

ISRAEL HIGH-TECH & INVESTMENT REPORT

A MONTHLY REPORT COVERING NEWS AND INVESTMENT OPPORTUNITIES

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From the Editor's Desk

Trade with India - a diamond in the rough

Cochin is one of the most charming towns in India. Part of its charm is that Christians, Jews and Moslems live together in much greater harmony there than they do elsewhere. It also is the major Jewish community in India, with several thousand Jews. The beautiful blue Beit Elyahud Synagogue near the University of Bombay is another proof of the country's religious tolerance.

In 1950, India formally recognized Israel, but Israeli representation there has been only at the level of consul general, based in Bombay. Last month, the Indian government reversed its long-standing policy, and is now seeking a location for its embassy in Israel.

Plans are in progress for an exchange of ambassadors by the middle of this summer. Israel's Consul-General is currently active in New Delhi, the country's capital and seat of government.

India dwarfs this country in sheer size and population. Its total area is 3.3 million square kilometers, and it has a population of 850 million. Yet its GDP is only \$279 billion, which comes to \$340 per capita. The country faces severe political and economic problems, including secessionist movements and communal/caste conflicts. India came close to defaulting on its foreign debt obligations, but after an IMF loan it is implementing major changes that will result in a more free-market orientation.

The difficulties have been caused by a persisting foreign trade deficit, which two years ago was \$7.1 billion of a total annual trade of \$26 billion.

The new policies have as their objective the promotion of growth, the increase of production, encouragement of enterprise, and the welcoming of foreign investment, including up to 51% foreign equity for export trading companies.

These political and fiscal changes are providing

economic opportunities for both countries. Israeli entrepreneurs were quick to seize the initiative, and in April an economic delegation under the auspices of the Israel Export Institute made an historic visit.

The reception was exceptionally warm, and the visitors discovered an appreciation for Israel's political situation and its achievements.

What do the Israelis have to offer?

- Bromine. Israel has 60% of the world's bromine, and accounts for 30% of its production worldwide.
- Educational systems. Used for the development of human resources in high-tech industries.
- Electronic systems. For defense and civilian markets.
- Agricultural crops, systems and equipment. Israel's kibbutzim represent one of the most developed agricultural economies in the world, with its 280 diversified industries, including irrigation and water systems.
- Communications.
- Aerospace.
- Diagnostic kits.

Despite the lack of diplomatic relations, the countries have not been strangers. One traditional Indo-Israel link has been the diamond industry in each country. India processes over 65 million carats of rough diamonds every year - more than two thirds of the world's diamond production. Israel export figures

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indicate major strength in this field, with annual diamond sales of \$3.5 billion.

In the late 1960s, Indian merchants and producers established a presence in Israel, and the Indian diamond community here has expanded to include more than 100 families. These people have forged a major interpersonal and business link between India and Israel.

Trade with Israel, at more than \$27 billion a year and growing, has proven profitable. Israel sells innovative high-tech products and offers sophisticated services.

What is India seeking from Israel?

Access to high technology. New accesses to world markets. Investment. Know-how which it can use to transform itself into an Asian Tiger.

Israel enjoys favorable trade agreements with the US and EC - markets to which India would dearly love access. Israel also has experience in agro-technology related to food, exports and high-technology.

The basis is there. With the development of personal chemistry between the Israeli and Indian business communities, we expect to see a rapid development of activity. Direct telephone and facsimile connections exist, and direct links by plane are being planned.

All in all, the closer ties will be good news for industries and businessmen in both countries.

Therefore thy gates shall be open continually. They shall not be shut day or night, that men may bring to thee the riches of the nations. - Isaiah 60:11

AGRICULTURAL RESEARCH ORGANIZATION

The Agricultural Research Organization (ARO), originating from an experimental station established in 1921, today encompasses 7 institutes and 7 experimental stations employing about 1,000 scientists and support personnel. The main aim is to find solutions to problems existing in Israel, and to use the country's resources to the maximum. Based on extensive research, the researchers develop new technologies and techniques.

Problem solving is helping farmers thrive in Israel's harsh terrain and climate, and the agricultural industries benefit from these efforts, which besides improving methods of cultivation, include the handling and preservation of produce. Increased and more efficient production results in produce that is more competitive on the world markets.

Crop water requirements and the hydraulic properties of soils in various parts of the country are the

subjects of current research. The purpose is to develop irrigation methods that will take advantage of the limited water supplies in each region.

As a result of the research, Israel's flower and fruit export markets are benefiting. One technique which makes the export of flowers more competitive has been the development of special cultivation systems which enable flowers to grow in winter, so that between October and March an average of ten million blossoms are flown to Europe daily.

ARO develops new varieties of fruit, vegetables and ornamental plants, and to this end uses experts in breeding and genetics.

