israel, or by investing in an Israeli firm engaged in export to the European market. The resulting products are stamped *Made in Israel* and enter Europe tariff-free.

Besides the agreement between the Common Market and Israel, and the pact concluded between Simon and Rabinowitz, the Israeli government offers foreign investors what it calls a *Special Business Package*. The SBP is designed to assist the manufacturer in

the investment phase through financial leverage, and in the operating phase by providing low-cost working capital and a rebate for indirect taxes. In the investment phase, up to 70% of all funds needed to procure fixed assets will be provided by the Government of Israel—30% as a grant and the remaining 40% in long-term loans made at an advantageous interest rate. When the business enters its operating phase, the Israeli government will provide working capital loans (currently offered at a 6% per annum interest rate) to help finance work in progress and raw materials inventory, and to assist the investor in extending credit to suppliers for up to 190 days. In addition, the government grants every exporter an automatic rebate of up to 30 cents for every American dollar of export. Then, if the exporting company is engaged in industrial research and development (for instance, in the high-priority field of electronics), the government will participate in financing up to 50% of its expenses. As a final benefit, the package ensures the investor the right to fully repatriate profits and principal *without any limitations*.

U.S.-Israel Trade

Recently, Finance Minister Rabinowitz declared, "It is my desire to see the activities of Israel's Overseas Private Investment Corporation enhanced in order to promote investments."

THE JOURNAL OF COMMERCE — May 5, 1976

Labor Productivity Shows Gain

By MACABEE DEAN

Journal of Commerce Special

TEL AVIV — The industrial worker in Israel has almost caught up with the Japanese — despite the headstart of decades which the latter has. This is stated by an official of the Israel Institute of Productivity.

The Institute of Productivity is jointly owned by the three leading economic entities in Israel: the Government, the Histadrut, and the Manufacturers Association.

As such, it is an organization aimed at serving the best interests of all three sectors, and to this end, it enlists the aid of many institutions of higher learning in Israel.

Productivity Climbs

In 1973 (the latest comparative figures available), the Israeli industrial worker reached an annual output of \$9,600, as compared with \$10,000 for the Japanese.

The U. S., of course, still heads the list with \$16,500, followed by West Germany with \$14,000; Australia, with \$13,000; Norway with \$12,000; and Belgium and Austria with \$11,000 each.

"But Israel has already passed Italy, with \$7,000, and the U. K., with \$7,200," he noted.

(In the field of agricultural output per worker, Israel, with \$7,000, may trail behind the U. S., with \$16,500 and Canada, Australia and the Benelux countries, with \$11,000 each, but Israel has already outdistanced France (\$6,000); West Germany (\$5,100); Japan (\$3,400); Austria (\$3,160) and Italy (\$2,800).)

Fine Picture

In still another field, the "average output per laborer drawn on a national basis," Israel again shows a fine picture. In the 22 years ending 1972 (last comparative figures available), Israel has shown an average increase productivity of 6 per cent per year. Japan however, has the record with 8 per cent a year, and

between Japan and Israel, there are several European countries, like the Netherlands, Denmark, and Norway.

But the average increase in productivity in the U. S. during these years was only 2.5 per cent in both the U. S. and the U.K., while France had 5 per cent gain and West Germany had a 5.5 per cent rise.

"This is certainly a dynamic rate of growth — but it is far from satisfactory, if we consider the special problems facing Israel, especially its huge defense burden," the official said.

(Finance Minister Yehoshua Rabinowitz, in his speech to the Knesset introducing the 1976-77 budget, noted that defense expenditures accounted for some 35 per cent of the national budget of 18 85.2 billion. Ten years ago, it amounted to only 11.7 per cent of the national budget.)

GDP per Employee

The spokesman for the Institute notes that another set of figures does not put Israel in such a favorable light.

These deal with gross domestic product per employee.

Here, Israel with \$8,200 indeed does lead the U.K. which has \$7,000 and Japan with \$7,800 (figures are for 1973, the latest comparative available), but it trails behind Denmark, \$11,500; Sweden and Switzerland, \$13,000; West Germany, \$13,270; and the U. S., \$15,300.

Question: What is the reason for the poorer showing Israel makes in regard to the gross domestic product per employee?

Answer: There are many reasons:

Firstly, we have more young and more elderly workers than most western countries.

Secondly, our military service knocks three years out of the most productive years of our young men; in

addition, annual reserve duty (often of several weeks, or more) also takes up a chunk.

Thirdly, our percentage of women in the labor force is lower than in western industrialized countries.

The two main problems facing the country, the official says, is first to get more persons to join the active productive labor force and leave the field of services; secondly, to raise the per capita rate of productivity.

Solving these problems is not easy. On the one hand, Israel's export markets are not geographically easily available; and on the other, its working force is quite mixed. Side by side with the highest skilled technological and professional forces in the world there are many workers, actually semi-literate, who are immigrants from backward countries.

Israel lacks many managerial skills; moreover, the industrial relations in Israel are the most advanced type in the world — and far outstrip the self-restraint and sense of responsibility of the workers themselves who lack an industrial tradition.

"This tends to make progress slow and problematic," he says, noting that it is the job of the Institute of Productivity to help overcome these problems.

New Techniques

In 1975 alone, some 25,000 leaders in the labor force — foremen and upwards, underwent training courses, some of them up to as much as three years (although most were of only a few months), he notes.

The Institute also studies new techniques of work, researches innovative methods and adapts them, acts as a consultant, and sets up centers for automation, computer training and management information systems.

It also carried out 40 experiments in different enterprises to "humanize"

more the work performed, in different types of industrial democracy with worker participation, and in changing work organization and methods to improve job enrichment.

THE JOURNAL OF COMMERCE — April 16, 1975

Many Incentives Noted

Labor Costs in Israel Comparing Favorably With Those in Far East

By PETER T. LEACH

Journal of Commerce Staff

"You can get cheaper labor in Hong Kong, but when you consider all the costs involved together with the incentives provided by the government, Israel's labor costs are comparable with those in the Far East," said Felix Zandman, president and chief executive officer of Vishay Inter-technology, Inc.

The availability of government export subsidies, tax holidays, low-interest loans and grants for the purchase of capital equipment was the chief reason Vishay picked Israel as a base for manufacturing high-technology electronic components for export to the United States, Dr. Zandman said.

Vishay is a Malvern, Pa., manufacturer of resistive systems for use in electronic circuitry to adjust and regulate levels of voltage and current. A substantial portion of Vishay's earnings are related to the various incentive programs offered by the Israeli Government for investing in and exporting from Israel.

Incentives Package

In fiscal 1973, the package of incentives provided to Vishay-Israel by the Israeli Government resulted in a contribution to Vishay's worldwide net income after taxes of \$582,000, or almost 52 per cent of its total profits of \$1.12 million.

The wholly-owned Vishay-Israel Ltd. exports up to 90 per cent of the total output of its four plants in Tel Aviv and receives 28 per cent of the dollar value of its exports back in cash from the government in

the form of an export premium.

Dr. Zandman said the export premium used to be 44 per cent of the dollar value of its exports but was scaled down last November when the government devalued the Israeli pound by 43 per cent and imposed a package of austerity measures.

Export Premium

But he said the export premium, which is adjusted from time to time to compensate for increases in the cost of labor, will probably be increased this year as wages rise to meet the continuing inflation in the cost of living.

Because it receives this export premium, Dr. Zandman said, the cost of manufacturing in Israel has remained constant since Vishay established its first plant there in 1969.

Another incentive that has reduced the cost of manufacturing, he added, is the initial tax holiday under which Vishay pays tax on only 30 per cent of its profits for the first five years of operation.

This benefit will expire in fiscal 1976, but Dr. Zandman said the company's tax rate in Israel would be kept at about 30 per cent of profits if it reinvests its earnings, compared to a corporate tax rate of 51 per cent in the U.S.

No Double Taxation

There is no double taxation under the agreement between Israel and the U.S., the Vishay president said, so the Israeli tax is the only tax paid on profits earned in Israel. If Vis-

hay-Israel remits the profits it earns on its exports, he said the U.S. tax on them would be 43 per cent.

Vishay-Israel is required under Israeli law to invest 7 per cent of its taxable income in 16-year nontransferrable Israel Government bonds with a coupon of 5 per cent.

A third important incentive offered by the Israeli Government was the investment grant of 15 per cent of the cost of importing capital equipment and machinery Dr. Zandman said. In addition, he said, Israel paid for the cost of training new workers and paid 50 per cent of its research and development costs.

In the six years since it began operating in Israel, Vishay has expanded from one into four plants with loans provided at low interest rates of about 6 per cent by local banks which have enabled it to avoid diluting its own capital.

Dr. Zandman said Vishay had negotiated mortgages in its plant at a rate of 9 per cent, but had been able to repay them with devalued pounds.

Dr. Zandman, who was one of the co-founders of Vishay, said that Israel offers a U.S. investor more than just financial benefits. He emphasized that American companies find it easy to operate there because of the English-speaking population and the availability of skilled labor, including engineers and managerial personnel who are well-acquainted with Western business techniques.

Labor Force Grows

Vishay's labor force in Israel has grown to 400 from the 20 workers it first employed in 1969. Dr. Zandman said the quality of the Israeli-produced components is "excellent, with fewer rejects than in the U.S." He said that productivity was the same or better than in the U.S.

Some 'Negative' Aspects

There are, however, some "negative" aspects to investing in Israel, especially its location, 6,000 miles from the U.S. market, Dr. Zandman said, "but then so is Taiwan."

From an accounting point of view, he said, the recent devaluation, the lowering of export premiums, and the tax changes have created havoc, requiring hours of extra paperwork.

Industrial buildings are in short supply, Dr. Zandman said, and buying or renting factory buildings for clean electronic manufacturing space is about 50 per cent more expensive than in the U.S.

But the negative aspects are more than outweighed by the financial and human advantages of manufacturing in Israel, Dr. Zandman said, adding, "we are very happy."

THE BALTIMORE DAILY RECORD — February 9, 1977

U.S. Corporations Can Reduce Taxes By Locating In Israel

New York, N. Y. — U.S. corporations can now reduce overall taxation on their manufacturing operations abroad to the lowest possible level by locating in Israel, as a result of the new U.S. Tax Reform Act.

The Tax Reform Act established a new minimum tax level for all U.S. operations abroad. All corporations, regardless of location, must pay at least that minimum tax, and often much more; tax laws in most foreign countries make companies exceed the minimum. *Israel is one of the very few offshore manufacturing locations to offer this minimum taxation, under certain conditions.*

Combined Taxation

The overall combined taxation on a U.S. corporation's manufacturing subsidiary abroad depends on local taxes in the foreign country. If the foreign country has a low tax rate or no tax, income taxes both in the United States and the foreign country combined, can be the minimum possible. This minimum is zero as long as profits are not repatriated from the foreign country. If profits are repatriated, under the recent U.S. Tax Reform Act, the new minimum is 48% (which is the federal corporate rate of taxation on profits in excess of \$50,000), no matter what foreign country they originate in. This minimum combined tax is reached when the foreign country does not tax undistributed profits at all, and the total taxation by the foreign country on distributed or reinvested profits (including withholding tax on dividends) does not exceed a 48% rate.

Israel is one of the only countries where both of these conditions will obtain for manufacturing subsidiaries of U.S. corporations, in certain cases, as soon as its already-signed income tax treaty with the United States is ratified. Even before ratification of the treaty, in most cases U.S. corporations with manufacturing subsidiaries in Israel will be able to keep the overall taxation on their repatriated profits to the foregoing minimum combined tax. Moreover, Israel is the only country which will offer this minimum taxation as well as duty-free access to the Common Market and the United States.

How This Works

In many cases, for an almost indefinite period of time a U.S. corporation with a manufacturing subsidiary in Israel will be able to maintain a *zero effective rate of taxation*. This zero rate may result either from direct implementation of Israeli tax concessions, or from tax benefits associated with reinvestment of profits earned by the Israeli subsidiary. (New investments and reinvestments of profits in industrial machinery and equipment are fully depreciable in just two years, creating a tax loss that can be carried forward.)

If, however, profits are repatriated to the United States, the combined taxation on the repatriated profits in Israel and the United States will still be the minimum tax rate applicable to repatriated profits from foreign countries, established by the Tax Reform Act. Under the Tax Reform Act, taxes paid by a subsidiary in the foreign country will be fully credited and deducted from U.S. tax liability (assuming the total foreign tax rate does not exceed 48%). Israel's tax rate on repatriated profits, after the tax treaty is ratified, will be lower than 48% for U.S. manufacturers. Therefore, when profits are repatriated to the U.S., an American manufacturer with a subsidiary in Israel will pay only the difference between the taxes already paid in Israel and 48%. *No other foreign country, not even the "tax-free" countries, can offer a lower combined tax level than the above.*

In addition, as already noted, Israel offers important duty-free access to both the United States and the Common Market — a 475 million people market.

The foregoing analysis is based on, and the tax reduction results from, the following recent developments in addition to the Tax Reform Act:

- The recent (April 1975) Income Tax Reform in Israel, which grants manufacturing operations a tax holiday by allowing *full depreciation of machinery and equipment in two years*. The tax holiday will usually last until profits from the manufacturing operation exceed investment in machinery and equipment. The right to this rapid depreciation write-off is also granted for amounts spent on ex-

pansion of facilities by existing companies.

