

JCT

Perspective

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When The Spiritual And The Material Meet...

**You Know You Are
In The Right Place**



COMMENTARY

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I would like to tell you about the story of Ruth and Boaz.

We are all familiar with the biblical Ruth, but JCT had its own Ruth and, in this case, Boaz was her son. The story is one of innovation, scientific research and technological advancement. It is also the story of the love of a son to his mother.

Dr. Ruth Arnon was, for a number of years, the head of JCT's English department, until she succumbed to breast cancer in 2003. She impressed all who knew her – colleagues, students and graduates – with her devotion to teaching. She wanted our students to have a solid knowledge of English so that, upon graduation, they could negotiate with hi-tech companies in the international language of business. It was very important to her that our graduates would go into the world of entrepreneurship with the English language tools they required so that they could succeed in their dealings throughout the world.

Dr. Arnon was also instrumental in establishing an annual conference at JCT for Israeli English teachers, specializing in subjects relating to the needs of English for students preparing for careers in hi-tech.

Her son, Boaz, graduated from JCT in 1987, majoring in Electronic Engineering. Boaz served for many years in the Israel Defense Forces where he managed more than 20 classified R&D projects combining optics, electronics and mechanics. Boaz has authored over 45 classified publications and has 20 patents.

Boaz established VKB, a company that has developed a laser-generated virtual keyboard. Smaller than

a pack of cards, the device includes an electronic chip, a sensor and an optical identifying component.

When turned on, it projects the image of a full sized keyboard on any flat surface such as a desk, a restaurant table, a large book, a suitcase, and more. It's especially well suited to work via Bluetooth with new mobile devices such as the iPhone and iPad.

Upon his mother's death from breast cancer, Boaz was determined to honor her memory by using the core technology developed for the virtual keyboard for an even greater purpose: to make mammography safer, more comfortable and more convenient. The resulting device screens for breast cancer without radiation, does not touch the woman being examined, and doesn't require the results to be interpreted by human eyes that can sometimes lead to errors.

The new device uses a technique called Functional Multi-Dimensional Infra-Red Analysis to scan images of cancerous and benign breast tissues and instantly delivers a diagnosis of the patient's condition. This non-invasive advanced technology for breast cancer detection is truly on the cutting edge, enabling earlier and more accurate diagnosis of breast cancer compared with current methods.

Boaz, of course, named the device, RUTH; he hopes to market it internationally in 2012.

This, then, is JCT's story of Ruth and Boaz
For those interested in learning more about
RUTH and possibly being part of its future
development, please contact Boaz Arnon at:
boaz@realimaging.com

To all our friends throughout the world may I wish you a Happy Hannukah; may the lights of the Hannukah candles shine brightly upon Israel and JCT.

Reuven Surkis

Reuven Surkis

Senior Vice President
for Development & External Affairs

PRESIDENT'S MESSAGE



Dear Friends,

Shalom U'vracha!

The happy days of Hannukah are fast approaching, bringing with them an atmosphere of joy - of renewal of light and of family celebration, day after day. Light is a symbol for wisdom and study and this symbol is the basis of the Hannukah holiday. It is especially important for us at JCT where we combine the wisdom of the Torah and the wisdom of science and technological developments in our studies.

During this year, we had the great pleasure of seeing our academic activities expand: we launched a new MSc program in Computer Communications; our pioneer class of the Nursing School at Machon Tal has graduated, scoring the highest grade average in the compulsory national examination thus bringing much pride to JCT for its achievements which have been recognized by the Israel Council of Higher Education; and new classes for the MBA program have been opened following the graduation of its first cohort, who are ready to bring JCT's unique mix of business savvy and ethical behavior to the working world.

Research at JCT has received strong backing from the Board of Trustees and a Vice President for Research and Development has been nominated. I would like to take this opportunity to congratulate all of JCT's researchers for their many achievements, publications and registered patents. It is my intention to continue to encourage them towards increasing activity and success.

We look forward to working closely with the government of Israel and the Council for Higher Education to further the national goals which they have set: excellence in teaching, excellence in research and making higher education available to new segments of Israel's population. In particular, our unique programs for the haredi population have achieved a very high reputation in the educational and academic communities. This distinction is made possible, by the integral incorporation of Judaic studies and Jewish ethics into the regular curriculum at JCT.

I would like to take this opportunity to wish you – our friends and your families – a happy Hannukah - may we continue to work together to be a strong source of light and wisdom.

Prof. Noah Dana Picard



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Hannukah

Secular holidays are celebrated as occasions for respite, merry-making and frequently inebriated hilarity. Jewish holidays, while also referred to in our prayers as "the time of our rejoicing" (Deuteronomy, 16,14), are essentially designed to inculcate important Jewish milestones and values.

The three pilgrimage festivals represent three seminal events in Jewish history. Passover (Pesach) represents the consolidation of the Children of Israel as a nation, Pentecost (Shavuot) represents the revelation at Mount Sinai and the transmission by the Almighty of the Torah to Moses and through him to the Children of Israel, and Tabernacles (Succot), the Festival of the Ingathering, represents the conquest and cultivation of the Land of Israel. These events are summarized quite succinctly in the slogan of the Bnei Akiva movement:

"ארץ ישראל לעם ישראל על פי תורת ישראל"

"The Land of Israel for the Nation of Israel according to the Law of Israel." Similarly, Rosh Hashana, the Jewish New Year, symbolizes the three basic principles upon which the Jewish religion is based, according to Joseph Albo. The three principles are:

★ G-d exists, the theme of the first Kingship of the Musaf prayers.