Cultivars acquired from various parts of the world are used to improve the quality of local produce. Similarly, various types of trees are imported. Some are acclimatized, and in some cases, improved varieties are produced for the domestic and export markets.

Important areas of investigation and research are:

- increasing crop resistance to insects and disease;
- raising production efficiency of animals and poultry;
- preserving stored bulk grain;
- reducing pesticide levels with biologically based controls;
- improving technology for extending the shelf-life of food.

Research and development has led to the production of such things as special traps whereby farmers can monitor and control the pests that attack their crops. An electronic system has been developed that is capable of monitoring a cow's reproductive cycle - an advantage to large-scale farmers, for whom herd management is complicated.

Israel currently exports 40% of its agricultural produce to Europe, and markets European products, including seeds, irrigation equipment and chemicals.

Below is a list of some of the outstanding achievements of agricultural research in Israel.:

- * Cultivation of fruits and vegetables out of season. This was made possible by the development and use of plastic sheeting to create tunnels and nurseries which provide a greenhouse environment. This development led to the cultivation of new strains suitable to these nurseries.
- * Cultivation of new strains of fruit, vegetables and flowers for geographic areas with special

climatic problems. (For example: melons and tomatoes for the Arava and the Jordan Valley; mangoes for the Western Negev; anemones for hilly areas; Easter roses for the southern Golan).

- * Determining optimal conditions for the handling and storing of produce, from harvesting to its arrival at the home of the consumer.
- * Developing methods of ensuring a regular supply of agricultural products to the Israeli market throughout the year, and to export markets in their winter and spring seasons.
- * Reducing the average water requirement of agricultural crops by as much as 40%, and improving the methods of irrigation (drip irrigation, pulse irrigation and sprinklers, for example) in order to expand the areas which can be irrigated in Israel.
- * Making use of effluent and brackish water in agriculture.
- * Developing the range of dairy products in Israel, and increasing the milk yield of Israeli cows to a world record.

ASSUTECH:

An Emerging Growth Company

After five years of development and marketing in Israel medicinal nutritional and herbal medicine products Assutech has obtained a \$ 7 million contract to supply to Spain its two key products Assubar and Opuntia. The former is used in snack and lowers cholesterol levels while Opuntia Flowers capsules reduce discomfort associated with prostate disorders.

The company's products are aimed at a market with increasing potential worldwide. Natural health and herbal products markets are in excess of \$5 billion worldwide. Assutech was founded by Haim Aviv, founder of BioTechnology General and Pharmos and by Eitan Hartuf.

Part of the Assutech product line originates in the research of Prof. Dan Palevitch specialist in Medicinal Plants at the Volcani Center.

PELLETED MANURE

Shacham-Givat Ada Ltd., a subsidiary of a private group of companies, has many years of experience in the recycling, treating and handling of manure and other organic materials. This experience has resulted in the development of a sophisticated industrial process which produces pellets of pure animal manure, free of chemicals or other additives. These pellets are therefore ideal for organic and biological farming.

Shacham also produces pellets composed of animal manure combined with inorganic fertilizers. The chemicals used are urea (to increase nitrogen concentration); phosphoric acid or triple superphosphate (to increase phosphorus concentration); and potassium chloride or potassium sulfate (to increase the potash content).

The factory supplies pellets of various combinations, locally and overseas, to meet plant requirements as determined by field trials and the recommendations of research agronomists and other specialists.

The pelleted manures can be applied to field crops and orchards, and have the following advantages:

- stringent control measures ensure the highest quality product;
- manure can be evenly distributed immediately prior to planting or sowing;
- the pellets are free of disease pathogens and noxious seeds;
- the pellets are easily transported, handled and stored.
- low element concentrations result in negligible pollution hazards, even with high-volume applications.

The efficiency of Shacham's pellets lies in the increased availability of essential nutrients as a result of the presence of organic compounds, and the prevention of leaching and fixation of nutrients, which are released gradually according to the plant's requirements. Applications of top dressings can be minimized, reducing costs considerably.

Shacham employs renowned agronomists with long records of research in Israel and overseas, and is also continuously involved with other research.

REMOTE SENSING LABORATORY

Back in the 1960s, when the Egyptians built the Aswan Dam, Israeli scientists were concerned about our countrys Mediterranean coastline. For centuries, sediment from Upper Egypt had flowed northward with the Nile, spilled into the sea and found its way to the shoreline of the Eastern Mediterranean. The Israelis feared that the dam would stop or slow this process, leaving no compensation for natural erosion, and thus destroying the countrys beaches.

Research has shown, however, that the only shores suffering from the dams impact have been those near the Nile Delta! Ocean currents eat away at the delta, carrying sediments eastward. Israel's coast receives enough sediments in this way to preserve its ecological status quo.