- *The New Israeli Law for the Encouragement of Capital Investment* (August 1976). This law provides, by way of grants and loans, up to 70% of the capital needed to purchase fixed assets at the time of establishing a business, and an additional grant of 24% during the first four years of export.

Trade Agreement

- Israel trade agreement with the U.S., which includes Israel in the Generalized System of Preferences, enabling Israeli manufacturing subsidiaries of U.S. corporations to import 2700 product categories from Israel to the U.S. free of duty.

- Israel's trade agreement with the Common Market, which eliminates duty on Israeli manufactured goods imported into the EEC, by July 1977.

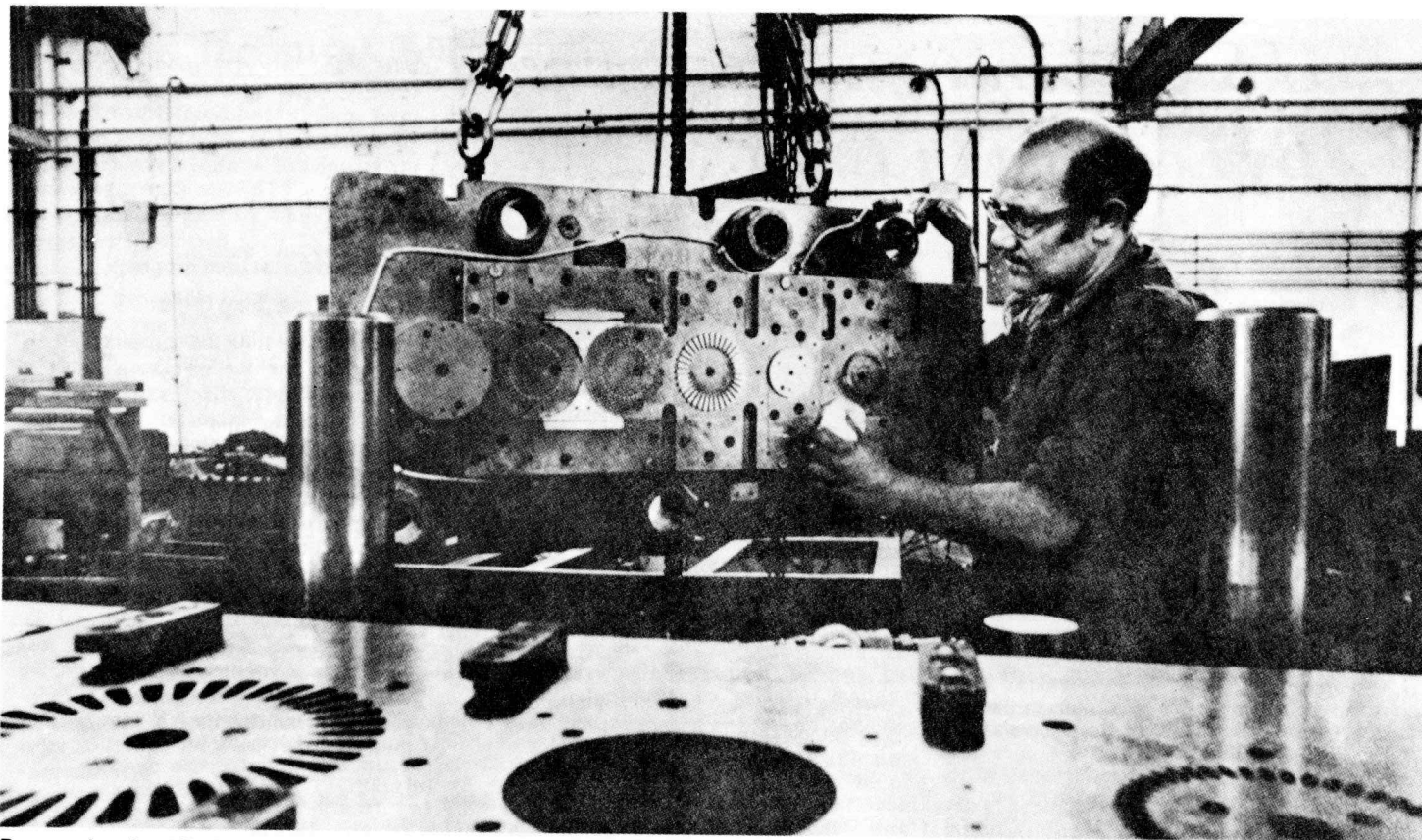
- The tax treaty between the United States and Israel, which is already signed and is expected to be ratified shortly by the U.S. Senate. Israel is the *only industrial country in the world to offer the last three benefits, namely, duty-free access to the Common Market, duty-free access to the U.S. and an income tax treaty with the U.S.*

An added incentive to locate in Israel results from the Tax Reform Act's reduction in the exemption from U.S. taxation afforded to U.S. executives working abroad, which will make it more expensive to staff overseas operations with American managers. Out of the 150 U.S. corporations functioning in Israel (many of them large corporations), only three have found it necessary to maintain foreign management. All the others chose to have Israeli managers. Israeli managers are paid about 50 - 60% less than their U.S. peers.

A more detailed discussion of the tax and other advantages to a U.S. corporation of locating its overseas manufacturing subsidiary in Israel can be obtained by writing to Government of Israel Investment Authority, 641 Lexington Avenue, New York, N.Y. 10022.

ISRAEL'S GROWING EXPORT INDUSTRIES • METALWORKING

AMERICAN MACHINIST — August 1, 1975



Progressive die at Redmond Armcor Ltd is used to stamp laminations for line of electric motors

Israel, metalworking bridge to EEC

A new trade agreement puts Israel in a good position to act as the manufacturing leg in an economic triangle with the US and the EEC. Her metalworking industry is making ready

For most people, Israel does not conjure up an image of industrialization. Cradle of Judeo-Christian heritage, yes. Land of pioneers, kibbutzim, and orange groves, yes. But one doesn't readily associate the Holy Land with factories and machine tools.

The fact is that Israel has a very highly developed metalworking industry, whose output represents about 25% of the country's total industrial production. Its contribution to the national economy is substantial, with 1974 sales turnover showing a 48% growth over 1970, and, as the country has relatively few natural resources, the government views the export potential of the metal-

working industry as an important factor of economic growth.

The figures are quite impressive. In 1965, metalworking exports amounted to only \$14.4-million. By 1972 the figure had risen to \$83-million. The forecast of metalworking exports for 1975 is set at \$210-million, and the total sales volume of the industry is expected to be \$2.5-billion. Dr. Moshe Mandelbaum, director-general of Israel's Ministry of Commerce and Industry, believes that metalworking exports will rise by about 25% per year.

That kind of growth requires good seed. "We are going to invest about \$120-million in metalworking every year," says Mandelbaum. Of that, about \$80-million will be for machinery, the rest for facilities. "It amounts to much

more than the total investment in metalworking of all the Arab countries combined," the director-general is quick to point out.

Israel's metalworking industry was born out of necessity during the pre-state period with the manufacture of native-designed agricultural equipment for the kibbutzim and hastily assembled weaponry for the underground army. The industry's rapid and ongoing growth is a direct result of the fast developing needs of the young state and its triple objective of achieving industrial independence, maintaining security, and absorbing new immigrants.

The rapid growth of the industry began in earnest after the Six Day War.

By George Schaffer, associate editor

AMERICAN METAL MARKET/METALWORKING NEWS — June 9, 1975

Metals, Metal Product Sales Tripled Over 4-Year Period

NEW YORK — The volume of sales in Israel's metals and metalworking has tripled in the years between 1970 and 1974, and the Israeli government predicts the pace will continue.

Industry volume grew from \$570-million in 1970 to \$1.9-billion in 1974. The growth this year has been projected at 15 to 22 percent.

The industrialization of Israel is an intense effort of both government and business. Further impetus to the drive is expected to be provided by ISMETAL '75, a week long exposition by Israel's metalworking companies in Tel Aviv Oct. 5-10.

Israel is, considerably less dependent on imports in metalworking products than it was 10 years ago, but nevertheless needs extensive foreign participation in its drive to achieve greater self sufficiency. It is encouraging foreign participation in new plants as well as investments.

Also, it wants to bring more of its defense-related production into domestic plants to reduce the amount supplied by foreign firms.

Haim Bar-Lev, Minister of Commerce and Industry, has said that industrial investment in Israel will average \$400-million to \$500-million a year during the coming decade, with about one-third of it coming from

foreign investors.

The agreement Israel recently signed with the Common Market, reducing duties in trade with Common Market countries beginning in the summer of 1977, is expected to help export sales. This sales potential is expected to further stimulate industrial expansion.

The Arab Boycott

In its investment promotion drive, the country still has its problems. Although its tensions with the Arab countries have become almost a way of life, the Arab boycott of companies that trade with Israel is a matter of concern to Israeli businessmen, particularly since the effects on business with Israel have been difficult to measure.

But fearing long-run cutbacks by foreign investors, Israeli officials are encouraging the U.S. and other countries to consider passing legislation to outlaw cooperation by companies with the boycott.

The industrial firms the Israeli government is encouraging through tax breaks and outright grants of the type that is high in value-added is looking to build on its capacity to produce sophisticated high performance

AMERICAN METAL MARKET/METALWORKING NEWS — October 27, 1975

Metalworking Sector Israel Ace Foreign Investment Card

By FRANK HAFlich

TEL AVIV — Israel is counting on its metalworking industry to play a major role in its drive to attract foreign investment and boost export sales.

At Ismetal '75, an exhibition held here recently to showcase this country's metalworking talents, nearly 140 Israeli companies turned up to show visitors from Europe, the United States and Canada why metalworking exports will probably exceed \$150-million in 1975, a rise of over 50 percent from last year (Other stories on the show appear on page 14).

Israel's mammoth balance of payments deficit, defense expenditures which take up one-third of its gross national product, and the cost of assimilating its new im-

migrants (about 15 to 20 percent of GNP), are some of the primary factors spurring an estimated annual investment of over \$100-million in its metalworking capabilities during the next few years.

Substantial financial benefits to foreign investors and liberalized trade agreements with the European Economic Community (EEC) which began taking effect earlier this year are two of the ways Israel hopes to expand its metalworking business. In addition, the U.S. and Israeli governments have reached agreement on a package of tax investment incentives designed to encourage increased participation by American firms in Israeli industry.

Any large-scale investment projects by foreign companies are likely to reflect at least one of these

two characteristics: an emphasis on relatively high-technology, value added production and the intention to reach a more extensive market than Israel alone.

Israel itself is quick to point out that it is not a bottomless source of cheap labor. It emphasizes, however, that it does possess expertise in fairly advanced metalworking techniques (undoubtedly in large part an offshoot of its large aerospace and military products industries) and ultimately sees itself as sort of a Switzerland of the Middle East.

"We are not looking for industries which rely on cheap labor," said Avraham Shavit, president of the Manufacturers Association of Israel.

AMERICAN MACHINIST — December, 1975

Israel looks for foreign investment

At ISMETAL 75, Israeli metalworking firms showed their wares, capabilities to buyers and potential investors

By Hesi Carmel
AM Tel Aviv correspondent

"I didn't realize that you have such a sophisticated metal industry," said Pentagon expert G. Levitt, who recently headed a four-man mission visiting ISMETAL 75, Israel Metal Industries Week, in Tel Aviv.

As part of the new Egyptian-Israeli agreement and the subsequent American-Israeli agreements and understandings, the Pentagon mission completed a 10-day visit to evaluate Israel's metal-industry capacity and standards as a potential supplier and subcontractor for US Army and Defense Dept purchases.

Some 350 foreign visitors (including 150 from the US) inspected the products of some 150 Israeli manufacturers that participated in Metal Industries Week—the largest Israeli metal (metalworking) exhibit to date.

ISMETAL aimed at achieving two targets: encouraging metal-industry exports to close part of Israel's annual \$4-billion trade gap, and attracting investors to the nation's fast-growing metalworking industry.

The main attraction for American companies investing in, or establishing joint ventures with, Israeli firms is the agreement with the Common Market that provides for duty-free entry of Israeli-manufactured products into the United Kingdom and the European continent.

The 150 Israeli participants at ISMETAL exhibited products ranging from water sprinklers to parts for the



Visitors to ISMETAL 75 in Tel Aviv look at detachable fuel tank for Skyhawk fighter plane. Tank is manufactured in Israel by Koor Metal Co

Kfir Israeli-made fighter plane, and from solar heaters to a highly sophisticated electronic teleprinter.

"Meeting the challenge of the Common Market agreement," says Yitzhak Weiman, one of the organizers of ISMETAL 75, "required an important transformation of the Israeli industry." Weiman believes Israeli metalworking industries, which employ 100,000 workers (total output for 1974: \$1.9-billion) must "merge, grow, or disappear."

To maintain the 13% growth rate of the industry, Moshe Mandelbaum, director general of the Israeli Ministry of Trade & Industry (MTI), announced a five-year investment plan of \$850-million. "The metal industry," he said, "will continue to grow this year at a higher rate than the industrial average, and exports will rise 36% this year to \$210-million."

"The metal-industry export forecast for 1979," said Avraham Ashery, director of the Metal Division in MTI, "has been evaluated at \$500-million, compared with only \$19.4-million in 1965."