★ G-d is concerned with the fate of every individual (in Hebrew: **השגחה פרטית**), the theme of the second section, "Zichronot"—Remembrances of the Musaf prayers.

★ There is a proper way to live which is best implemented by following the commands which compose the Oral and Written Law, the theme of the third section "Shofarot"—recalling the shofar blast that was sounded on Mount Sinai of the Musaf prayers.

The question that arises is what major event, philosophical principle, or central value does Hannukah commemorate? The Talmud (Shabbat, 21b) refers to the miracle of the pure oil which burnt for eight nights in the Temple's Menora, even though the amount in the only available container was sufficient for just one night. However, as mentioned, our holidays have been instituted for the purpose of inculcating a cardinal value or principle, not to commemorate a particular miracle. In addition, if it is significant to memorialize miracles, there are far more impressive miracles, even with respect to the spontaneous creation of large quantities

of oil, such as when the prophet Elisha filled many empty pots with the oil contained in a small flask in order to help a destitute woman (Kings II, Chapter 4). Even with respect to the Temple's Menorah itself, the Talmud records (Yoma, 39a) that the western most flame burnt miraculously from one evening to the next from the time of the construction of the Second Temple until the death of Simon the Just (4th century BCE).

A second reason for celebrating Hannukah is to commemorate the military victory of the Maccabees over the Syrian-Greeks. In the special "Al Hanisim" prayer for Hannukah, the oil miracle is not mentioned at all. Instead, we thank G-d for bringing us a victory of great magnitude. But again, the Bible is replete with Divinely assisted military victories, such as the fall of Jericho (Joshua, Chapter 6), victories by Gideon, Yiftach, and Samson against Midian, Ammon, and the Philistines (Judges, Chapters 7, 12, 17, respectively), victories by Saul (Samuel I, Chapters 7, 12, 14, 15) and David (Samuel II, Chapters 8, 10, 12), and the especially miraculous victories over Ben-Hadad, king of Aram (Kings II, Chapter 7) and Sancherev, king of Assyria (Kings II, Chapter 19). How is this victory different from all others?

I would like to suggest that the two previously cited reasons coalesce to reinforce primary Jewish values. The Book of Maccabees describes the first battle against the Greeks, which occurred on the Sabbath. Judah and the Maccabee's troops suffered an ignominious defeat, because they refused to desecrate the Sabbath. During the week, Judah consulted the contemporary sages and they assured him that one was permitted to engage in life saving activities on the Sabbath. But a splinter group, called Hasidim, did not accept this ruling and refused to join Judah's army. There was a second group of Jews, called Helenists, who also didn't support Judah, but for a different reason. They identified with the enemy, whom some of them even joined. In the previously mentioned "Al Hanisim" prayer, we thank G-d for delivering the strong into the hands of the weak, the many into the hands of the few, the impure into the hands of the pure and the wicked into the hands of the righteous. The Lubavitcher Rebbe asked the following question: It is understandable that

the weak needed G-d's help to defeat the strong, but why did the pure need help in defeating the impure, or the righteous in defeating the wicked? Is there any reason to believe that the pure or righteous should be inferior fighters to the impure and wicked? He answers that the latter phrases are not referring to the Greeks, but rather to the Jewish Hellenists, who were defeated not necessarily militarily, but philosophically.

The purpose of the miracle of the oil was to show both the Hasidim and the Hellenists that Judah had made the right decision. It was permitted to desecrate the Sabbath in a life-threatening situation and it was also imperative to fight the Greeks in order to defend the Jewish way of life. The greatest wonder was that, as a result of the oil miracle, all segments of the nation were once more united, just as they were at the time of the giving of the Torah "as one person of one heart" (Rashi, Exodus, Chapters 19,2). The Midrash tells the story of Hannah and her seven sons who gave up their lives rather than worship idols (Gittin, 57b). Hannah

purportedly told her youngest son: "When you meet Abraham in Heaven, tell him I have superseded him. He was willing to sacrifice only one son, I sacrificed seven. He only bound his son, but I actually sacrificed my sons."

We can now understand how Hannukah reinforces the message of the pilgrimage festivals. If the Jews became a nation at the time of the Exodus on Passover, on Hannukah their unity was regenerated. If on Shavuot the Jews received the Torah, on Hannukah they demonstrated their absolute commitment. If Succot symbolizes the conquest of the Land, Hannukah represents its recapture from the depraved hands of the Greeks.

Let us hope and pray that on this Hannukah we will not only recall the renewal of the sacrificial service in the Holy Temple, but we will also experience a renewal of the core Jewish values as symbolized in the biblical mandated festivals which we celebrate throughout the year.



Prof. Abba Engelberg is the head of Machon Tal, JCT's women's institute. Originally from Cleveland, Ohio, he joined JCT after his aliyah in 1972 and taught maths, statistics and probability. In 1980, he became head of the computers department. Engelberg served as a reservist in the U.S. Air Force for 27 years as a clergyman and later as a systems analyst, before retiring from the force in 2004. In Israel, he also worked as a systems analyst for the Bank of Israel between 1990-1995.

JCT Rector Prof. Menachem Steiner: a look back at eight years of achievements, with an enticing glimpse at the future

Prof. Menachem Steiner is the longest serving rector in the history of JCT, and for good reason. The list of academic achievements JCT has racked up in the eight years Steiner has served in the position have been manifestly impressive.