Israeli-Related Companies Publicly Traded in the United States*

April 2, 1992

Ticker Symbol	Company Name	Marketplace	Mkt. Value (\$mil)	Sales (\$mil)	Price/Earnings	Price/Sales	Price/Book	Shareholders' Equity	Profit Margin (last 12 mos.)	Year to Date Stock Performance			
										High	Low	Close	% Chg
1 AIP	Amer Israeli Paper Mls -Ord	AMEX	171.7	277.4	13.0	0.6	1.5	116.8	4.8	49.25	40.75	45.13	9.7
2 AIS.A	Ampal American Israel -Cl A	AMEX	86.0	67.5	NE	1.7	0.9	108.5	NE	5.88	3.25	4.88	30.0
3 ARYTF	Aryt Optronics Ltd	NASDAQ	7.0	NA	NA	NA	NA	NA	NA	1.63	0.88	1.38	33.3
4 BTGC	Bio Technology General Corp	NASDAQ	176.6	3.4	NE	48.0	9.6	18.5	NE	11.75	7.63	7.75	-10.1
5 BVRTF	BVR Technologies Ltd	NASDAQ	18.2	NA	NA	NA	NA	NA	NA	6.13	3.25	5.63	60.7
6 KML	Carmel Container Sys -Ord	AMEX	16.4	80.8	12.5	0.2	NA	11.0	1.6	7.25	5.38	6.50	4.0
7 CMVT	Comverse Technology Inc	NASDAQ	151.4	20.1	53.1	7.3	9.7	14.8	10.8	1.47	0.56	1.06	79.0
8 DSSI	Defense Software And Systems In	NASDAQ/NMS	23.5	NA	NA	NA	NA	NA	NA	13.75	9.00	11.75	NA
9 ECILF	ECI Telecommunications -Ord	NASDAQ/NMS	848.2	114.0	30.0	7.2	15.1	112.8	24.1	61.50	45.25	55.88	17.6
10 ELBTF	Elbit Computers Ltd -Ord	NASDAQ/NMS	516.8	409.6	14.7	1.3	3.5	181.0	8.7	32.00	24.25	31.50	26.6
11 EIF	Electrochemical Indus Frutar	AMEX	40.9	128.3	9.5	0.3	1.1	38.8	3.5	2.00	1.31	1.75	21.7
12 ELEIY	Elite Inds Ltd Adr Ca Nis 1	OTC	125.8	NA	NA	NA	NA	NA	NA	NA	NA	12.38	NA
13 ELRNF	Elron Electronic Inds -Ord	NASDAQ/NMS	297.8	99.2	12.7	3.9	2.9	116.2	25.9	19.50	14.38	17.13	12.3
14 ELT	Elscont Ltd -Ord	NYSE	418.5	190.9	22.9	2.1	7.2	95.5	9.0	6.00	4.75	5.50	15.8
15 ROBOF	Eshed Robotec	NASDAQ	34.4	7.9	18.2	4.2	4.2	8.6	22.9	4.13	2.75	3.81	19.6
16 ETZ	Etz Lavud Ltd -Ord	AMEX	32.7	98.2	7.7	0.3	1.9	15.8	4.0	11.50	7.38	9.38	25.0
17 FBRX	Fibronics International Inc	NASDAQ/NMS	39.6	53.9	NE	0.7	1.6	24.1	NE	10.88	6.13	6.25	-13.8
18 FMSI	Fidelity Medical Inc	NASDAQ	36.1	5.9	NE	6.3	2.8	16.3	NE	12.25	8.00	8.50	-22.7
19 GALAF	Galagraph Ltd -Ord	NASDAQ	4.2	0.9	NE	9.9	82.6	0.1	NE	1.63	0.97	1.16	17.5
20 GOTK	Geotek Industries Inc	NASDAQ	13.0	36.8	NE	0.3	0.9	15.6	NE	2.44	1.63	2.09	13.6
21 HCTLF	Healthcare Technologies Ltd	NASDAQ	8.4	2.4	NE	4.3	4.9	1.7	NE	2.06	1.25	2.00	42.2
22 IDANF	Idan Software Ind Isi Ltd	NASDAQ	8.5	0.3	NE	25.6	6.6	1.3	NE	1.44	0.69	1.34	65.3
23 IICR	IIC Industries Inc	NASDAQ	32.4	3.2	14.0	10.2	0.6	51.1	73.0	24.50	20.50	22.75	1.1
24 IISLF	IIS Intelligent Info -Ord	NASDAQ/NMS	105.8	44.7	20.9	2.4	4.2	26.5	11.3	27.25	17.75	25.88	42.8
25 IPLLF	Interpharm Labs Ltd -Ord	NASDAQ	223.0	34.0	41.1	6.6	14.4	15.5	16.1	56.00	34.50	35.75	-19.2
26 ILDCY	Israel Ld Dev Ltd	NASDAQ/NMS	60.8	34.0	NE	1.6	0.7	105.0	NE	13.00	10.00	10.00	-7.0
27 ISTEf	Istec Industries & Tech Ltd	NASDAQ	7.0	0.0	NA	NA	7.5	0.9	NA	1.75	0.81	1.44	58.5
28 LANTF	Lannet Data Communications	NASDAQ/NMS	254.1	NA	NA	NA	NA	NA	NA	29.75	16.50	25.13	44.6
29 LAS	Laser Industries Ltd -Ord	AMEX	25.2	31.2	487.5	0.8	24.9	1.0	0.1	5.75	3.38	4.88	34.5
30 MGICF	Magic Software Ent Ltd -Ord	NASDAQ	22.4	NA	NA	NA	NA	NA	NA	9.50	7.50	8.88	14.5
31 OPTKF	Optrotech Ltd -Ord	NASDAQ/NMS	78.7	71.8	52.2	1.0	2.2	33.6	2.0	16.63	11.75	12.00	-9.4
32 OSHSF	Oshap Technologies Ltd	NASDAQ	25.4	35.7	60.7	0.7	2.3	14.3	1.0	5.63	3.88	4.25	-8.1
33 IEC	PEC Israel Economic Corp	AMEX	242.3	11.0	9.5	22.0	1.2	205.6	231.5	21.25	15.00	15.38	1.7
34 RADIF	Rada Electronic Inds	NASDAQ/NMS	23.7	26.5	48.2	1.0	2.1	11.3	2.2	8.25	6.75	6.75	-12.9
35 SCIXF	Scitex Corp Ltd -Ord	NASDAQ/NMS	1539.8	430.2	15.3	3.6	6.4	325.9	23.4	44.13	34.88	41.25	16.2
36 SPILF	SPI Susp & Parts Inds -Ord	NASDAQ	2.5	22.6	3.7	0.1	0.3	8.2	2.9	1.13	0.50	0.75	-14.3
37 TAROF	Taro Vit Inds Ltd	NASDAQ	64.7	NA	NA	NA	NA	NA	NA	13.25	5.88	10.88	79.4
38 TEVIY	Teva Pharm Inds -Adr	NASDAQ/NMS	578.6	321.0	24.5	1.8	3.5	179.0	7.3	28.38	16.50	24.25	28.5
Total			6,290.5	2,663.2									