New investment

ISMETAL 75 served as a meeting ground for investment deals, business transactions, and knowhow agreements. About 30 new investment arrangements were concluded during the week—20 of them with American companies; others with European, Canadian, and South African firms. The investments went to companies making sprinklers, compressors and pumps, numerical-control systems, semitrailers, and metal-polishing machinery. An important \$8-million in-

vestment project involves a new electronics-giant Teledyne Corp, George Roberts, who came to Israel for the inauguration of an electronics-cable factory in which Teledyne owns 44%, promised to increase Teledyne's investment in Israel.

Meir Amit, president of the trade-union-controlled Koor Industries, made a special appeal to foreign investors for joint ventures with Koor in Africa, Asia, and Latin America. Koor, whose industrial output is about \$800-million a year, controls some 10% of the Israeli industrial market, and it has recently created an International Projects Div to increase its activity abroad. Koor, which exports industrial goods worth over \$200-million dollars a year, recently signed an agreement with Babcock Electronics Corp to build a new factory for industrial reed relays in Galilee, with an initial investment of \$1-million.

In another joint venture, with South African Iscor, \$3-million will be invested in a metals- and steel-cutting plant in the southern part of Israel. In the southern desert city of Dimona, one of the most modern industrial plants (300,000 sq ft with two miles of test track) is being completed; it will produce precision castings, brake linings, clutch facings, disk brakes, and brake blocks. The promoter, Hugo Schwartz, one of Israel's most enterprising businessmen, says production (estimated at \$16-million in 1977) is totally booked for the next five years. Schwartz's company, Ceramic Castings, specializes in ceramic castings.

ELECTRONIC NEWS — January 5, 1976

Israelis Placing New Emphasis on Marketing to Boost Exports

By NAT SNYDERMAN

TEL-AVIV — After top management, the scientist has traditionally held second place in the pecking order of Israel's electronics establishment. Several steps below was the engineer whose job in industry and in the military is said to be more interesting, if not much more remunerative than the technician's. Somewhere far below was the marketing man.

With the national emphasis on increasing exports to lure hard currency into the economy, new marketing types are emerging with greater prestige. Although a little sophomoric at times, they are young, smart, and eager and are learning from visits to advanced electronics facilities in the U.S. and Europe. A new dedication to the job is evident.

In this new environment, Tadiran, the country's largest electronics producer — with exports greater than the rest of the industry combined — has taken on out-sized dimensions by Israeli standards.

Sales in 1974 were \$90 million, with \$20 million in exports. Sales in 1975 were \$150 million, with about \$52 million in exports, according to Akiva D. Mayer, vice-president, corporate planning and development.

"In 1976, we plan to produce our own LSI devices," Mr. Mayer said. "It is part of our long-range planning to decrease the binding dependence on external know-how."

The company is projecting \$180 million in sales for 1976, of which \$76 million will be in exports, he said. Tadiran's military communications equipment has been its major export product. "We hope to generate exports in this area for industrial applications."

Other Efforts

Other export efforts are in computer peripheral equipment, an electronic sensing money counter, and an automatic insertion machine. "The recent acquisition of Rehovot Instruments Ltd., which became a wholly-owned subsidiary in October, will give us an entry into the infrared detector field," Mr. Mayer said.

Koor Electric & Electronics, part of the Koor Industries industrial complex, was formed last year from Telrad and a number of smaller science-based companies. Sales in 1975 were about \$35 million, exports about \$1.5 million, according to Michael Katz, marketing vice-president. "We are targeted to increase exports to about 35 per cent of our total output of \$100 million, which is planned for 1980."

Products include communication equipment for the telephone industry, electronic weighing products and carrier transmission equipment. The company is preparing to sell an am/fm stereo digital tuner abroad for about \$1,000. It is test-marketing the unit via U.S. distributors. It is also establishing a marketing drive to sell PC boards, thin- and thick-film circuits, power supplies, and mil spec circular connectors.

A subsidiary, Koor Systems, in nearby Peta Tiqwa, is converting its plant to batch produce next year an electronic teleprinter system which includes a paper tape reader/transmitter, a line receiver, and a paper tape perforator. It can print from left to right and right to left.

"Until recently, all of our investment has been for research and development," Mr. Katz said. "From now on, half will be invested in marketing."

The bulk of Elscint Ltd.'s output is exported, said Benjamin P. Sabbah, general manager. The company has two manufacturing facilities in Haifa for producing nuclear medical diagnostic equipment and instrumentation, and sales and service offices in Germany, France, England, and Palisades Park, N.J.

Sales in the fiscal year ended March 31, 1975 rose to \$10,722,000 from \$7,610,000 in the preceding year. Exports for the calendar year of 1974 were \$5,250,000, up from \$4,416,000 in 1973. Exports for calendar 1975 reached \$6 million and will increase at the same rate in 1976, he predicted.

Elscint has 720 employees in Israel, 60 sales and service employees in its other locations, and employs representatives and agents in countries where it has no offices.

Design System

Sci-Tex Ltd., Herzlia, which made its mark with an electronic pattern system for knitted textiles, has recently introduced a new computer-aided design system which is said to streamline from artwork to ready-to-run films, permits development.



HOW IT WORKS: At a recent metals exhibition in Tel Aviv, Larry Maltin (left), marketing manager, Kulso, explains to Haim Bar-Lev, Minister of Commerce and Industry, how the line of automatic wire bonding equipment manufactured by the Haifa subsidiary of Kulicke & Soffa Industries operates.

ISRAEL'S GROWING EXPORT INDUSTRIES • ELECTRONICS

DATAMATION — May, 1974

Israel is a developing nation with developed ideas in computing.

ISRAEL'S COMPUTER SCENE

by Angeline Pantages,
International Editor

While the shelling continued on the Golan Heights, precious few kilometers away the Israelis continued to conduct their government in Jerusalem, run their commerce and industry in the bustling cities of Tel Aviv and Haifa, and hawk their wares to an almost unabated tourist flow in the fascinating Old City in Jerusalem. The ancient churches, mosques, temples, palaces, and fortresses loomed undisturbed in the atmosphere of jumbled, centuries-old arguments about who shall hold sway over the land they occupy. And everywhere you looked, new buildings were being set into the hills or stacked ever higher on the flatlands. It was March, warm and sunny, in strikingly beautiful Israel.

The deceptively peaceful, "life-as-usual" atmosphere was contradicted by the sight of hitchhiking soldiers and by concerns being voiced everywhere—concerns that the people are more subdued, that the young are worried about their future in this land their parents came to for refuge and in pursuit of an ideal, and concerns that needed skilled and unskilled labor will not continue to emigrate to Israel. Taxes are high, inflation is getting worse, and the budget has been decimated by an unexpected war. Too, the newspapers are full of Israel's own Watergate investigation—not like Watergate in specific issues, but in the question of responsibility. Who is finally to blame for government failures in preparedness for war?

In this setting, we looked at some of Israel's efforts in computing. We found the country is enormously aware of data processing's importance to national development, and has formal, centralized structures designed to ease the implementation of dp systems and



Jerusalem's Old City stands in striking contrast to the modernization of Israel going on outside its walls.

to encourage the growth of an indigenous computer export industry. We found that, as a country with a worldwide Jewish "citizenry," Israel has well-established lines to computer experts everywhere. Many experts from the U.S., Europe, and Latin America offer their time year-round on computer committees which review and

advise on national dp plans. And we found this dp community of 4,000 professionals suffering from some nearly universal computing problems.

Liaison agency

Our host was Aharon Gertz, director general of Iltam, coordinating agency for all computing in Israel. Mr. Gertz (who at 65 smilingly proclaims himself the "oldest computer man in Israel") put Iltam into perspective for us. The agency is an independent corporation which acts as liaison among the country's four computing sectors: national government, local government, labor, and the private sector. It reports to the overseer Ministry of Commerce and Industry. It is supervisor, promoter, coordinator, policy-maker—a structure, says Gertz proudly, that is close to the new Japanese system of coordination. "All ways leading to Iltam."

In other words
request



The Israelis may be three to five years behind the U.S. in terms of the depth of applications, but not in terms of technology, due in part to the country's international "citizenry."

THE JOURNAL OF COMMERCE — May 3, 1975

New Gains Shaping Up

Elbit Sales in 1975 Top \$20 Million

By MACABEE DEAN
Journal of Commerce Special

HAIFA — Elbit Computers Ltd., since its founding in 1967, has grown into a company which exports both a wide line of products and also the end products of its research and development, not only to the Common Market countries, Australia and South Africa, but also to the United States.

In the 1974-75 fiscal year, sales in Israel and abroad passed the \$20 million mark. Preliminary results for the current fiscal year indicate that the sales will be larger.

Definite Edge

"We have a definite edge in selling to Common Market countries, compared with the United States, since we sell without paying any but the smallest customs duties, while the Americans have to pay 7 per cent customs," a spokesman for the company said here.

Elbit also sells to America at reduced customs rates.

"We provide a full range of repairs, servicing, spare parts and advice to custom-

ers on a worldwide basis," the spokesman said.

Abroad, Elbit sells most commercial products, but in Israel it also supplies the government and government bodies, and government agencies — which demand the highest quality and most dependable products.

Includes Small Computers

The commercial line includes small computers, computer-based systems used for process control and message switching, and other industrial and scientific applications.

Elbit also makes terminals for data entry, as well as terminals for other uses, such as TTY compatible and dual language.

"Our activities constitute a fully integrated line, starting from development and through manufacturing and services," the spokesman said.

Largest in Israel

Elbit is the largest computer firm in Israel; it is an affiliate of Elron Electronics Ltd.

Today, Elbit employs 1,

200 of whom 300 are technicians and engineers. This figure is some 10 per cent more than last year.

Its research and development staff work in close cooperation with Israel's institutions of higher learning.

An Elbit High-Speed Data Acquisition Computer System has recently been installed to control the wind tunnel in the Faculty of Aeronautical Engineering at the Technion-Israel Institute of Technology.

The computer system is based on the Elbit CR-17 minicomputer and serves to evaluate the aerodynamic effects of the actual flight conditions to which aircraft models are subjected in the wind tunnel.

The computer system, designed and constructed by Elbit, was selected as a replacement for an earlier one by virtue of the CR-17 Computer's high performance level as well as Elbit's readiness to accept responsibility on a turn-key basis in software development installation and maintenance service.

AMERICAN METAL MARKET/METALWORKING NEWS — June 9, 1975

Israel Aircraft Grows Greater Still

NEW YORK — Israel's largest industrial enterprise and the nation's only firm engaged in aircraft building is the rapidly growing Israel Aircraft Industries.

According to latest company reports, IAI, founded in 1968-69 employs slightly more than 16,000 workers and is expected to have 18,000 by mid-1976.

Fiscal data recently released by the firm showed that its production and sales reached \$270 million, with a turnover of \$301 million in 1973-74.

The firm has done a thriving export business too. In the last three years, total export orders for planes, avionics and missile systems reached \$250 million.

Big Defense Role

Despite its inroads into foreign markets and its commitment to increase that part of the business, IAI's primary mission is to work for the Israeli defense effort. It is estimated that 75 percent of its total sales are in the defense sector.

The company was founded as an outgrowth of the Six Day War of 1967, when the French Government declared an embargo on the export of aircraft to Israel.

Israel was determined to have IAI build its own jet fighter to insure the nation's security and to augment the French Mirages and American Phantoms planes which were the backbone of its Air Force.

The latest version of the nation's own fighter plane, the Kfir, or "young lion" was unveiled in early April.

The Kfir is rated as a Mach 2.2 aircraft with a combat takeoff weight of 31,980 lbs. It is based on the Mirage 5 airframe and the General Electric J79-17 jet engine, both modified by Israeli designers. It is understood IAI is turning out four of the fighters a month at its Ben Gurion airport plant near Tel Aviv.

The Israelis are also hopeful of landing overseas sales for the well regarded fighter. South Africa and

Peru are tabbed as prime sales targets.

Civilian Production

In civilian aviation, IAI produces the Westwind, a 10 passenger business jet. Originally designed by Rockwell International Corp. as the Jet Commander, it has been completely redesigned by IAI's engineers. It has new engines, new tip tanks for longer flying range and a longer fuselage.

The company also produces the Arava, a STOL (short take-off and landing aircraft) and the Gabriel sea-to-sea missile system.

It is also responsible for the maintenance and overhaul of Israeli Air Force and for civilian aircraft.

Research Plans

IAI research is being supported by a \$10 million investment.

Among new sectors being explored are: electron beam welding techniques to salvage aircraft; a new Westwind jet equipped with Garrett engines; a special helicopter for civilian uses such as crop spraying; a refurbishing program for Boeing 707's; new airborne electronic systems and development of a new speed patrol boat for the nation's Navy.

CHEMICAL AND ENGINEERING NEWS — January 6, 1975

International

Israeli chemical firms plan big expansions

Israel's chemical industry is working on some ambitious expansion plans that call for an investment of about \$1 billion during the next five years. Involved are a host of products ranging from petrochemicals and basic inorganic chemicals to fertilizer materials.

Haifa Chemical, for example, is planning to more than double its potassium nitrate operations at Haifa from its current output of 100,000 metric tons a year to a capacity of about 220,000 metric tons by 1976. A new 110,000 metric-ton-a-year nitric acid unit also will double the company's capacity for that product. Haifa Chemical expects, too, to have a new 30,000 metric-ton-a-year dicalcium phosphate facility operating by next year.