To name just a few:

The introduction of a common course curriculum for first-year students. The aim, Steiner explains, is to "allow students who aren't sure what they want to major in yet to all have the same foundation. Then they can make a choice more easily in their second year at the school."

The upgrading of the Bachelor of Science (BSc) degree, including multiple specializations. There are now seven BSc degrees offered at JCT, in addition to two bachelors degrees in Accounting and Information Systems, and in Technology Management and Marketing. An additional BSc is currently pending approval from the Israel's Council of Higher Education.

The establishment of new academic degrees, the most prominent of which is a Bachelor of Science in Nursing (BSN) at Machon Tal women's institute of JCT. The new nursing school, which graduated its first class this year, is now the second largest in Israel and is "the number one thing that I'm proud of," Steiner says. The real credit, he adds, must go to Dr. Chaya Greenberger, the head of the school. "She's a superb program director," Steiner says. Greenberger previously worked in the testing and licensing department in the Ministry of Health.

The introduction of JCT's first two masters degree programs: one in Business Administration (MBA) and the other an MSc in Telecommunications Systems Engineering. JCT is defined by the

Council of Higher Education as a college, rather than a university, presenting a major challenge. "College lecturers are paid less than their peers at universities and are required to teach more hours," he explains. But that can also be an opportunity of sorts, he suggests. "I truly believe that all of the staff here are idealists; we are working at JCT because we really love the place and we see our work as "avodat kodesh" (a holy endeavor) – providing a Torah environment in which young men and women can earn academic degrees of high quality."

Constantly striving to bridge the gap between the technology and yeshiva worlds (where many students studied previously) also adds to JCT's distinctive approach. "We make special efforts to ensure that our students succeed in their studies," Steiner explains, "by providing extra tutorials, especially for first year students, who may find the transition to academic studies difficult."

Perhaps it's this uniqueness that has contributed to JCT students scoring some striking achievements of their own. Hebrew University recently gave out top prizes and scholarships to Master degree students in the field of electro and nano-optics, Steiner says. "Five out of the seven recipients were graduates of Machon Tal, and one of the women is a mother of six children!"

Going forward, Steiner hopes to offer a number of new degree programs. Not all fit into what you'd expect of a school of technology. For example, Steiner envisions degrees in social work, architecture and psychology, in addition to JCT's existing "less technical" MBA and accounting degrees. A Master's Degree in Nursing is also in the works. Closer to home, Steiner would like to see a degree in "water and environmental engineering," which would nicely compliment JCT's already considerable expertise in solar energy.

Other new programs in the works: a degree in pharmacology, which would dovetail with the school's nursing degree, and another in physiotherapy. The latter, however, has so far been stymied by bureaucracy. "We received permission to apply for the degree, but just as we were preparing our submission, there was a national freeze, with the government claiming there were not enough employment opportunities in the country for physiotherapy graduates," he laments. "We are fighting this vehemently, to show that there is a special need for religious people in this profession."



Dr. Chaya Greenberger teaching nursing students at Machon Tal

There was also a similar freeze when JCT proposed its MBA program, but Steiner helped convince the Council of Higher Education that the college's program was unique with its focus on Jewish ethics. "We got that one," Steiner says with a smile.

Another area where JCT differentiates itself and which has been part of Steiner's responsibilities as rector, has been nurturing the school's highly successful program for haredi students. "We offer them the exact same courses as in the rest of the school and we have the same high standards in terms of recruitment," he says.



Prof. Steiner at the Machon Tal and Lev students' wedding of which he was the "matchmaker"

Steiner tells a story that exemplifies the challenges facing haredi students striving to enter the work force. "Some years ago, we had a young man whose parents didn't know he was studying here. But after he graduated, the institution published a letter of congratulations in the newspaper. When his parents discovered what their son had done, they were very upset. I got phone calls. But what happened? This particular student started his own computer company. Needless to say, his parents now have a very different attitude."

Steiner relishes his role as a matchmaker between students and jobs – and also between students and students. "I once put together two students of electro-optics, one in Machon Tal, the other in Machon Lev, and they wound up getting married," he says. "They were like children to me. They gave me the first two of the 'sheva brachot' (the seven benedictions) at their wedding. The wife is now in charge of 20 people at a hi-tech company in Rehovot."

Steiner is also proud of JCT's Torah and Science Yeshiva High School, which runs through grade 13. Students study a regular high school curriculum at the same time as taking college courses, graduating with both a high school matriculation degree and a BSc in Computer Science. The combination of high school secular classes, religious studies and college courses can be "very intense," Steiner admits. But the students are top notch. Two students won a prize in Sweden for their project in water conservation. Two other boys received recognition from Microsoft as part of a competition in computer hardware. The first group of boys from the high school completed the program this year and received their BSc degrees, many of them with top honors.

Steiner spends much of his time helping his teaching staff receive grants to participate in conferences and seminars, and to further their research. "We also established a unit in the Rector's office that helps lecturers improve their teaching technique," he adds.

Steiner has a special affinity to that program. After just one semester here, he won an award as "outstanding lecturer" which he finds particularly gratifying since, "I could barely speak Hebrew at the time."

Those first classes were in maths and, before taking up the post as Rector, Steiner served as a professor of applied mathematics at the college. Steiner has always been a bit of a maths whiz. At the age of 12, he won the national maths "Olympiad" in his home country of Romania. He received his PhD in Applied Mathematics from Monash University in Melbourne, Australia in 1973, remarkably only three years after completing his bachelor's degree. His research focus has alternated between the obscure ("thermal convection in Newtonian and non-Newtonian fluids") and the potentially revolutionary ("mathematical modeling of oil spills").