*U.S. registered securities with critical mass in Israel. NA = not available NE = negative earnings

Source: FactSet Data Systems Inc. Provided as a courtesy to the Israel High Tech Investment Report by the American Stock Exchange.

Examining the impact of the Aswan Dam on Israel's coast has been one of the projects conducted by staff at the Remote Sensing Laboratory, Jacob Blaustein Institute for Desert Research, Ben-Gurion University at Sde Boker Campus.

The lab was established in 1988 as an interdisciplinary unit of the institute. It is at the cutting edge of a new science that enables researchers to analyze data in more sophisticated ways than was possible in the past.

It specializes in the analysis of arid and semi-arid regions. Considering the fact that the Negev constitutes a vast percentage of Israel's territory, and that much of it remains uninhabited, the acquisition of tools to analyze its potential are a national priority.

In the coastal sediments project, normal aerial photography revealed only a Mediterranean coastline met by deep blue sea. Researchers had few tools to help them determine what was happening under the surface; it is extremely difficult to cover such a huge area by ship monitoring.

Remote sensing provided the answers.

What exactly is remote sensing?

This innovative science born in the 1970s and still in its infancy uses information from aircraft and spacecraft, observing and analyzing the spatial, spectral, temporal and polarity variations of reflected and emitted radiation within the electromagnetic spectrum.

In simpler terms, remote sensing lets researchers analyze features of the Earth's surface or atmosphere from a distance, mainly by using digital data from satellites.

Every substance, when struck by sunlight, responds by emitting or reflecting its own unique energy fingerprint. The differences between one fingerprint and another are the key to remote sensing. With the proper equipment and analysis, scientists can determine what is happening on the ground or in the atmosphere without setting foot near the area.

Before the 1970s, people analyzed aerial photographs for scientific and military purposes, says Dr. Arnon Karnieli, coordinator of the Remote Sensing Laboratory. But aerial photography offers only very limited information. Modern remote sensing expands the range of information available, and increases the usefulness of the data.

Scientists no longer deal with paper photographs. Instead, remote sensing uses information from such images, stored digitally in computer memory. The

fact that the information has been digitized enables researchers to process it and extract knowledge that would be unattainable to the human eye.