Dead Sea Bromine Works, meanwhile, has slated outlays of \$50 million to increase its production of bromine from its current 30,000 metric tons annually to 50,000 metric tons and to build a new plant capable of making 12,000 metric tons of bromine compounds a year.

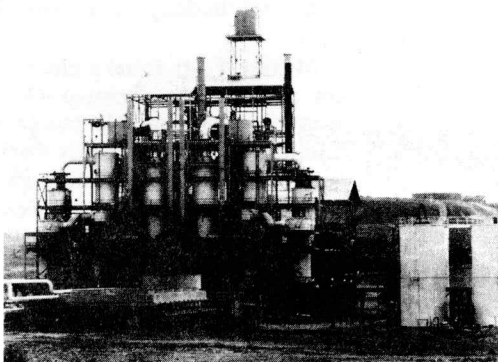
Potash production at the Dead Sea Works in Sodom will be increased by 50% to about 1.5 million metric tons a year at a cost of \$20 million. And Dead Sea Periclase intends to triple its capacity for making refractory products from magnesium oxide to about 150,000 metric tons a year with an investment of about \$45 million.

The Negev desert in southern Israel is the focus of agricultural chemical plans. Negev Phosphates is plowing \$45 million into an expansion of its phosphate rock operations that will be able to lift output from 1 million metric tons a year now to 2.8 million metric tons. Within the next five years, as well, a new fertilizer complex is to be built in the desert that will be able to turn out 250,000 metric tons of ammonia, 800,000 metric tons of sulfuric acid, and 200,000 metric tons of phosphoric acid annually. Other products to be made there include urea, triple superphosphate, dicalcium phosphate, defluorinated phosphates, and potassium sulfate fertilizer materials and

mixed fertilizers. Also in the area will be a new 6000 metric-ton-a-year pesticides plant and a plant of similar size for producing fluorocarbons for refrigerants and aerosol propellants for which Makteshim, a part of the Koor Industries group, has slated outlays of \$50 million. Makteshim also will make pesticide intermediates there.

In petrochemicals, Israel Petrochemical Industries will increase its capacity at Haifa for ethylene from 24,000 metric tons a year to 175,000 metric tons and up its polyethylene capacity from 34,000 metric tons to 80,000 metric tons annually. The company also is planning a styrene plant at Haifa with a capacity of 60,000 to 80,000 metric tons a year, with most of the output to go to a new 45,000 metric-ton-a-year polystyrene unit. Also at Haifa, Electrochemical Industries intends to add 50,000 metric tons a year to its 30,000 metric ton polyvinyl chloride facility.

By 1980 the capacity of the Haifa and Ashdod oil refineries is expected to reach 16.5 million metric tons a year, compared with 10 million metric tons now. Meanwhile, Haifa Basic Oils plans to build a plant capable of producing 100,000 metric tons of lubricating oils a year—as well as 26,000 metric tons of waxes—more than tripling its current output. □



Dead Sea magnesium oxide plant

ISRAEL'S GROWING EXPORT INDUSTRIES • CHEMICALS

CHEMICAL WEEK — September 11, 1974

International

Where Israel is adding chemical capacity

	(in 1,000 metric tons/year)	Present capacity	Planned additions
① Haifa	Ammonia	100	300
	Potassium nitrate	100	100
	Ethylene	25	175
	Polyethylene	34	56
	Styrene		70
	Polystyrene	16	27
	Polyvinyl chloride	30	50
	Lube oil		90
② Arad	Phosphate salts		20
	Sodium triple Superphosphate		50
③ Beersheba	Magnesium oxide	50	100
	Sulfuric acid		900
	Phosphoric acid		300
	Ammonium phosphate		250
	Superphosphates		250
	Dicalcium phosphate		70
④ Sdom	Bromine	20	30
⑤ Mishor Rotem	Bromine derivatives	1,000	200

'David' seeks 'Goliath' status

Israel's chemical industry maps program to cash in on nation's resources, boost sales to \$1 billion by 1978

Tiny Israel has plans to become a chemical industry giant. Now being charted for the next five years are investments in inorganic chemicals and petrochemicals totaling \$750 million. And the country hopes to boost chemical industry sales to \$1 billion by 1978.

"During the next decade Israel will achieve the standing of a major international center of chemical production," predicts Haim Bar-Lev, Minister of Commerce and Industry.

But Israel does not intend to go it alone with such an ambitious program. It hopes to attract foreign investors to various projects, ranging from naphtha to phosphates and numerous downstream products. And it is offering broad and specific incentives—e.g., repatriation of profits, tax concessions and other benefits—to prospective investors.

Israeli representatives are meeting with U.S. officials in Washington. Aim: to encourage more U.S. investment in Israel's industrial buildup, especially in chemicals.

Moving Fast: Israel's chemical industry, practically nonexistent when the nation was formed in 1948, has grown to become one of the country's three leading manufacturing industries, along with metals and electronics. Chemical production now exceeds that of food products, which accounted for 18% of total output last year. Since the six-day war in 1967, the chemical industry has been expanding at an annual rate of 15%. Sales reached about \$400 million in 1972 and are expected to reach more than \$500 million this year.

Export business, sorely needed to help offset imports that now are equal in value

to two-thirds of the country's gross national product, will account for nearly \$150 million of chemical industry sales. That's about 11.5% of Israel's total overseas shipments this year, which are estimated at \$1.3 billion.

For building up export sales, "chemicals and minerals are now our best resources," says Joseph Vardi, U.S. director of the Israel Investment Authority.

Two Roads: The new chemical industry investment program will take two routes. One will utilize the country's natural resources in inorganics—primarily 100 million tons of phosphate reserves in the Negev Desert and 43 billion tons of bromine, potash and other materials in the Dead Sea. State-owned Israel Chemicals Ltd. (ICL) and its subsidiaries, including Dead Sea Potash and Arad Chemical Industries, will be in the forefront of this phase.

The second investment route involves oil. Major oil refining and petrochemical projects are on the drawing boards of private companies in partnership with foreign investors, including top U.S. chemical companies.

To exploit the country's proved phosphate deposits, ICL will build a \$130-million fertilizer complex adjacent to the deposits in the Mishor Rotem area of the Negev. The complex will include two units that will produce 900,000 metric tons/year of sulfuric acid, using imported sulfur; two 450-m.t./day phosphoric acid plants; a 250,000-m.t./year monoammonium phosphate unit, a 250,000-m.t./year triple superphosphate plant; and a unit to turn out 70,000 m.t./year of dicalcium phosphate. Most of the complex's output will be exported.

Another ICL subsidiary, Dead Sea Works, will invest \$20 million to increase its 1-million-m.t./year potash capacity to 1.2 million m.t./year by 1975. Further expansion is planned to eventually bring production to 1.5 million m.t./year.

In the Haifa area, Haifa Chemicals, which now turns out 100,000 m.t./year of ammonia, plans to build a 300,000-m.t./year ammonia plant and units for making mixed fertilizers as well as urea and melamine.

The company also will invest \$10 million to double its 100,000 m.t./year output of potash.

CALIFORNIA GRANGE NEWS — April 15, 1975

Israel Irrigation Industry Develops New Fertilizer Injection Pump

A device designed to make modern irrigation more labor-free and efficient has been introduced in Israel.

The innovation is a mobile water-operated pump which injects fertilizer into the irrigation line without need for fuel or electricity. This fertilizer pump is said to be a latest example of new methods continually developed by this country's advanced irrigation equipment industry to serve Israel's modern agriculture as well as irrigated farms throughout the world.

The pump, produced by T.M.B. Fertilizer Pumps Ltd. of Haifa Bay, was shown for the first time outside of Israel last fall at an exhibition in Frankfurt, Germany. Many of Israel's largest modern kibbutz farms have already put the water-operated fertilizer injection pump successfully into use, it was noted.

The pump is designed to operate with all irrigation systems — drip, sprinkler, etc. The only limitations on the growing area served is the size of the fertilizer tank and the required duration of irrigation.

The new fertilizer injection device sucks the liquid fertilizer solution from a tank (this may be an open tank) and injects it downstream into the same irrigation line which furnishes the water which drives the pump. The pump thus injects

fertilizer at a higher pressure than that of the water which operates it.

Each pump stroke injects about one quarter litre (one-sixteenth of a gallon) of fertilizer solution. The operating speed of the pump can be controlled by simply adjusting the regulator valve which adjusts the "driving water" to the pump. The user is thus able to vary the dosing and concentration of fertilizer in the irrigated water according to his requirements. A pre-set cutoff device installed at the "driving water" inlet will shutdown the pump when it has delivered the predetermined quantity of fertilizer to be injected.

The water consumed in driving the pump is about twice the volume of the fertilizer injected. It can be used to irrigate the adjacent area by gravity or can be directed back to the dissolving tank when solid fertilizers are used, it was pointed out.

THE NEW YORK TIMES — February 14, 1977

Strutting in Style in Israel

Israel's growing number of fashion designers and clothing manufacturers donned their best bibs and tuckers at the Tel Aviv Hilton this week and went all out to woo hundreds of international buyers who had come to see whether this tiny nation's claim that it had a part to play in the chimerical world of fashion had any merit.

The Israeli mannequins were reedy, haughty-looking, well clothed and ill-nourished-looking—matching some of the demanding criteria required of those who strut about in the fashion salons of Paris and New York.

The buyers, some equipped with pocket calculators, sat stern-lipped with sellers and made deals as the models changed endlessly from one dress to another, one raincoat to another, one bathing suit to another, one sports outfit to another.

The evening shows had some of the panoply and hoopla that attends the big fashion dos in New York—pre-show cocktail parties, lots of bigwigs in attendance, rich Israeli women shamelessly eyeing each other's evening best and, finally, flashy presentations of the new styles replete with sophisticated lighting, choreographed romps down the runway and overloud taped music.

According to Yael Matalon, director of the fashion textile center of the Israeli Export Institute, nearly 600 buyers showed up, including 220 from Great Britain, 60 from Canada, 70 from Germany, 70 from Holland, 10 from Belgium. The United States was represented by 120 buyers, including representatives of Bergdorf Goodman, Bloomingdale's, Ohrbach's and Franklin Simon. A sprinkling of others came from Zambia, Austria, Mexico, and Denmark.

Israel exported nearly \$200 million in fashion in 1976 and Mrs. Matalon says the industry here is aiming for exports of \$240 million this year, although she is aware of the rather grim economic picture facing Israel and many other countries.

The Israeli dress designs, she said, sell to buyers in a variety of price ranges—the middle one running from \$18 to \$40 a garment, with the overseas seller marking that base price up to what the traffic in his country will bear. At one time, Israel's fashion business relied heavily on knitted goods which had, and still have, a good reputation for quality, thanks to the many Jewish knitting-goods artisans who emigrated to Israel from Poland.

But Israel has been grooming and graduating its own designers and has been branching out into other fabrics—synthetics, cotton, woven wools, leather and

COURIER POST — April 8, 1975

Israel Fashions A Trend-Setting Fashion Center

By AUDREY GELLIS

Copley News Service

TEL AVIV — This city has emerged as the world's newest international fashion center.

But, unlike Paris and Rome which create unbelievably expensive clothing for a narrow elite of moneyed socialites, the Israeli focus is on putting its creative and technical skills into garments that can be worn by the average woman.

The fashion industry here has been fashioned (so to speak) by a combination of factors uniquely Israeli: this country's egalitarian tradition; the creative feedback from immigrants from dozens of countries; Western technological know-how combined with an availability of native handicrafts; an almost legendary vitality coexisting with Mediterranean romanticism.

THE RESULTS were evident in Tel Aviv Fashion Week (the 11th annual show of its kind) in which 85 of Israel's top houses did their thing for the international market. The fashions were attractive enough to tempt the most liberated of hearts; practical enough for the most active of life-styles; and priced reasonably enough for the most un-aristocratic wallets.

The fashion industry actually began in the 1930s when Israel was part of the British mandate of Palestine.