Steiner taught at the University in Swinburne in Australia and was the founder and chairman of the Engineering Mathematics Group (EMG) of Australia for nine years until his "aliyah" in 2002. He has authored some 60 scientific papers, edited three volumes and sits on the board of two international journals. In 1999 he was elected as a Fellow of the European Society of Engineering Education (SEFI) – one of only three people in the world – for

Continued on page 8



Prof. Menachem Steiner was born in Romania in 1947. His parents were Holocaust survivors who moved back to their home in Crasna to find there were only nine men living there – not enough to make a "minyan", until Steiner became of age. "I was the first child born there after the Shoah (Holocaust)," he says. "They put a 'humash' (book of the Torah) in my cradle to make up the 'minyan'!" Steiner's family applied four times to immigrate to Israel. Each time, they sold all their possessions and traveled to Bucharest; each time they were denied exit visas at the last minute and were forced to return to Crasna and rebuild their lives from scratch.

Finally, in 1963, they were given permission to leave. "We flew to Rome and were already on the bus waiting to take us to Naples where we could catch a boat to Israel," he says, "when two women from the Hebrew Immigrant Aid Society (HIAS) came running up, calling, 'Steiner, Steiner!'" They had news that Steiner's aunt had left Israel for Australia, due to the harsh conditions at the time in the Holy Land. "My parents had 5 minutes to make up their mind, whether to go to Israel or Australia. They flipped a coin and chose Australia." It wasn't until 2002, nearly 40 years later, that Steiner finally arrived in Israel. He now lives with his wife Dina in Jerusalem. Steiner is a busy man, with little room, he says, for hobbies, but he nevertheless finds time in his packed schedule for two of his truest passions. He is on the editorial board and management of the Talmudic Encyclopedia and, for the past five years, he has served as the "gabbai" (synagogue manager) of the Great Synagogue in Jerusalem. "It's very special," he says. "When I announce 'Rosh Hodesh' (the new month), I feel like I'm calling out to the whole world!" Despite his packed schedule, Steiner still continues his mathematical research. His latest paper addresses "sophisticated control problems" such as the design of jets and nuclear powered turbo-generators. It appeared recently in the prestigious international math journal "Linear Algebra and its Applications."

"meritorious service to engineering education in Europe." In 2003 Steiner was appointed by the Minister of Education and Culture as a "national expert" to examine and approve degrees in Industrial Mathematics in Israel.

When it comes to maths, the apple apparently doesn't fall far from the tree. Steiner says his mother also had tremendous mathematical talent but, because of the Holocaust, she was unable to continue her studies. Instead, she and Steiner's father operated a kosher restaurant in Australia, which "became a landmark for the observant Jewish community for years," he says. Does Steiner miss maths and teaching? "Yes," he admits, "I still give some seminars and talks overseas, but I have other responsibilities that are quite rewarding," and those responsibilities are set to continue: in August, 2011, Steiner was re-elected for a third term as rector of JCT.

So how did JCT get so lucky in landing Menachem Steiner as both professor and then rector? "It was the combination of academic studies at a high level and serious Torah studies that attracted me," he says. "I've been in many places in the world, but I've never seen this kind of symbiosis. It's the reason I made "aliyah". There's no other school like JCT."



Torah and Science High School students winning award in Sweden for water saving device

JCT VP of R&D Prof. Yaakov Friedman: guiding students through science, grounded in reality

How can a relatively small institution like JCT compete with larger Israeli universities, not to mention well-funded research facilities around the world? The key, says JCT's Vice President of Research and Development Professor of Maths and Physics, is focus.

"Pure science is always going to be taught at the larger schools, in the U.S. and Europe in particular," Friedman explains, "while technology development that doesn't require a lot of science will take place in the Far East and other parts of the world. Our place in Israel, therefore, will be to advance those technologies that are directly connected to science, where we give our students a scientific background, but still keep it grounded in reality."



Bifacial solar panelling at the Machon Lev Campus

Within that general guideline, JCT has focused in areas of excellence in applied science and scientifically rich technology which, in turn, are driving some truly outstanding research projects at the school and beyond.

Solar technology. The Center for Solar Energy at JCT, headed by Prof. Naftali Eisenberg, is conducting research in order to develop the next generation of solar cells. In addition, a JCT-

incubated company, B-Solar, is working on a new type of solar cell – one that is "more efficient than regular ones," Friedman says. "If they can prove that they can put their technology into a production line, all of the big companies will adopt it and they will define the next generation of solar cells."

Micro and nano-technology. JCT has established a Micro-Nano-Technology Center, headed by Prof. Michael Manevich (see the profile on page 10). Manevich and his team are working on a number of innovative projects, including one in collaboration with the Israeli company Orbotech to create new industrial optical devices.

Bio-research. Another JCT company located on the JCT campus, ISK, is working on "an important new cancer medicine that can distinguish between cancer cells and healthy cells, and induce programmed cell death in the cancer cells only." The drug is currently in pre-clinical trials.

Friedman points to several other bio-research projects at JCT: one aiming to help develop a new kind of treatment for fertility issues and another addressing postpartum depression. Both projects are being run out of JCT's Machon Tal institute for women. Another project, with the goal of developing a blood pressure technique which is more accurate than the available one, is being run by Prof. Meir Nitzan with the support of the Joseph Foundation; and a JCT graduate, currently working on his PhD at MIT, is following up on a breakthrough bio-medical study he started while at JCT that investigates "the physiological nature of happiness".