Courtesy, Ben-Gurion University, the Negev

ISRAELI COMPANIES ON WALL STREET

ELRON

Elron Electronic Industries appears to be poised for expansion. Looking ahead to the mid 1990's, part of the program is a private placement of more than \$20 million. The "forward look" on Elron's part is connected with its just-concluded business year, which saw net income of \$20.3 million, compared with \$7.0 million in 1990.

Elron's affiliated companies, primarily Elbit and Elscint, contributed \$14.5 million to the net income. A year ago, Elbit sold shares publicly, and at that time Elron sold \$1 million of Elbit's shares, so its stake in that company has been reduced to 44.3%.

It's holdings now appear in Elron's financial statement on an equity basis.

BETA INTERFERON BOOSTS INTERPHARM SALES

InterPharm's laboratories reported annual sales of \$35.2 million, and a net income of \$4.3 million. Sales were up 40%, and profit rose 24% on a year-to-year basis. The results are approximately 10% above estimates, and result from increased sales of the company's native beta-interferon, Frone (R).

Frone is now being used as therapy treatment for breast and uterine cancers.

\$6.2 million was spent in 1991 for research into recombinant beta-interferon, which is said to be almost identical to interferon produced by the human body.

Israel High-Tech & Investment Report Index*

109.50

+2.91%

*ISRAEL HIGH-TECH & INVESTMENT REPORT INDEX is a weighted index made up of the shares of leading high-tech companies.
BASE=100 AS OF Jan 10, 1992

The company is pouring in more money into research for Interleukin-6 (IL-6), an immune system stimulator which has shown promise in the treatment of the severe side-effects of cancer therapy.

IL-6 is viewed as being a potential block-buster drug.

Lemmon

Lemmon Company, Teva's American subsidiary, has obtained FDA approval to produce and sell Albuterol Syrup, the first generic version in syrup form of a bronchodilator drug currently sold by Shering-Plough and by Glaxo.

The two companies have combined sales of approximately \$40 million with this drug.

ECI TELECOM

E.C.I. Telecon scored a major success at CeBIT-1992 - Germany's primary Office Information and Telecommunication exhibition. At the Deutsche Bundespost Telecon stand, visitors could view ECI Telecon's logo on a DBPT terminal, portraying the Israeli company's multiplexing and network management capability as part of one of the first-ever operational SDH (Synchronous Digital Hierarchy) closed ring networks.

This feat was recognized as an indication that the Israeli company is ahead of its competitors, and that the DBPT had given E.C.I. Telecom the nod.

AT&T

AT&T has ordered more than \$10 million of E.C.I.'s digital circuit multiplication equipment to allow 6-to-1 multiplication of facsimile transmissions.

Healthcare Technologies

Healthcare Technologies has been granted approval to sell medical diagnostic kits which will identify antibodies in the sexually transmitted disease Chlamydia.

As a result of the sale of 5,000 of these kits annually in the Japanese market, two unnamed Japanese companies which have already agreed to invest \$200,000 in another project applied for and are to receive exclusive rights for the marketing and distribution of the kits in Japan.

HCTL continues to sit on a small horde of cash it raised from its financial offerings in the fall of 1991. The company it is said in financing circles maybe be missing out on important opportunities due to its conservative approach.

Eshed Robotec Outperforms Analysts' Expectations

Israel's leading educational robot company has reported that it earned in 1991 \$2.2 million on sales of \$9.2 million. The results surpassed most analysts' expectations of \$8.0 million and profits of less than \$2.0 million. The outlook is generally positive for continued growth in earnings and profits. The company which is situated outside of Tel Aviv is adding to its work force and on a recent visit among the veterans new technicians included new immigrants from Russia.

Teledata In IPO

Teledata Communications Ltd. is offering 2.5 million shares to be priced between \$8 and \$10 as part of its Initial Private Offering. It is being managed by Lehman Brothers and Oppenheimer & Co. TDC supplied telephone companies with solutions for providing telephone services in the local loop. The company's sales have nearly quadrupled in 1991 to \$17.3 million with profits up more than five fold to \$3.9 million. With 1991 earnings per share of \$0.55 potential investors can estimate how much they are prepared to pay for the shares of this emerging growth company.

Interdisciplinary Center for Technological Analysis and Forecasting

The earliest of Israel's activities in remote sensing was the establishment of a space information center, which gave the Israeli research and industrial sectors access to the world's most important databases. In those early days, ICTAF also participated in literature surveys and technological forecasts in areas such as composite materials, beryllium, solar cells and communications.

In 1984, the French Space Agency began actively promoting, through the SPOT IMAGE Company, the yet-to-be launched SPOTI satellite. It was at that time that the ICTAF decided to get involved, based on the understanding that the expected launch would be a turning point in the application of remote sensing.