The original firms (about 20 of fashion week's exhibitors) not only sold locally but did a lively business trading with the neighboring Arab countries. These "old-timers" established the three specialties for which Israel has since become known: knitwear; leather

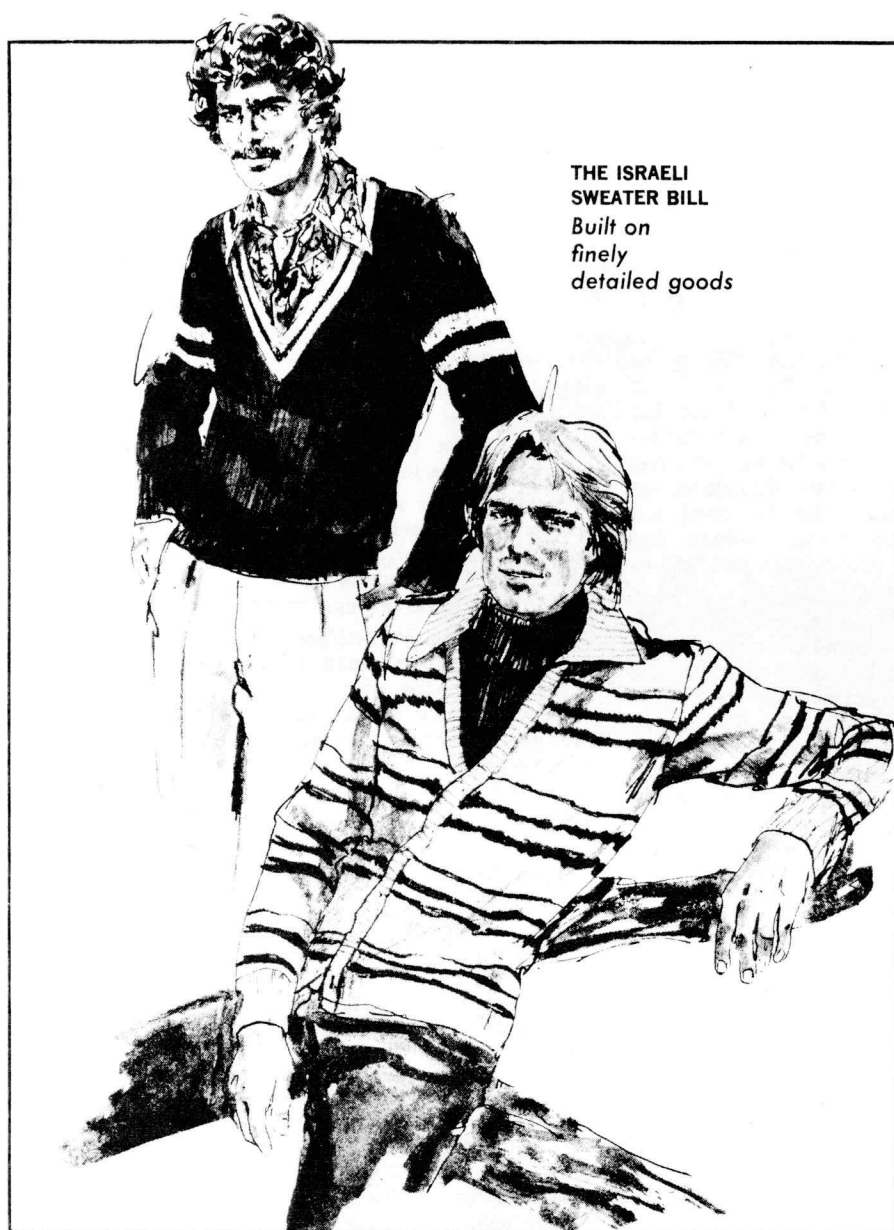
coats and jackets; and beachwear.

HOWEVER, it was in 1948, when faced with a flood of new immigrants, that the Israeli government made a conscious decision to develop the fashion and textile industry. Such a move incorporated the skills of many East European immigrants who had been in the business for generations and provided extensive employment opportunities with minimum training expenditures for those immigrants who arrived without skills.

Moreover, this type of industry was ideally suited for development towns, helping to disperse the population away from the three main cities and throughout the country. (Not only immigrants are involved; 15 per cent of the fashion industry's employees are Arabs who get identical pay and benefits.)

In typical Israeli style, the government lent money for the construction of factories; nurtured its creative talent; sent scouts scurrying around the world to acquire technological know-how. Today, while retaining the three original specialties, the industry has developed expertise and sophistication in all types of garments.

CLOTHES — January 1, 1975



THE ISRAELI
SWEATER BILL
Built on
finely
detailed goods

Israeli men's fashions: a place in the market

L'chaim! Or more precisely, to the better life. At least that's the handle most Israeli manufacturers have used in establishing their place in the international market; and as a preview of fall 1975 men's apparel offerings clearly indi-

What's an article about Israel without a little Yiddish humor? In fact, with all of the current financial and political tensions going on in Israel these days, what's life in that country without a little humor? And, as you might imagine, it happened that one Israeli apparel spokesman, when asked to estimate what kind of percentage gains were anticipated on apparel exports for fall '75 now that

the American economy is on fairly shaky ground—answered that question with the following tale:

One day God decided to come down to Earth to see how man was enjoying the world he had created. As God was walking about he came upon a man sitting beside a road crying. Having been asked why he was crying, the man replied that he was blind and could not enjoy the world. Upon hearing this, God told the man to open his eyes and see the wonders of the Earth. The man promptly ran down the road rejoicing. A short time later God came upon another man sitting by the road crying. Again God asked why the man was sad, the man replied that he was crippled and could not enjoy the world. Upon hearing this, God told the man to rise and go forth. The man immediately ran down the road rejoicing. As God continued his travels he came upon a third man sitting beside the road crying. Upon seeing this, God looked at the man and asked, "Why are you crying? You're not blind or crippled, why aren't you enjoying the world?" The man looked up at God and replied, "I'm an economist." God sat down beside the man and cried too. **However, while the world cries** with that proverbial economist, Israeli apparel continues to add pluses. Ironically the one area of men's apparel that seems to be maintaining a fairly even sales pace at a time when the consumer is still being pretty tight-fisted with a buck is the better end of the business. This continued action in sales of better wares can be traced to two predominant factors. The first, and most obvious, is that the man who is accustomed to plunking down \$25 or more for a shirt and \$45 and up for a pair of slacks generally is in an income bracket where the current inflationary spiral hasn't hit him hard enough to force a significant lowering of quality standards, unless he chooses to voluntarily pull in a notch on his belt. The second force at play in the better market is the emergence of lifestyle merchandising to the contemporary man who uses apparel as an outward status symbol so that even if his bank balance is zero, he tries to look like landed gentry. And so it is that a growing number of buyers seem to be adding the Tel Aviv fashion to their European market. keep up a flow an

CHICAGO DAILY NEWS — February 7, 1977

Israeli city polishes image as gem center

By Jay Bushinsky
Special to The Daily News

• RAMAT-GAN, Israel — This former garden suburb of Tel Aviv, now a satellite city in its own right, harbors ambitions of becoming the diamond center of the world.

Two steel-and-glass skyscrapers, one already crammed with brokers, buyers, sellers, the other nearing completion nearby, attest to the fact that diamonds are the Jewish state's biggest single export item. Overseas sales are expected to reach \$1 billion by 1980.

Last year brought a remarkable 30 per cent jump in exports of cut and polished diamonds, pushing up Israel's income from foreign sales of the precious stones to \$715 million.

In 1975, the diamond export revenue was \$550 million.

Prospects look good for the Israeli diamond dealers, assuming women will go on believing that diamonds are their best friends and the raw stones' availability will not be hampered by political events in southern Africa.

Under current conditions, Israel imports 40 per cent of the raw diamonds mined in Africa and the Soviet Union. The stones get here through third parties, mainly in Western Europe.

THIS PROMPTS the Israel Diamond Exchange's (IDE) energetic president, Moshe Schnitzer, to predict confidently that no matter what happens in southern Africa, the stones will keep on coming "because they (the Africans) will want to sell and we will want to buy."

Schnitzer, re-elected this month unanimously by his fellow exchange members, has masterminded the incredible expansion of Israel's diamond

industry to first rank in the world.

Dealers from countries that no longer have or never had relations with the state of Israel regularly move through the exchange building's buying and selling rooms, confident that their presence and deals will be kept secret.

That is normal in all diamond trades since transactions involving millions of dollars are made solely on the basis of a handshake and the traditional Hebrew expression, *mazal u vracha*, (luck and blessing).

Nothing ever is put down on paper, much to the consternation of local internal revenue agents.

SCHNITZER foresees virtually instant occupancy of the upcoming 28-story exchange structure, disclosing that 120 international diamond firms already have leased space and that the mighty London Syndicate (which regulates diamond prices) is taking a whole floor.

Highly skilled and comparatively cheap labor is one of the explanations for Israel's advantage in the diamond cutting and polishing field.

Another asset is the Israeli penchant for advanced technology.

The latest in automated diamond processing equipment has been introduced in factories like the ultramodern, Keren-or facility next door to the diamond exchange.

Mistakes in the cutting and polishing phase can be costly.

Normally, 2 per cent of the diamond bulk is lost in the sawing process, in which natural or synthetic diamond powder is applied to the cutting edges to accelerate the slow incisions made into the world's hardest material.

DIAMONDS can be cut in only four directions.

Larger stones can require several days for the circular blades to get through.

The most highly skilled and presumably best paid diamond worker is the *pintler*, the person who marks the stones for the most economical sawing.

Israel's diamond workers are paid by individual output (piecework) and also are guaranteed secrecy with regard to their annual incomes for tax purposes.

The United States was Israel's leading customer in 1975, buying more than \$200 million worth of cut and polished diamonds.

It was followed by Hong Kong (\$120 million), The Netherlands (\$90 million), Japan (\$70 million), Belgium (\$63 million) and Switzerland (\$54 million).

SECRECY in sales explains the likelihood that Arab customers who buy diamonds abroad may be wearing jewels cut and polished in Israel despite their governments' boycott of Israeli products.

Diamonds do not bear "made in" labels.

And Arabs are among the world's big spenders these days with diamonds gaining popularity as hedges against inflation.

Although the gross export revenue is higher than any other Israeli industry, local economists point out that their added value is low since large outlays are required to purchase the raw stones abroad.

This contrasts with citrus exports and tourism, which generate high added value, since they need relatively small investments.

FINANCIAL POST — April 19, 1975

Foreign exchange earner

Diamonds are Israel's best friend

RAMAT GAN, Israel — In a 28-story building just north of Tel Aviv, bearded Chassidic Jews in black hats and overcoats sit intently at stark wooden tables alongside more conventionally dressed Israelis and foreign nationals.

They're all there to sell and buy diamonds. And each day, \$4 million worth of deals are closed with nothing more than a handshake and the invocation "Mazal u'Bracha" (Good luck and blessing).

The Bourse, as the floor of the Israel Diamond Exchange is called, is the largest in the world in terms of trade volume.

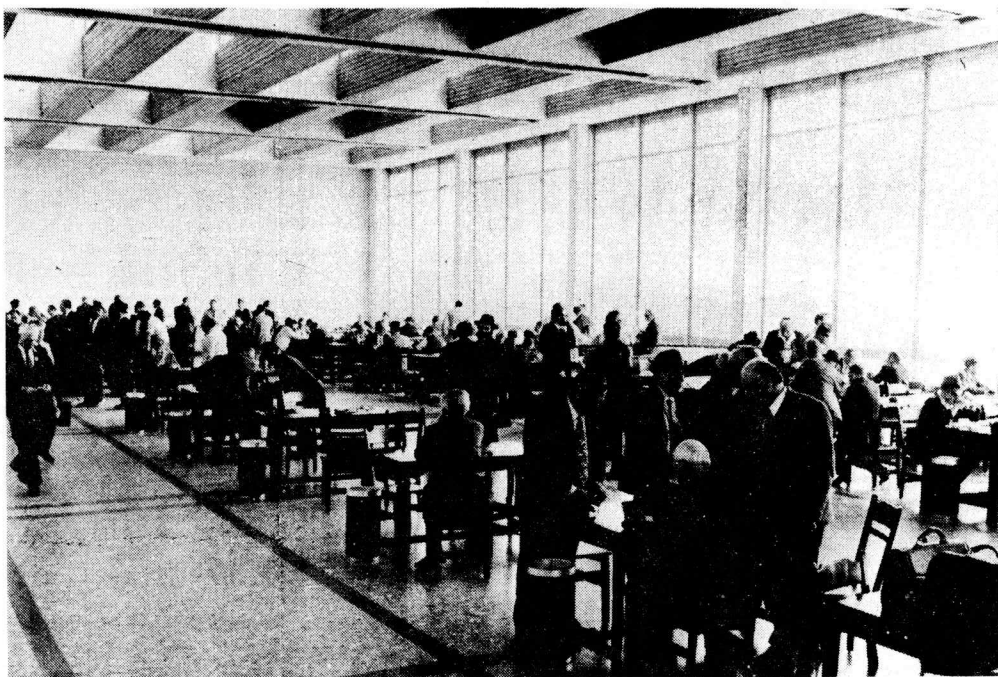
AN FP LOOK AT ISRAEL

Many of its habitués honed their skills in the Low Countries before the Nazi Jugger-naut drove them to Palestine during World War II.

Building on their aptitude, Israel has fostered a diamond export business that grew to \$562 million last year from \$8 million in 1950. Specializing in the polishing of small stones (melees), Israel today accounts for 80% of the world's supply.

The United States, which takes about 35% of the finished gems, is Israel's leading market. Canada ranks 10th, having imported \$11 million worth of Israeli stones last year. The industry, which is second only to tourism as the nation's chief foreign-exchange earner, is not disadvantaged by high shipping costs that hinder larger exports not transportable by air.

So much of the world's diamond trade is concentrated in Jewish hands that even the Arab states, notwithstanding their economic boycott against Israel, buy gems that have been polished there. Since diamonds bear no trademark, their origin cannot be distinguished.



Even Arabs buy their gems: trading floor of Israel Diamond Exchange.

Because Israel is the only nation to sell its diamonds in relatively cheap US\$, Israel enjoys a significant price advantage over other gem exporters.

That discount has helped Israeli diamond exporters in the first two months of 1975 to exceed both the value and the volume of sales they made in the corresponding period of 1974, a record year.

Moshe Schnitzer, president of the Israel Diamond exchange and a partner in **Schnitzer & Gruenstein**, the largest gem exporter in Israel, says diamonds have been less prone than other commodities to heavy speculative buying. But the appeal of popular-size stones, Israel's specialty, has increased partly because they are viewed as being a hedge against inflation — as well as being "a girl's best friend."