The happiness project is emblematic of the JCT approach, Friedman points out, in the way that it demonstrates the meeting point between physiology and maths, the latter one of the strongest academic departments at JCT.

Friedman explains: "the student took data collected by Bar Ilan University and analyzed the variations in the signals mathematically. He worked on it day and night for more than six months." By taking classes in maths and computer science at JCT, the student had a unique perspective that no one had considered before.

Friedman's own area of research also stands to shake up existing understandings, this time regarding no less than Einstein's Theory of Relativity. Here Friedman is also using maths, in order to determine whether there is a limit to the principle of "acceleration". Einstein assumed there is no limit; Friedman believes there is.

"Einstein didn't have mathematical tools that would allow him to describe acceleration without this assumption, Friedman explains. Nor did Einstein have the technology to measure the infinitesimal changes in time that today we can measure by use of simple GPS systems. The potential implications are enormous: not so much on the macro level (for example, the speed at which a clock ticks when it's on an airplane vs. a clock on the ground), but rather from the perspective of tiny atomic particles.

Friedman believes that his approach may be able to unite Einstein's Theory of Relativity with quantum mechanics. "By showing that there is a limitation on acceleration here," Friedman says, "suddenly relativity and quantum mechanics begin speaking the same language." He plans to submit his findings by the end of this year to a team of researchers at Harvard University who have been working in a similar direction.

Leaving the quantum world and settling back down to earth, there is still plenty to do to promote JCT's research capabilities within Israel. In the coming years, JCT will be working with the Israel Council for Higher Education and the Israel Science Foundation to establish several "Centers of Excellence" at JCT. These programs are worth as much as NIS 60 million a year for a duration of five years. In his role as VP of R&D at JCT, Friedman is responsible for bringing in funding and helping faculty secure research grants; promoting innovative research at the college; and placing the most promising students in appropriate projects. He also helps the school decide where to give seed money to launch graduate-run startups that have the potential to commercialize research being done at JCT.

Friedman is well aware of the challenges JCT faces. "Universities receive funding for their research from the government," Friedman

says. JCT, as a college, does not and so must rely on external grants, while at the same time building similar state-of-the-arts labs with modern equipment and allocating budgets for research assistants. "We have to be very efficient," Friedman says. Still he is very pleased with the results. "We have been able to produce significant research with very little money."

Part of that efficiency may be in the way that Friedman has emphasized teaching at JCT. Take one of Friedman's favorite subjects, quantum mechanics, for example. Friedman has designed the maths courses at JCT to cover the complicated modeling students will need when going on to quantum studies. Most schools teach maths on its own without a connection to any specific application. As a result, physics teachers often wind up teaching maths too, a subject in which they don't necessarily have the same expertise, says Friedman. JCT's preparatory approach to maths helps bridge the gap.



Photo by: Netanel Fenichel

The ISK laboratory at JCT

What about the much bemoaned Israeli "brain drain," where the top researchers leave Israel for more lucrative positions abroad? Here, JCT is in a unique position because it is a religious institution. "We have the possibility of drawing back faculty who would be more comfortable in a religious environment," he says, "one that doesn't contradict one's religious way of life."

That's also important for students who are seeking a school that stresses both modesty and that has a Beit Midrash integrated into the core learning program.

With new programs and research like those Friedman is building, combined with the college's unique religious orientation, there's no doubt JCT can compete with the biggest universities in Israel and around the world, and even stay ahead of the pack as its students explore the frontiers of science and technology.



Photo by:
Netanel Fenichel

Prof. Yaakov Friedman was born in Munkacs, a predominantly Jewish city in what was then Hungary and today is part of the Ukraine. He finished a degree in mathematics at Moscow University and immediately made aliyah to Israel in 1971, where he studied in a Chabad yeshiva, served in the IDF, fighting in the Yom Kippur War, all while finishing his PhD studies at Tel Aviv University in 1979. He moved to the United States for eight years, teaching at the University of California campuses in Los Angeles and Irvine. In 1987 he joined JCT. Today the 62-year-old father of five (and grandfather of 20!) lives in the Bayit Vegan neighborhood of Jerusalem.

Prof. Michael Manevich drives JCT leadership in micro-optics & nanotechnology

JCT Associate Professor Michael Manevich is perhaps the leading expert in Israel in the field of micro-optics. It is quite natural, therefore, that Manevich and his team at JCT were chosen to work on a NIS 2 million project with the Israeli firm Orbotech, which manufactures automated optical inspection systems. The research is being funded by Israel's Ministry of Industry and Trade's "Magnetron" program.

While the details of the Orbotech collaboration are a "business secret," Manevich says, the timing couldn't be better. Just over two years ago, Manevich realized a 20-year-old dream, one that he has nurtured since his arrival at JCT in 1992: to found a state-of-the-art Micro-Nano-Technology Center (MNTC) at the college.

The MNTC, under Manevich's direction, has a staff of 11, including four students who participate in the JCT Special Program for Excellent Students. As its name implies, the center focuses on investigation in the micro and nano-technology field, as well as developing innovative uses of micro and nano-optics for industrial applications. For example, electro-optical devices are used in endoscopy equipment, where a doctor sends a flexible tube into a patient's stomach and then transmits back pictures. By changing the focal length of the optics, it's possible to view peripheral parts of the stomach without rotating the tube.