The intention was to collaborate with ISA in the promotion of satellite imagery applications. Israel's activities would take three main directions:

1. To serve Israel's needs, such as the monitoring of crops for the Ministry of agriculture.
2. To assist Israeli engineering and agricultural companies active overseas.
3. To develop excellence in digital image processing of satellite imagery by Israeli

value-added companies and research establishments, and thus facilitate the development of a new branch of know-how for export.

The ICTAF took several steps to meet these aims:

1. It became the agent in Israel for the EOSAT commercial satellite, as well as for the company that distributes US LANDSAT images; SPOT IMAGE, the French Space Agency's company that commercializes SPOT imagery; and EURIMAGE, which is the European Space Agency commercialization company for LANDSAT, ERS-1, and other satellite imagery.

The ICTAF also became involved with the Israeli ground station which currently receives SPOT imagery.

2. In addition to these commercial activities, the ICTAF decided to promote remote sensing applications, at first by encouraging the development of digital imagery-processing capabilities by potential users, and later by carrying out applications on its own.

As an example, the ICTAF has for the past three years conducted extensive research for the Dead Sea Potash Works, using LANDSAT data for the thermal mapping of the potash production pans, while exploring the contribution of the other visible and infrared reflective bands to different aspects of the Dead Sea Works production monitoring system.

Looking back on the eight years that have passed since entering this new and rapidly developing field, we can point to the fact that SPOT satellite imagery is being serviced in Israel, and more and more users are entering the field and beginning to apply such imagery to their needs.

But on the other hand, the acceptance of these new technologies has been much too slow, especially considering the high-tech orientation of Israeli industry.

While many users are now entering the field of digital satellite image processing, ICTAF is keeping its eyes on new and emerging technologies, some of which are already operational. ESA's RS-1 radar satellite, for example, was launched in July 1991.

In the United States, imaging systems are developing rapidly, but we expect additional years of uphill struggle to familiarize Israeli users with these and other new types of imagery.

Courtesy Abraham Tal, Israel Space Research Technology Bulletin.

ISRAEL JOINS GERMANY IN AGRICULTURAL RESEARCH

The German government is allocating DM 600,000 for environmental research related to agriculture. The project marks the first time that the Ministry of Agriculture has allocated agricultural research funds outside Germany.

The European Community has demanded that efforts be made to contain the harmful effects of chemicals employed in the agricultural sector. Two researchers from Israel - Prof. A. Mingelgreen and Dr. Z. Grestel - have been picked to begin projects with their German counterparts.

MEDICAL TECHNOLOGY

POBA - PLAIN OLD FASHIONED BALLOON ANGIOPLASTY

Coronary heart disease remains the prime killer in the Western world, causing 1.5 million myocardial infarctions and over 500,000 deaths per year in the United States alone. It accounts for one third to one half of deaths between the ages of 35 and 64.

Although overwhelming epidemiological evidence links coronary heart disease to smoking, elevated serum cholesterol, hypertension and a positive family history, modest risk-factor modification has been somewhat disappointing, failing to provide the expected definitive benefit in terms of reduced mortality.

It appears that marked changes in lifestyle or a lowering of serum cholesterol with multiple drugs will be necessary to halt or reverse the severity of coronary artery narrowing with reasonable certainty in individual patients.

Percutaneous transluminal coronary angioplasty (PTCA) and thrombolytic therapy have profoundly changed the management of coronary artery disease. Formerly a diagnostic procedure, catheterization has become a therapeutic intervention, often substituting for cardiac surgery.

The percentage of diagnostic cardiac catheterizations that proceed to mechanical intervention has increased from 30% to 60%.

Over 400,000 procedures are done annually in the United States. With the average cost of a balloon angioplasty catheter at well over \$500, the economic consequences are clear.

Balloon angioplasty has developed in the space of less than two decades, from a situation in which a single manufacturer was producing a relatively

primitive balloon on a fixed wire, to the wide range of balloons available today, using a variety of techniques.

Modern balloon angioplasty uses smaller, more slippery, higher -quality balloons, making the procedure ever easier, less traumatic and more successful, and resulting in fewer referrals for bypass surgery.

Human ingenuity has seen the development of a variety of sophisticated equipment, including, according to Waller (an angiologist of repute) "crackers, breakers, stretchers, drillers, scrapers, shavers, burners, welders and menders." A number of these devices have been approved for clinical use by the FDA, but in spite of the initial enthusiasm, most do not have a lower re-stenosis rate or safety record than POBA - plain old balloon angioplasty (a term coined by Don Baim of Beth Israel Hospital, Boston).

Directional atherectomy ("shaver") and rotational atherectomy ("driller") have been used quite extensively, but only now are the results of randomized trials comparing these devices with POBA being published - something which will give guidance to the interventionist. The question will then become, not "Can it be done?" but "Should it be done?"