Schnitzer told FP that the price of rough diamonds increased by 10% two months ago. He predicts a 30% upswing in the price of smaller stones within the next year.

This is taken by the Israeli industry as signaling stronger market conditions. If there is any slippage in demand, their small stones figure to be the last to feel it.

That relatively buoyant outlook is spurring construction of a new 28-story Diamond Exchange Building adjacent to the existing eight-story building. The new building is expected to be complete by late 1976.

ISRAEL'S TECHNOLOGY AT WORK

BUSINESS WEEK—May 16, 1977

RESEARCH

A U. S. pipeline to Israeli R&D

Israel's newest drive to beef up its already considerable abilities in industrial research and development could open new coffers for U. S. research efforts. U. S. companies that join with Israeli groups in product and market development will find a new, if modest, source of R&D funding in a new U. S.-Israeli agency known as the Binational Industrial Research & Development Foundation (BIRD).

As soon as Carter O.K.'s it, the new U. S.-Israeli agency will get \$60 million

The foundation will be set up as soon as President Carter signs the enabling legislation, which Congress passed last month. The two governments are endowing BIRD with \$60 million. Some \$6 million a year will be available for joint R&D projects, to be conducted in Israel, that the agency approves.

"We recognize that we're talking about cooperation between an elephant and a mouse," admits Ytzhak Yaakov, chief scientist in Israel's Ministry of Commerce & Industry. Switching his imagery, he adds: "We're an ugly girl with hidden talents, and now a handsome bachelor [the U. S.] is ready to talk with us."

'High-quality R&D.' Israel's research talents are no secret. The government claims that only the U. S. and the Soviet Union have larger scientific communities than its tiny country of 3.5 million. Until recently Israel's nondefense research, which accounts for half the country's research effort, was mostly theoretical. But three years ago, the government started incentive programs to rechannel funds to applied research. Last year industrial R&D accounted for 25% of Israel's \$150 million R&D budget, up from only 10% in 1973.

Israeli scientists pioneered in the

development of solar energy and drip irrigation—two fields in which its own needs are acute. Their high technological capability also can be seen in electronics, metallurgy, biomedical products, and fine chemicals.

Such technology has made its mark in new products. For example:

- Motorola Inc. later this year will begin marketing in the U. S. a computerized trickle-irrigation system developed by its Israeli subsidiary.

- Two big U. S. hospitals are using a fetal-lung analyzer developed by Haifa-based Elscint Inc. to diagnose respiratory disorders in unborn children.

- Amcor, Israel's largest maker of electrical appliances, is seeking a U. S. outlet

Israel's lure: A high technological capability and a new tariff-free status

for its electronic insect killer, as well as for a device claimed to restore to air some of the negative ions lost through pollution.

The quality of Israeli research comes at a price considered cheap by U. S. standards. David Rahman, in the chief scientist's office, puts the annual direct cost to employ an Israeli research scientist plus a technical assistant at about

\$30,000. "In the BIRD program, U. S. companies can find an inexpensive source of high-quality R&D," says Jacob Goldman, group vice-president and chief scientist at Xerox Corp. He and Yaakov are co-chairmen of a joint advisory council that pushed for creation of BIRD.

Israel's tariff-free status within the European Community, effective July 1, is a further lure for joint ventures. "The trade advantage with the EC opens the door for many companies," says Stanley Abkowitz, president of Dynamet Technology Inc., in Burlington, Mass. He is interested in a joint venture in powder-metal research.

For Israel, it is crucial to increase exports as that July 1 date approaches. Thanks largely to a nearly one-third increase in the export of Israeli-developed products last year, the country cut its trade deficit almost by half, to \$2.2 billion from \$4.1 billion in 1975. The removal of tariff barriers will make it easier for Israel to sell into the EC, but its industry will be hard put to beat out the often more efficient EC competitors at home.

Faced with the prospects of higher imports, Israel must increase its exports at an even faster clip. With BIRD, it hopes to attract U. S. marketing know-how to help boost Israeli sales abroad, in addition to pulling in American research talent.

Some U. S. companies have already indicated interest in the BIRD program. New Jersey's New Brunswick Scientific Co., for one, is considering developing a line of laboratory equipment for bio-hazard research with an Israeli partner. Says David Freeman, president: "The government stimulation does make it a bit more worth the gamble."

U. S. companies report that Israeli industrialists are not waiting for overtures; they are aggressively seeking U. S. partners. "It's the Americans who have always had the image of being all-business, no time for tea with the Japanese, and all that," remarks an executive of one Route 128 company. "Now we're finding that the Israelis are even more 'go-go' than we are."



Yaakov: "We're talking about cooperation between an elephant and a mouse."

JEWISH CHRONICLE — February 20, 1977

R & D: Fertile field in Israel

"Innovation and advanced technology" has become the credo in Israel among the country's top industrialists, scientific researchers and Government officials. Israel has gained world recognition for products it has designed and produced—the "trickle" irrigation system, a unique solar heater, and advanced electronic components, some of which are now operating in the Viking spacecraft instruments on Mars.

This small country currently spends about 3 per cent of its Gross National Product for research and development activities, a percentage found only among the 10 wealthiest countries in the world. This investment has yielded results: last year more than \$280 million of Israel's total exports consisted of products originally developed in Israel.

Why has Israel assigned a top priority to industrial research and development? Partly out of necessity—Israel lacks basic raw materials, but it has an abundance of "brainpower". Research and development activities are a natural channel for this valuable resource.

Recognizing the need for increased industrial R & D and the limited means available to the industry—excluding qualified manpower—the Israel government initiated a program of grants to finance current R & D programs in the industrial sector. A number of industry-oriented projects in universities and institutes are also supported by local funds.

Attracted by these factors, a substantial number of U.S. companies have located their technology-intensive divisions in Israel, and have been able to take advantage of Israel's grant for research and development. In fact, more than 50 high-technology manufacturing subsidiaries of U.S. companies are now based in Israel.

In 1975, the Israeli government granted over 180 R & D grants to 70 companies. Top priority was placed on industries with high export potential, such as aeronautics, electronics, chemicals and fine instrumentation production.

The following are a few examples of American companies whose young Israeli subsidiaries have rapidly become high volume enterprises:

- General Telephone and Electronics, which has been in Israel since the late sixties, now boasts a volume of \$200 million from its Israel subsidiary, Tadiran, which manufactures military equipment and appliances;

- Miles Laboratories, in light of the success of its three operations in Israel, decided to set up a fourth operation there last May;

- Control Data, which bought into the Israel computer company Elbit five years ago, is now doing an annual \$20 million in sales;

- American Electronics Laboratories started its Israel operation seven years ago with an investment of \$60,000 and now sees an annual volume of about \$20 million.

In Israel, these American companies' subsidiaries, and others involved in industrial research may be eligible for:



IN HAIFA, Kulso, Ltd. a subsidiary of Kulicke & Soffa Industries Inc. of Pennsylvania, designs and constructs machinery for manufacture of miniaturized electronic components.

- Financing of 50 per cent of R & D costs for products with good market potential

- Support to the extent of 80 per cent of the total cost for R & D projects recognized as national projects.

- Up to 100 per cent of funding for background and exploratory research for profitable exploitation of natural resources for the local supply of energy and for preindustrial work on product ideas.

- An integrated system of grants, loans, and other aid for establishment and operation of science-based industries which concentrate on high added-value

products for export. Government financing now reaches up to 70 per cent of the investment in fixed assets at the time of investment, plus an additional 24 per cent when the company exports.

In 1976 the industrial R & D activities carried out by industry were engaged in about 500 projects.

Through the "Binational Foundation for Industrial R & D", a joint effort with the United States government, Israel will soon begin a new program of support for industrial R & D. This fund was approved in principle by the U.S. Secretary of the Treasury in March 1976 and is expected to be ratified by the U.S. Congress in 1977.

Under the plan, Israel companies cooperating with American firms on specific R & D programs will receive financial support along with their U.S. associates. The U.S. firms are expected to benefit by acquiring marketing rights for Israel inventions, and by selling products jointly developed to the EEC countries through their Israel partners, and thus benefitting from the duty-free tariff exemptions of Israel goods in the European Common Market.

ISRAEL'S TECHNOLOGY AT WORK

ISRAEL DIGEST — August 27, 1976

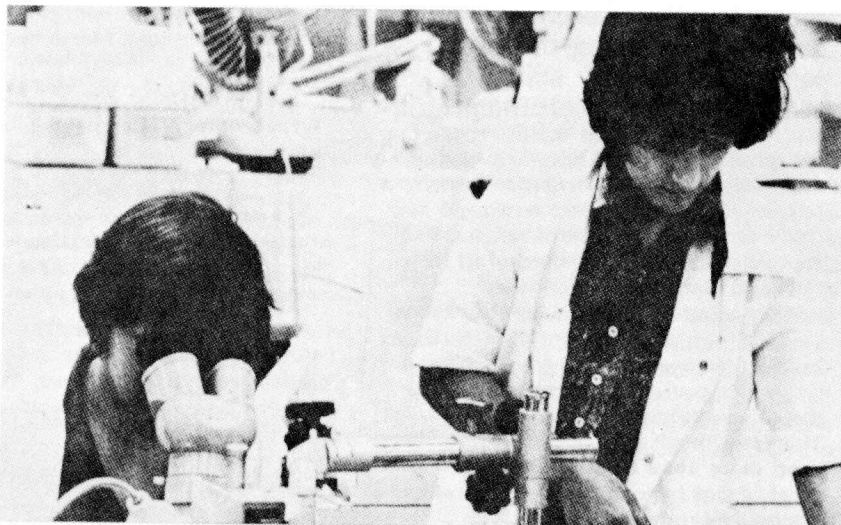
BUSINESS

Vishay-Israel Exports Sophisticated Technology to the World

by RUTH SELIGMAN

Israel's main problem is an economic one, its negative balance of payments. "Obviously," says Moshe Shamir, President of Vishay-Israel, Ltd. and Vice-President of its American parent company, Vishay-Inter-technology, Inc., "our only solution is to increase exports and, simultaneously, decrease imports. The latter is very difficult, the former more feasible." Shamir is convinced that Israel's future lies in science-based industries where the main "raw" material is the human brain. Success is best achieved, he adds, when the product depends on a sophisticated innovation as his does.

Vishay manufactures high-precision resistive electronic components now used in large quantities in computers, airborne navigational instruments, television color cameras, space vehicles — and in all modern electronic equipment where reliability, high performance, accuracy and stability are paramount. These components are based on the Vishay precision resistor, a unique and patented product which is the result of



most important electronic systems, we must be the best. We cannot afford being second best. We had to create credibility and reliability with our customers. We had to be as good and as efficient as if we were manufacturing in the States. Otherwise, there was no point in setting up a plant in Israel."

through the company's own offices or via representatives. Recently, Vishay-Israel opened a new sales office in London, convinced of the high potentiality of the market in the United Kingdom.

The company has help from the the form

THE JOURNAL OF COMMERCE — April 16, 1975

Large Pool of Scientists

Industrial Research Costs in Israel Lower Than in US, EC

By MACABEE DEAN
Journal of Commerce Special

TEL-AVIV — Industrial scientific research in Israel is considerably cheaper than in the United States or in Europe.

Estimates put the cost of specific projects at about 60 per cent of that in the United States, about 70 per cent of that in Europe.

This is due to the considerable reservoir of scientific manpower, formerly engaged solely in theoretical research, which is either gradually spilling over more and more into practical research on a full-time or part-time basis, or else serving as consultants; it

is also due in part to the fact that emigration from the U.S.S.R. has brought to Israel quite a respectable percentage of engineers and scientists and the policy of the Israel Government has been to find them employment in industry. Especially in that type of industry whose sophisticated products — or "know-how" — are for export to industrialized or semi-industrialized countries.

National R&D Council

The Government has attached such importance to the development of science, that it established years ago a "National Council for Research and Development" in the

Prime Minister's Office. This Council, headed by Professor Eliezer Tal, is active in many fields.

In a recent survey of the field, Prof. Tal said that Israel now spends 2.4 per cent of its gross national product on scientific research — including defense. Prof. Tal called this a respectable sum.

As for persons engaged in research, the figure (including the defense establishment) was 22 to 23 per 10,000. The U.S. had 25 per 10,000, and Japan even more, but the average in Europe was 20 per 10,000.

Industrial Research Stressed

However, Prof. Tal said that

Israel should "beef-up" its industrial research by greater use of its military and university research.

He said that 45 per cent of investments in Israeli research went to the defense establishment, 30 per cent to the universities, only 12 per cent to industry, 10 per cent to Government institutions, and the remaining 3 per cent to all others.

He contrasted the 12 per cent for industry with the 77 per cent for industry in Switzerland — "and you can see the results."

Exports Growth Rate

The greater half than 100

Probing the news

Companies

Israel's Tadiran finds the formula

\$200 million company's steadfast faith in electronics has led to worldwide business in military radios

by Hesi Carmel, McGraw-Hill World News

In the short history of Israel's industrial development, one company has enjoyed unprecedented success. And one of the main reasons has been its unswerving belief that the future is electronics.