Micro and nano-optics can also be used in today's electronic chips, the brains of all our hi-tech obsessions; everything from iPhones, computers and digital cameras, to the control systems in airplanes and automobiles. The components of integrated circuits have gotten so small – 35 nanometers and even less – that increased use of optics is absolutely required to optimize their performance. An advanced nano-optical device can split a single beam of light into many, enabling the fabrication of multiple components in parallel.

At the core of the MNTC is a "clean room," which is filled with the latest equipment necessary for such processes as micro and nano-lithography, vacuum evaporation of ultra-thin films, and 3D micro measurement. Manevich credits Prof. Yaakov Friedman, Vice President of Research and Development at JCT, with stewarding the creation and continued oversight and funding of the MNTC.

The MNTC is organized into three laboratories: an Adaptive Micro-Nano-Optics Laboratory; the Micro-Nano-Structures Laboratory; and an Educational Laboratory of "Fundamentals of Micro and Nano-Technology." Students from the Electronics and Electro-optics departments at JCT are placed in the latter where they are "offered project supervision and laboratory training using the MNTC's clean room and equipment," Manevich says. "Students are exposed to theoretical, technological and practical knowledge, which significantly increases their competitiveness when they enter the micro and nano-technology field."

Describing the technical details of the MNTC's work would take several hefty tomes of deep scientific jargon. Manevich speaks passionately about voltage, liquid crystal, and the use of chalcogenide-based materials in his work. Even the names of his projects are a mouthful. The collaboration with Orbotech, for example, is officially called "LC4LM – Liquid Crystal Devices for Laser Micromachining."

Manevich is also the principal investigator for a second project which looks at super-thin nano-tubes and nano-rods that can be used in a variety of devices. This project is funded exclusively by the JCT R&D Authority.

Manevich emphasizes that he is not a lone wolf at the center. He's joined by a hard working team of scientists including Joseph Varshal, his closest colleague in the MNTC; Dr. Eli Reznikov, who Manevich describes as "a gifted, young and very active scientist with a great scientific future" and Prof. Yuriy Reznikov, one of the world's leading experts in the application of liquid crystals, who serves as a consultant to the MNTC. Other team members include Dr. David Gelman, Ygal Eisenberg (a JCT alumnus and PhD student), and Andrey Shubine.

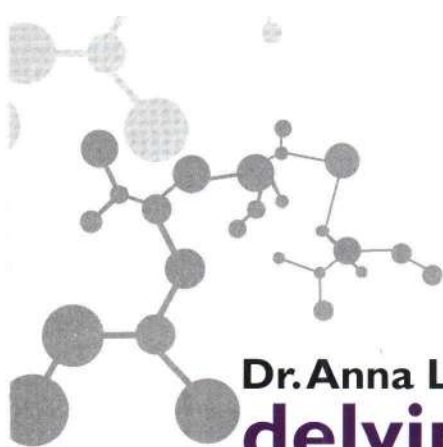
Does Manevich have a vision for where he'd like to see the Micro and Nano-Technology Center in another 5 years? With all the rapid developments in the field, "it's very difficult for me to think even more than one year ahead!" he jokes. One thing though is for sure: JCT students who are placed at the MNTC are sure to find good job placements.



PhD student, Ygal Eisenberg, explores the new micro-optical structures in JCT's clean room

Prof. Michael Manevich emigrated in 1992 from Novosibirsk, the third largest city in Russia. He received his MSc. and Ph.D. at the Novosibirsk Technical University. He subsequently headed the Micro-Structure Laboratory and the Photochemical Micro-Technology Department at the Institute of Applied Microelectronics, part of the USSR Academy of Sciences in Novosibirsk.

Manevich became involved in the Jewish community in Siberia several years prior to his "aliyah" and arrived in Israel with his wife and son. Spare time is not something this busy researcher has much of: between his 130 publications and 11 inventions and patents, you'll often find Manevich on a plane to the U.S. or Europe. Manevich commutes to JCT from his home in the coastal city of Ashdod.



Dr. Anna Landsman:

delving into DNA to push past postpartum depression

Postpartum depression, the severe, crushing malaise that some women experience after giving birth, is one of the least known and least understood forms of depression. "But," says Dr. Anna Landsman, Doctor of Human Physiology in the School of Nursing at JCT's Machon Tal women's college, "it can be tragic. It's a terrible disease. It can even kill: I once saw a woman throw herself from the seventh floor of a building."

It was that horrible realization that led in part to Landsman undertaking a potentially groundbreaking research study to identify which women are most susceptible to postpartum depression, so that early intervention and treatment can be administered. Landsman is working with Dr. Chaya Greenberger, head of the School of Nursing who was instrumental in getting the school off the ground; Landsman serves as project manager and chief researcher.

Landsman has Master's and PhD degrees in endocrinology and human physiology, respectively, with specific expertise in molecular biology from the Hebrew University. So it's not surprising that her research addressing postpartum depression comes from the side

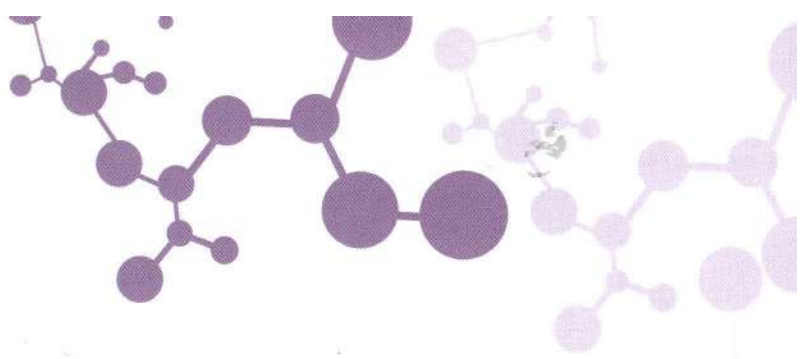
of the molecular mechanism of the disease. Landsman worked with Dr. Rafael Edelman from the Eitanim Hospital in Jerusalem who provided her with case study data of hundreds of women.