The proportion of patients undergoing catheterization and subsequent PTCA or bypass surgery is growing annually, and is now more than 50%. This will increase with the availability of newer techniques and the refinement of existing balloon technology. Two such techniques are interventional ultrasound and directional laser therapy for clot ablation, with subsequent balloon application. This fast-growing field allows for earlier, more effective and safer treatment of sicker, more difficult patient groups.

Dr. Hylton Miller, Director of Catheterization Laboratory, Tel Aviv Medical Center.

LASERS IN THE SERVICE OF MANKIND

Some call it the "nearly bloodless" procedure; others call it "keyhole surgery." Doctors practising it are nicknamed "Videoscope Surgeons." What has been termed the greatest surgical revolution in the past fifty years allows, for example, the removal of a diseased gall bladder by making a small insertion in the stomach and using an instrument called a laparoscope.

Whether its a laparoscope (for the stomach), arthroscope (for joints), thoracoscope (for the chest) or angioscope (for areas inside blood vessels), these tools are similar in that they are all fiber optic tubes

which can be inserted into a human body through an opening of 1 cm or less.

These scopes are equipped with a tiny lens, a miniature light source, a video camera which can be held in the palm of the hand, and minute scissors and graspers. The videoscopic tubes provide images of the patient's organs while the surgeons, manipulating scissors and graspers, perform the operation.

The major advantage of this procedure is that it can dramatically reduce surgical trauma. These procedures are becoming so popular that, according to Time magazine, of the nearly 600,000 gall bladders removed annually in the US, nearly three-quarters are taken out with the aid of laparoscopes.

CO₂ Lasers

Carbon dioxide surgery was pioneered in Israel by Prof. Isaac Kaplan. He and the surgeons who followed his techniques chose a carbon dioxide laser due to its excellent cutting capabilities.

Until recently, surgical lasers were relatively cumbersome and resembled a dental surgeon's drill. However, a flexible tube was invented through which the light traveled to the operation site, making new techniques in freehand surgery possible and setting the stage for endoscopic laser surgery.

It is expected that development of the carbon dioxide endoscopic laser will lead to a major surgical market demand. There has been a dramatic rise in diagnostic and surgical endoscopic procedures, creating major growth particularly for the manufacture of endoscopes and their accessories. Projections are that these sales will exceed \$1.4 million by the end of 1995. Currently, rigid endoscopy projects dominate the market. The 1991 sales totaled \$540 million, or nearly two-thirds of the total market. It is expected that in the next five years, minimal invasive surgery (MIS) will increase by between 15% - 20% annually. Accelerated development of the application for a patented hollow tube for carbon dioxide lasers could result in marketable products within the next 2-3 years.

A local company, Laser Industries, has approximately 2,000 surgical laser installations world wide.

iSIGHT LTD.

A Miniature Digital Color Camera for Endoscopy and Borescopy

i Sight is working on the development of a miniature digital color video camera for use in medical

endoscopy and industrial borescopy. The project is a joint effort with Vision Sciences Inc. of Orangeburg, NY. It is funded by BIRD, the US-Israel Bi-national Research Foundation.

iSight is providing the electronics, including a very small camera head which clips onto the eyepiece of the endoscope. The US firm is responsible for system integration and the units housing.

The camera will provide physicians with higher image quality, including iSights proprietary adaptive sensitivity feature, based on a patent purchased from the Technion. This allows for much better image quality in the high-contrast situations commonly encountered in endoscopy.

It will also provide physicians with a digital archiving capability for medical documentation and case review. The new unit will store this data on a hard disk, with the option of using other storage media as well.

A prototype is expected to be completed in 1992.

Medmax Ventures

The Connecticut-based Medmax Ventures, a limited partnership, is seeking to invest in advanced health care services and technology in Israel. Aimed to assist start-ups and growing companies, Medmax began operations in 1991 with \$5 million. Its policy is to invest up to \$500,000 in its portfolio companies.

Medmax President Halley Faust is currently in Israel, and is meeting with prospective companies.

OSTEOPOROSIS IN WOMEN

There is a growing body of evidence indicating that calcitriol is a key element in both the cause and cure of osteoporosis. The hypothesis is supported by recent studies that show that osteoporosis can be effectively treated with synthetically produced calcitriol.

In Israel, a synthetic analog of calcitriol, sold by Teva Pharmaceuticals Industries under the name Alpha D3, is frequently prescribed by doctors.

Prof. Shmuel Edelstein of the Weizmann Institute, with the orthopedic surgery department of Kfar Saba's Sapir Medical Center, is the first to measure calcitriol in bone. According to Edelstein, while calcitriol produced by the body is not necessarily absorbed by the bones, supplemental amounts seem to protect patients from the debilitating effects of the condition.