The company is Tadiran, Israel Electronics Industries Ltd. Turning out two thirds of Israel's total electronics product, Tadiran has also gained an eminent position on the world market in the field of military tactical-communications systems. In fact, with \$100 million of its projected 1976 sales total of \$200 million derived from exports, Tadiran will be the country's largest single exporter. And, at the AFCEA (Armed Forces Communications and Electronics Association) show in Washington June 8 to 10, Tadiran was scheduled to be the second largest single exhibitor and probably the only foreign one.

The company began in 1961 as a small maker (\$750,000 in sales) of batteries and quartz-crystal devices. Its growth from then till now has been shepherded by a dynamic and enthusiastic director-general, Elkana Caspi, one of the new Israeli generation of American-style managers. It was Caspi who gave to Tadiran its esprit de corps and modern management methods, and it was Caspi who convinced government officials during the economic crisis of 1965-66 that electronics was the path to growth.

Long line. In 1969 it became an international corporation, with half its shares owned by the Israeli labor-union controlled Koor Industries Ltd. and the other half in the hands of Americans. Today, the company makes, in addition to mili-

tary products, a line of consumer goods (air-conditioners, refrigerators, washing machines, and television sets), computer terminals, and telephone exchanges, as well as nickel-cadmium batteries and quartz crystals.

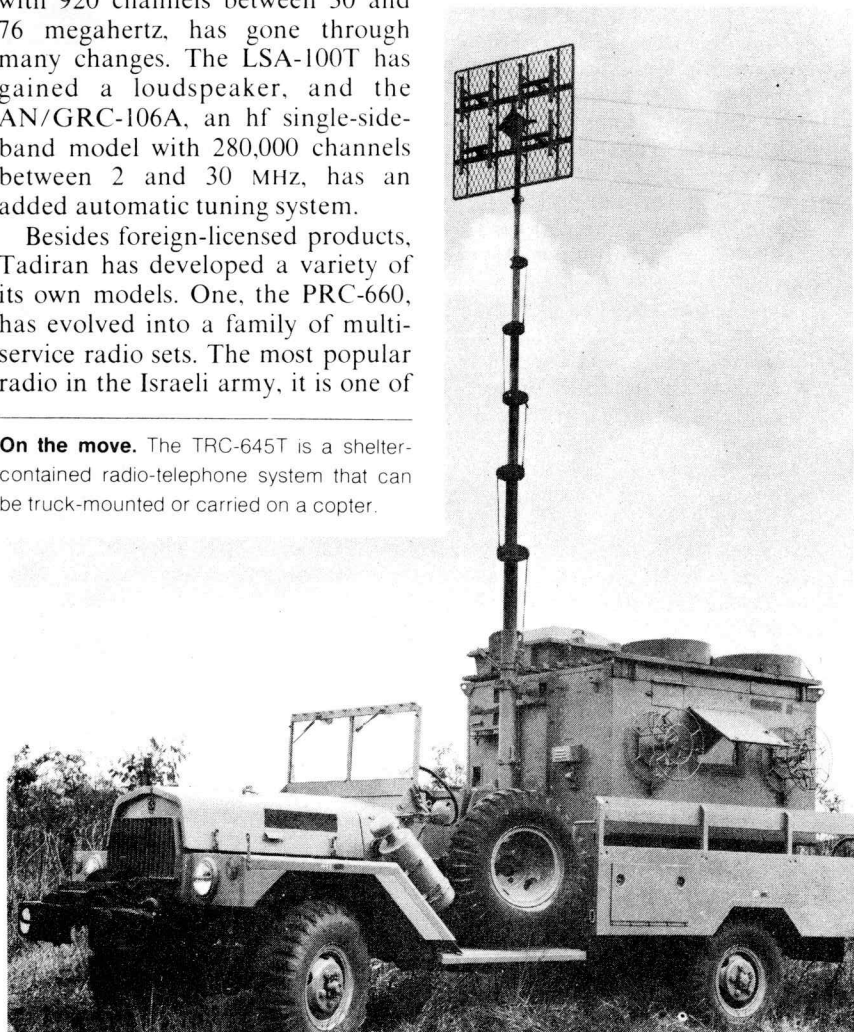
But the backbone of Tadiran is its military radios. Many have proved their worth in Israel's wars. And the war-won experience has led to the improvement of American radios made by Tadiran under know-how agreements. For example, the AN/VRC-12, a vhf/fm mobile set with 920 channels between 30 and 76 megahertz, has gone through many changes. The LSA-100T has gained a loudspeaker, and the AN/GRC-106A, an hf single-side-band model with 280,000 channels between 2 and 30 MHz, has an added automatic tuning system.

Besides foreign-licensed products, Tadiran has developed a variety of its own models. One, the PRC-660, has evolved into a family of multi-service radio sets. The most popular radio in the Israeli army, it is one of

Tadiran's best export items and may become the standard radio in several European armies.

Currently the pride of Tadiran is the recently developed TRC-645T, a radio-telephone system housed in a shelter that can be mounted on vehicles or carried by helicopter. It is crowded with a variety of communications gear for use by senior officers during combat and can maintain long-range communications with teleprinter, telegraph, radio, and foreign army headquarters.

On the move. The TRC-645T is a shelter-contained radio-telephone system that can be truck-mounted or carried on a copter.



BUSINESS WEEK — October 6, 1975

A laser that fingerprints precious stones

NEW PRODUCTS

'Gemprint' identifies stones through photographs of their light patterns

One of the trickiest problems for police can be to establish who is the rightful owner of stolen gems recovered from thieves. Diamonds, emeralds, sapphires, and other valuable stones are now usually identified by cut, clarity, color, carat size, value, or setting. "But these techniques are not proof-positive in court," says Lieutenant Marvin A. Katz of the New York City Police Dept.'s Property Recovery Squad. And one result, he adds, is that "at times an unconvicted burglar can sue for return of the gems he stole."

Now Chicago diamond merchant William Levine believes he can bring scientific precision to the task. This month he started shipping to jewelers a machine that can identify gems through photographs it takes of the unique light patterns reflected by each stone. The machine, called Gemprint, shoots light from a helium-neon laser at a precisely positioned gem. Characteristics unique to each stone—crystalline structure, impurities, and other physical properties—break up the beam into many shafts of varying brightness, which are reflected and recorded on film. The resulting print looks something like a picture of a starry night sky.

Levine has acquired exclusive rights to North American distribution of Gemprint, which was developed at the Weizmann Institute of Science in Israel. He is also establishing a central registry of gem "prints" through Gemprint, Ltd., a new company he has set up and in which he says he has invested \$300,000.

Fingerprints. Levine plans something analogous to the Federal Bureau of Investigation's central bank of fingerprints. The photographs made by the Gemprint machine will be classified and stored at the registry, and a computer will be used to keep track of them for retrieval. Gemprint, Ltd., plans to charge retailers \$5 for each such photograph sent to the registry, and the company will mail a confirmation of receipt to the customer along with a notice-of-loss form.

If, later, a gem is stolen, the customer would return the loss form and registry workers would pull the proper gem print from the files and try to match it against other prints, espe-



Levine and a certificate for customers who have stones "fingerprinted."

cially those made of stolen jewelry recovered by the police. To close the loop and get the system working, Levine has promised to lend three of the machines to police departments in New York City, Chicago, and Los Angeles, the U.S. cities where most major jewel heists occur.

Even in its early stage, the idea apparently has appeal. Some 27 jewelers have agreed to pay \$100 per month to lease a Gemprint machine that costs \$3,500. Levine has placed 36 machines so far, and initial customers include the jewelry divisions of Dayton Hudson Corp., which is testing six, and Harry Winston, Inc., of New York City, the world's biggest diamond merchant.

The device is also sparking interest overseas, where its manufacturer, Kulso, Ltd., the Israeli subsidiary of Philadelphia's Kulicke & Soffa Industries, Inc., holds all distribution rights. The European Gemological Institute, based in the diamond center of Antwerp, has been using a Gemprint machine for the past four months. In the future, says Guy Margel, director of the institute, all high-quality stones sold on the Antwerp market will be recorded by Gemprint, and a registry will be set up. In Australia, Kinloch Insur-

ance, Ltd., plans a similar service. And in Israel, which is now the biggest exporter of cut diamonds, the Insurance Institute has bought a Gemprint machine for use by its members, but it has not yet established a central registry.

Obstacles. Technical problems could dog some of these ventures. For one thing, the Gemprint was originally developed last year as a research tool for the study of crystalline structures, and commercial users have had little experience with it. And what of the thief who steals a gem and cuts it so that he can sell it more easily? Levine insists that an expert could still match recorded prints if a gem were not too severely cut. He also points out that a thief is not likely to try to cover his tracks in this way. Gem-cutting is a highly skilled trade, and two smaller stones almost always have much less total value than one larger one.

A bigger problem might be building up the Gemprint service into a broad enough network. Levine calculates that his Gemprint data bank will need some 500 fair-sized retail jewelers as subscribers before it can break even, and he looks for insurance companies to provide an impetus by offering lower premiums on stones that have been Gemprinted. This, however, may prove to be a chicken-and-egg dilemma. For example, Paul Gilinski, a manager at Fireman's Fund American Life Insurance Co., in Chicago, says: "There's nothing we can do until Gemprinting becomes a widespread practice."

Other insurance men point out a more fundamental problem. Clifford Custin, an executive at State Farm Fire & Casualty Co., for example, is pessimistic about the scheme because "few stolen jewels are ever recovered," he says.

Still, Levine is not perturbed. He says that the photographs can be used in other ways, such as to settle a dispute between a jeweler and a customer who claims that a precious stone left to be cleaned or set is not the original. Margel of the Gemological Institute concurs. He points out that a Gemprint gives jewelers, insurers, and buyers a surefire way to determine whether a given stone and a given description certificate of it belong together.

Moreover, retail jewelers are always anxious to expand their markets. Harry Winston, for example, will not charge for the service on new-chased gems. "Levine's Gemprint" is a

ISRAEL'S TECHNOLOGY AT WORK

THE CHRISTIAN SCIENCE MONITOR — January 2, 1975

Technological goals stressed

Israel: putting science to work

By David F. Salisbury
Staff correspondent of
The Christian Science Monitor

Rehovot, Israel

Israelis have traditionally viewed their scientists as people esteemed for their knowledge even if it is of no practical value.

As a result Israel has developed the most advanced scientific community in the Middle East. Science has played an important role in its development, but this traditional support of science for its own sake is increasingly being questioned.

As Arab oil fortunes mount, the Israelis see themselves caught in a tightening web of military, economic, and political pressures. The strategic necessity of developing domestic energy sources and an acute need for increasing water supplies are among the problems calling for technological solutions.

areas scientific know-how has been essential to Israel's development and survival.

Despite severe water limitations, the country has become an overall food exporter. Although most of Israel's armaments come from abroad, Israeli scientists have developed an advanced jet fighter, several missile systems, and possibly tactical nuclear weapons. Yet in most other areas Israeli officials now realized that the talents of their scientists have not been well utilized.

Their country is basically poor. "If Moses was such a great leader, how come he picked the only place in the Middle East without oil?" is standard Israeli wry humor. Israel's industry is small and underdeveloped.

Aim: high-quality goods

According to Dr. Eliezer Tal, head of the National Council for Research and Development, Israel would like to

work into products and processes which will benefit the country.

"The problem here is lack of resources," says Yaacov Yonath, one of this company's officers. "Except for those related to defense, the industries are just too small to support research." To keep going, Eljim Ecology has found itself working for foreign companies and this means that the rights to whatever it devises go out of the country.

Potential benefits

Although the Israeli Government offers to pay for half of any scientific research done by industry, few of the people running these firms are familiar enough with scientific matters to appreciate the potential benefits, Israeli's small community of applied scientists explain.

Because of the "profession"

THE JOURNAL OF COMMERCE — November 1, 1976

At Home, Abroad

Israeli Solar Systems Finding Wide Market

TEL AVIV (UPI) — Israel is slowly capturing a slice of the international energy business as Western nations seek a solution to the Arab world's drive for higher oil prices.

The Jewish state is already exporting more than \$1 million of solar energy equipment to the United States, Greece, Turkey, Portugal, France, Norway, Denmark and Britain.

And industry sources say there are good prospects of further sales to Spain, South Africa, Australia, New Zealand and South America.

Israel has found a way to use solar energy on a mass

scale after two decades of research. Twenty per cent of its population now uses the sun to heat water at home. The purchase of a \$325 solar system means the end of monthly hot water bills for hundreds of thousands of Israelis.

The success of the Israeli solar-heating system lies in a special electrochemical coating process that allows maximum absorption and retention of the sun's rays.

The solar collectors — glass plates coated with a nickel-based chemical — are angled southward to the sun and placed on Israeli rooftops. A water tank is connected to the plates and

hidden inside a slanted roof.

An individual home heating unit includes two plates and a 600-gallon (2,627-liter) boiler. The plates last about 15 years.

Industry sources said savings in fuel over the first two years and a half can pay for the initial cost of the system in Israel.

"Israel has become a sort of solar-energy laboratory," said Yitzhak Matza, general manager of the Miramit Corp., the largest of Israel's 60 solar heating companies.

He said models of different types of solar energy installations are being set up all over the country. Only when their success is estab-

lished are they exported abroad, he said.

The 25,000 units that Miramit expects to sell throughout Europe and the Americas in the next year will be used to heat water in single-family homes, apartment buildings, schools, dormitories, hotels, laundries and outdoor swimming pools.