Two students from the nursing department of Machon Tal were assigned to the project. First, they had to review the data. They poured over the cases for six months. After screening according to a variety of criteria, such as age, family history of disease and time after birth, cases were picked for the study. Privacy was strictly maintained. Nurses, together with students, took blood from each patient and RNA was extracted. Depressed women were compared with a control group of women not suffering from the ailment.

The next step, which is set to begin shortly, will be to analyze the RNA in the blood using microarray technology. RNA is the means by which DNA information is sent out of the nucleus of a cell. "The analysis technique for RNA is almost like building a computer," Landsman explains. "The RNA from the women is placed on a tiny microchip that contains about 40,000 cells, each with specific DNA fragments representing the entire human



Dr. Anna Landsman working with a Machon Tal nursing student in the newly opened research laboratory



genome. The RNA bonds with the microscopic DNA spots on the chip. A fluorescent signal is then used to detect relative abundance of RNA, which in turn indicates a higher concentration of the corresponding gene."

Once the results are in, Landsman's colleagues at Hebrew University will need to analyze the data, a process that can take months, however Landsman is hopeful. What made her think there might be a connection between postpartum depression and genetics? "We already see that different metabolic pathways controlled by specific hormones or substrates are modified in people with depression in general," she explains. "So I wondered whether the same might be true for postpartum depression". If Landsman's hypothesis turns out to be correct, screening for postpartum depression may be as simple as doing a standard blood analysis in normal labs. "It would be like what we already do when looking at fetal protein," she adds. "If we know in advance that a woman is at risk, we can give her specific psychotherapy or drug treatment to prevent development of the ailment. Sometimes, even social support can help."

Postpartum depression tends to start one week after birth. No one knows why. It can last for up to a year, and if it happens, according to medical literature, Landsman says, "we have not seen even one case where it goes away entirely without intervention." Even worse, children born to women suffering from postpartum depression can have long-term cognitive and emotional deficits, which take their toll not only in terms of quality of life but also in increased health care utilization and cost.

The genetic connection seems clear: contributing factors to postpartum depression are: a history of depression, anxiety during pregnancy and a personal or familial history of psychiatric disorder. Other, non-genetic factors include marital status, whether the pregnancy is unwanted, dysfunctional mothering, low parental self-esteem and even whether the mother is a smoker.

The two students who worked on the project were chosen out of the approximately 250 in the School of Nursing and received a small fellowship. Landsman and Greenberger picked the study because they felt it would be of particular interest to the female students. The entire project is funded by JCT's R&D Authority.



Newly opened nursing research laboratory at Machon Tal

Landsman started working at Machon Tal six years ago, both because "it's a great place for religious people," she says, and because she wanted to teach more than she was able to in her position at Hadassah. Landsman teaches nursing students general medicine including physiology, anatomy, histology and cell biology; and, of course, she continues her research.

Landsman is modest about her achievements and doesn't spend a lot of time thinking about how much she serves as a positive role model for other women in her community. "Today we can see very religious people with an excellent education," she says. "this is different to what it was in the past."

With Landsman leading the way, the future is sure to be anything but depressing.



Dr. Anna Landsman, 43, immigrated to Israel from the Ukraine with her husband in 1990. The couple has a daughter and lives today in Ma'aleh Adumim. Dr. Landsman did her post-doctorate at the Hadassah Ein Kerem Medical School where she later worked as the manager of the scientific laboratory in the oncology department. In addition to her work, Landsman is an accomplished musician: she plays guitar and writes her own songs, which she sings together with her daughter. She describes her music, which is sung in Russian, as "soft and soulful". She has even cut a few discs; but don't expect to hear them any time soon, "it's really only for my family and friends," she says modestly.

Dr. Eyal Shekel: the first “electro- entrepreneur”

To call Dr. Eyal Shekel a “serial entrepreneur” would do a disservice to a remarkable career that has employed hundreds of Israelis and included raising a whopping \$224 million in venture capital – the largest amount ever for an Israeli company. Perhaps the term “electro-entrepreneur” might be more fitting – not only to describe his electrifying achievements but the fact that all of his companies are built on the core competency of electro optics, Shekel’s major at JCT some 17 years ago.