ESPRO SYSTEMS - A HIGH-TECH STARTUP

Espro Systems is a new high-tech company which will specialize in the transmission of personal information. It will develop the technology to activate soundtracks by the use of bar code symbols that will give instant access to segments of information, regardless of sequence.

The user indicates an item of interest by means of a pointing device, the code next to the particular item is read, and vocal information is instantly provided.

The first product, developed jointly with Acoustiguide, USA, and partially funded by the BIRD Foundation, is a unit the size of a "Walkman" cassette player, activated by bar codes, for use in museums.

DSI Is More Competitive with Russian Immigrants

Decision Systems Israel, a computer software firm and a subsidiary of Defense Software & Systems Inc. of Mahwah, New Jersey, is hiring more and more Russian immigrants. The 250-person company has already hired 36, and is preparing to integrate another 15 into its workforce. DSI is finding that the Russian employees accept less pay than their Israeli counterparts, and as a result are making the company's products more competitive.

The government of Israel and DSI expect to enter into an agreement valued at \$2.5 million for the hiring and retraining of new immigrants. If implemented, this program could create an additional 100 jobs. After completing the program, the new employees will be guaranteed work for three years at \$1,520 a month, with social benefits.

The guarantee of three years employment may set a new standard for the integration of immigrants. DSI executives feel that acclimatization to the newest technologies takes time, but the current salary differences of 30-50% give the company a competitive edge.

INVESTING IN ISRAELI'S NEW IMMIGRANTS

Cyril Stein, a prominent English Real Estate personality, with Albert Reichman and Michael Stinhardt, have formed a company to foster businesses that will create employment for new immigrants.

Prior to the formation of the company, Harvard University was commissioned to carry out a study to examine methods of absorption, and of establishing new businesses.

TECHNIONS HARVEY PRIZE AWARDED TO GORBACHEV

The Harvey Prize of the Technion-Israel Institute of Technology will be presented in June 1992 to former Soviet Premier Michael Gorbachev for his activities in reducing regional tension in the framework of his overall world view.

The prize was established to honor only outstanding figures in science and technology, human health, Mid-East literature and the advancement of peace in the Middle East. Nonetheless, the prize committee (comprised of senior Technion faculty and members of the Israel Academy of Sciences) decided to establish an additional category in recognition of Mr. Gorbachev's substantial contributions to peace in our region by the removal of his nation from active involvement in the Israel-Arab crisis, his contribution in reducing the regional arms race, and his stand against despotism during the Gulf crisis. Under his leadership, his country formulated a more balanced stand towards the Middle East, and renewed its diplomatic relations with Israel.

These activities helped pave the way to the Madrid Peace Conference - a milestone in the relations between Israel and the Arab peoples.

COLORED DIAMONDS

"The diamond trade is not as afraid of clarity enhancement as it once was," said Daniel Koss, managing director of Koss Fancy Colored Diamonds of Israel, whose company recently introduced its own treatment. "People [in the industry] recognize such diamonds for what they are, and realize that they do not constitute a threat to their livelihood."

To date, clarity enhancement has been the almost exclusive domain of another Israeli firm, owned by Zvi Yehuda, which developed the first successful means of making cracks and gletzes in diamonds less visible by injecting a transparent filler material. It is now joined on the market by the Koss enhancement method, which Koss describes as being the most advanced treatment available.

Infusion of Filler

The infusion of the filler material is performed in a laboratory under high pressure and within a vacuum. Strict measures are taken to ensure that a dust-free environment is maintained.

"The absence of dust is extremely important," says David Shechter, Koss' project manager. "Any foreign particle - however minute - that may get caught in the filler material will have a negative influence on the effectiveness of the treatment."

Disclosure of Enhancement

"The treatments are now part of the business, and the trade is required to mark such stones with the letter F," explained Koss. The company has already printed stickers displaying the letter, and is considering using laser to inscribe it on the girdle of larger stones.

"Clarity enhancement should soon be benefiting the trade and the public," Koss said. "The treatment enables the trade to move diamonds that were otherwise difficult to sell. The public is able to get stones with the appearance it desires for as much as 25% below the regular price."

Courtesy of Diamond World Review, April 1992.

FINANCING UPDATES

The American Investment Bank, Merrill Lynch, will head a group which will market 35% of Tadiran's securities, and aims to raise \$110 million.

New financing issues in the public line include Teledata, the Fourth Dimension, and Degem Systems.

Dr. Reuben Hecht, founder of Dagon, is investing \$2.5 million in Teuza Management & Development Limited - an investment fund based on company guarantees to investors. Teuza aims at raising \$20 million, including a public financing issue on the Tel Aviv Stock Exchange.

ISRAEL HIGH-TECH & INVESTMENT REPORT NEWS AND INVESTMENT OPPORTUNITIES

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