At the New Mexico Agricultural College, one of the largest Israeli-produced solar systems heats rooms as well as water.

In place

ISRAEL'S TECHNOLOGY AT WORK

ELECTRONICS — April 17, 1975

Industrial electronics

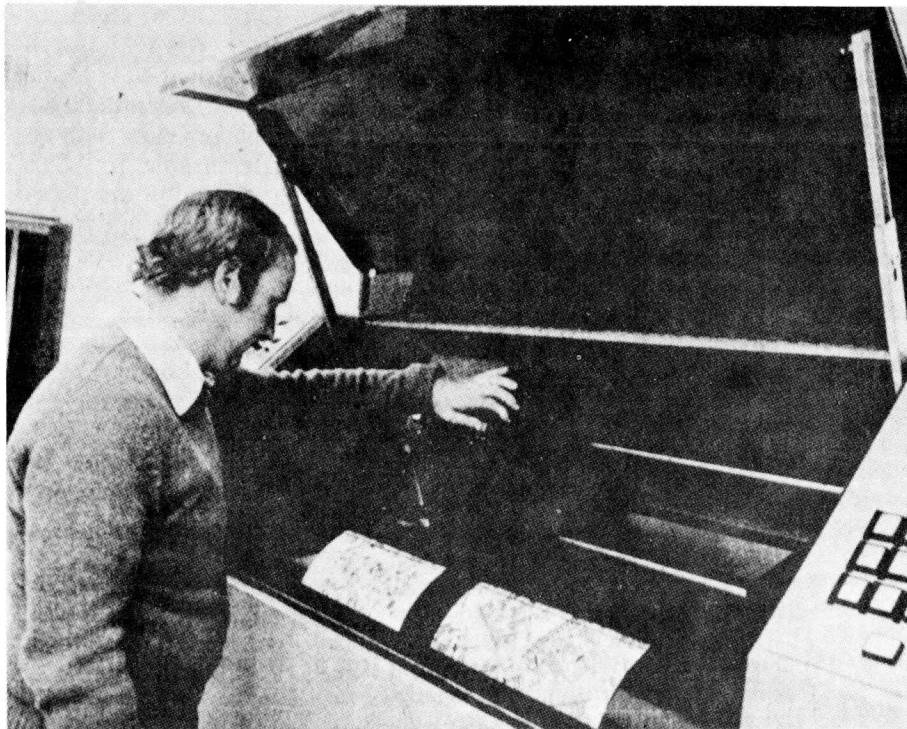
Laser camera helps textile printing

In the competitive and fashion-conscious textile industry, the ability to turn a design around quickly from a sketch to finished goods is crucial. Realizing this, a small Israeli company, Sci-Tex Corp., four years ago took an optical-scanning technique originally developed for military reconnaissance and applied it successfully to the problem of designing patterns in double-knit fabrics.

Now, Sci-Tex has added a laser camera—and \$120,000 in price—to its original unit to produce a design aid for the decorative printing trade, easing the creation of fancy wallpapers and textiles. But even with its hefty \$400,000 price tag, Sci-Tex's president Efraim Arazi expects the system to do well.

"Printing is an old-fashioned industry in which most of the existing machinery was built 40 years ago," he says. "Simply put, our new machine will save time. In one hour it will convert a sketch into color separations, from which printing engravings can be made. To do that operation now [by hand] averages 200 man hours."

Computer-aided design. The input to both the machine for double-knit patterns, called the Response system, and the machine for the printing trades is a fashion designer's sketch. Outlines and colors are converted to digital codes by an optical scanner. The output is a code that can be used to control the knitting machine or the laser camera.



Printer. The optical scanner used in Sci-Tex Corp.'s design aid for the printing industry takes artist's pattern with as many as 12 different colors and converts it digital code. Design can then be manipulated via color crt.

With it, an operator can vary color combinations and make changes in the design by using an electronic stylus and tablet. In less than 15 minutes, a sketch for a fabric can be converted to a tape that can be used to produce a fabric sample—a process that previously took weeks.

For the new printing version, the same quartz-halogen-lamp optical scanner as in the double-knit machine is used. Light reflected off the pattern is broken into red, green, and blue beams by filters and picked up by three separate photomultipliers. The resulting three-dimensional color vector is compared to vectors representing the maximum of 12 colors (a printing machine may print up to 12 colors) stored in the memory of the system's Hewlett-Packard 2108A computer.

When the scan is completed, the computer contains a matrix of codes that indicate the color in each increment of the design. Typically, there are 400 increments per inch.

Once the operator decides the pattern is ready, the information is used to control the laser camera. The camera uses a Spectra Physics Corp. 15-milliwatt argon laser and an acousto-optic modulator to reproduce each color pattern on conventional black-and-white film. Triggered 500,000 times per second, the laser produces lines that average 400 dots per inch. Then a step-and-repeat camera exposes up to 12 color separations that may measure up to 72 by 42 inches.

"The camera would not have been feasible," notes Arazi, "if it had not been for the recent development of a long-life—2,000 hours versus 300 hours—argon laser."

There were other design problems, however. "We had to pay more attention to human engineering and reliability than I ever did as an aerospace engineer," Arazi says. "We had to do three software than becom-

ISRAEL'S TECHNOLOGY AT WORK

BUSINESS WEEK — January 20, 1975

TECHNOLOGY

The drip that lets the deserts bloom

A new irrigation system brings water directly to the roots with big savings

Fifty mi. north of Los Angeles, a joint venture of Kaiser Industries Corp. and Aetna Insurance Co. is growing avocados, lemons, and grapefruit on 45-degree slopes once considered fit only for grazing. Penfolds Wines, Ltd., one of Australia's largest wine producers, is successfully cultivating grapes in an area with a rainfall 8 in. less than traditional vineyards get there. Israeli farmers in the Negev desert are harvesting 200 tons of tomatoes from every 2.5 acres planted, compared with yields of only 60 to 80 tons on the same acreage in Western Europe.

Each of these growers relies on "drip," or "trickle," irrigation to meter the water directly to the roots of each plant rather than depend on the shotgun effect of overhead sprinkler systems or flooding troughs dug between rows of crops. Developed in Israel, the system sharply reduces the amount of water needed for irrigation and cuts the need for increasingly expensive fertilizer by as much as half. So far, only about 200,000 acres in the world are watered with drip irrigation, but the trend is accelerating as farmers face the need to increase their productivity sharply as well as make the best possible use of available land.

The problem. Farmers need to give whatever crops they are raising just enough water to keep the plants growing at a steady rate. Too often, conventional systems provide too little water, which dehydrates the plants, or too much, which floods them out. To avoid these shocks, farmers in the U.S. are turning to a variety of drip irrigation systems that accurately blend water with fertilizer, then are turned on daily to provide regulated flow, depending on soil, moisture conditions, and plant growth rates.

Despite these advantages, farmers have been slow to adopt drip irrigation, even though such systems are less costly. An automated sprinkler system for citrus crops in California, for example, costs \$800 per acre compared with about \$500 per acre for a drip system, despite the recent rise in raw material prices. John Sakamoto, the Anaheim (Calif.) district manager for

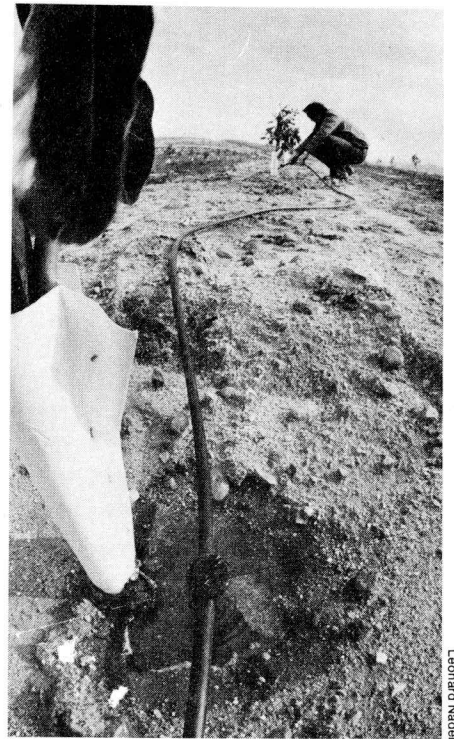
Naturipe Berry Growers, a marketing cooperative, estimates that some of his 70 members were able to grow 200 more trays of strawberries per acre while simultaneously reducing their water bills by one-third to one-half by using drip irrigation alone. Moreover, only one man was needed to run the system for 100 acres compared with 10 men for standard irrigation.

Yet C. D. "Don" Gustafson, an agriculturalist at the University of California at San Diego, estimates that there are only about 72,000 acres in the U.S. farmed with drip irrigation. In California, where its use has doubled every year since 1972, about 40,000 acres are equipped with drip systems. Florida and Hawaii follow in acreage under drip. Within five years, Gustafson predicts, at least 220,000 acres in the U.S. will rely on drip irrigation, mostly for such high-value crops as tomatoes, peppers, avocados, grapes, and citrus fruits. However, Israel is considering watering corn, sorghum, and sugar cane with drip irrigation because irrigation costs there are among the highest in the world.

The system. Whatever the crop, all drip irrigation systems rely on the same principle. Water is brought to the fields through underground mains, pumped through filters to remove impurities, then mixed with chemical fertilizers. This solution is pumped through serpentine lines of flexible polyvinyl chloride pipe that wind on the surface along rows of crops or through orchards.

The single largest hazard in using drip irrigation is clogging of the pipe openings. To get around this, farmers in western Washington state, for example, use sharp granite sand filters to remove the silt and clay that builds up in irrigation water from canals, while farmers in California depend on fine mesh screens to filter out crystallized minerals and salts that come from wells and rivers. Most farmers add chlorine to inhibit algae or bacteria that might block pipe or emitter holes.

The water is emitted in several ways, depending on the crop. For such cash crops as tomatoes and flowers in Florida, E. I. du Pont de Nemours & Co. is test marketing "Viaflo,"—a plastic pipe with tiny holes throughout its length. "When it is running, it looks like the Viaflo tube is sweating," says Richard C. Bergman, product manager



Even steep slopes can be cultivated, and with a cut in fertilizer costs.

in the company's New Business Opportunities Div. With Viaflo, Du Pont claims a farmer gets yield improvements of 35% to 100%, depending on the crop. He also may be able to reduce his fertilizer needs by as much as 50% and cut water consumption by 50% to 85%, the company says.

California avocado growers who plant their trees at least 6 ft. apart prefer a drip irrigation system that has water emitters about the size of a silver dollar spaced along a 3/8-in. pipe. The water-fertilizer solution, under pressure ranging from 2 lb. to 15 lb. per sq. in., dribbles through a 3/16-in. opening in the emitter at rates of 1 gal. to 2 gal. per hour.

As crops mature, they require more water, so more emitters are added to the lines snaking between crops or trees. Where frost may be a problem, as it is in California, farmers add a line of special "foggers"—an emitter with a bayonet-like base that can be stuck into the ground. The water-fertilizer solution is forced through a hole the size of a pencil point at the top of the fogger, which emits a fine mist that helps to prevent frost damage.

En+1

For further information . . .

To find out more about investing in Israel, get in touch with the Israel Investment Authority nearest you. Without any obligation on your part, they will be happy to provide prompt, individualized answers to your questions.

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September 28, 1977

Mr. Joseph Vardi, Consul
North American Director
Government of Israel
641 Lexington Avenue
New York, N.Y. 10022

Dear Mr. Vardi:

Thank you for your letter of September 19th and your comments on your recent meetings in Israel. I am pleased to learn that the new government will seek to increase the role of private initiative in Israel's economy. You may be assured of my desire to be of aid in this regard.

I do want to take this opportunity to express my appreciation to you for your past efforts and assistance and to wish you mazal tov as you assume your new duties in Israel. The newly created post of Ministry of Energy is an important one and I was very pleased to learn that you have been appointed director-general. I wish you well in your new and critical endeavors.

With warmest regards, I am

Sincerely,

Alexander M. Schindler

ישראל

GOVERNMENT OF ISRAEL

INVESTMENT AUTHORITY

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September 19, 1977

Rabbi Alexander M. Schindler
Chairman
Conference of Presidents of
Major American Jewish Organizations
515 Park Avenue
New York, New York 10022

Dear Rabbi Schindler:

I recently returned from a visit to Israel, during which the policy of the new government toward foreign investment was discussed. I am happy to report that both the Minister of Finance and the Minister of Industry, Trade and Tourism expressed the desire of the new government to continue and to increase the role of private initiative in Israel's economy. You may recall Prime Minister Begin's statement in the United States last month to the very same effect.

The government will continue to offer the same generous package of benefits and incentives to investors, and will work toward increasing their role in developing the economy.

I would like to take this opportunity to say goodbye, since I have been asked to return to Israel to take on the responsibilities of director-general of the newly created Ministry of Energy.

I will be at the Investment Authority until the end of October. For your convenience, a list of our staff and their responsibilities is attached. Please do not hesitate to call on any one of them for any reason. My successor will contact you as soon as he arrives in New York.

Though I am moving to Israel, I would like to remain in contact with you. When in Israel, please call me. You will be able to reach me at home ((02) 711445), or at the Ministry of Energy.

Sincerely yours,

Wish him well

Joseph Vardi, Consul
North American Director

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