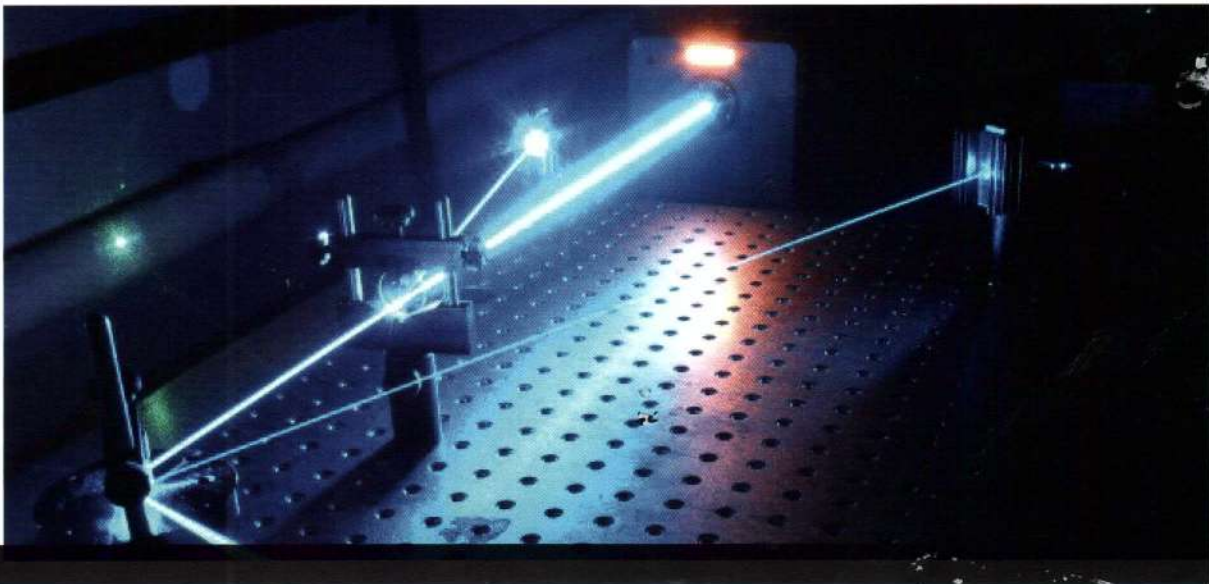
Shekel, 49, originally wanted to study physics (which he did eventually while receiving his Ph.D. in New York), but JCT’s outstanding electro-optics specialization beckoned and the results could fill a book on business acumen.

Shekel founded Chiaro in 1997, based on an idea he’d begun noodling on while still in New York. Chiaro built an optical router designed to improve data transmission speeds. How it works can perhaps be best explained using the metaphor of a highway. “If an ordinary phone line is a two-lane road, then replacing it with fiber optics can turn it into a thousand-lane expressway,” Shekel says. “But if you get to an intersection and the lanes all merge back to that two-lane road, all the speed is lost.”

Chiaro’s solution was to put an optical switch inside a router (representing the intersection), which resolved the bottleneck. But Chiaro’s optical router system was big and expensive and its business model was predicated on bandwidth capacity growing ten times a year. Growth never exceeded a rate of twice a year, however. As a result, the industry gravitated towards smaller, cheaper and non-optical routers. When the telecommunications bust of the early 2000’s hit, Chiaro was forced to close down, in 2005, laying off 400 employees worldwide (including 100 in Israel), but not before Shekel and his team engineered a management buyout. Shekel wound up owning Chiaro’s Israeli facilities, all of the company’s optical intellectual property and its Israeli staff. But what would Shekel do with all these assets? The answer was in optical gyroscopes, and this time, Shekel hit the jackpot.

Optical gyroscopes are like common GPS devices but they work autonomously, rather than relying on receiving a signal from a satellite. “This makes them ideal for airplanes, ships and satellites,” Shekel says, as well as less sundry uses like missiles and unmanned aerial vehicles (or UAVs). “We were competing





with the giants of the industry," like Honeywell and Northrup Grumman, he adds. In order to make a significant impact, Shekel's company – Al Cielo – was acquired in 2007 for about \$20 million by UAV maker Aeronautics Defense Systems Ltd.

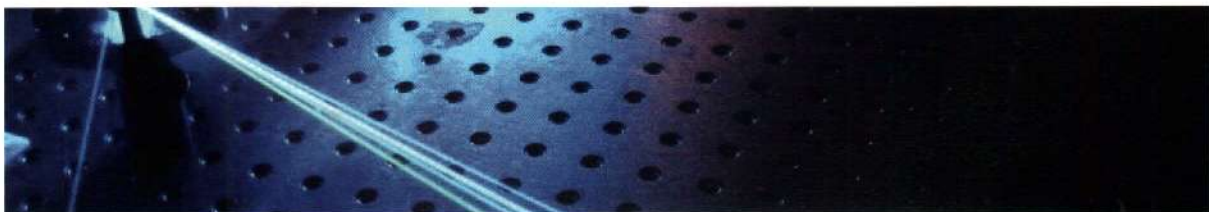
Not content to rest on his laurels, Shekel is now CEO of Civan, a startup that develops lasers based on optical diodes. There are two types of lasers, Shekel explains – very large systems which are powered by carbon dioxide gas and small, less powerful ones run by semiconductors – such as those types of lasers you'll find in your DVD drive. Shekel's vision for Civan is to bring more power to the latter. These lasers – which are currently in the development stage – are intended to be used for industrial purposes such as precise cutting and welding.

Civan did not seek outside investment; instead Shekel has built up a parallel R&D center that does work for outside customers who require development of their own electro-optical systems. This helps pay the bills for the central project.

Civan has a 4,000 Sq. ft. clean room facility in Jerusalem and a staff of about 20. More importantly, Civan – like all of Shekel's

companies – makes a point of employing two - three JCT students every year. "It's a win-win situation," he says. "We choose the best students. They get paid a stipend. If they're good, when they graduate they stay and work for me. Compare that with when I hire a new engineer. It can take the new person a few months to get up to speed. But the JCT students have already been in the company, so there's no introductory period." Indeed, Shekel has never broken his connection with JCT throughout his years of entrepreneurship. He taught physics for several years at the college and serves on the Board of Trustees. Choosing JCT for his undergraduate degree 17 years ago was an obvious pick. "I wanted a good Torah education combined with an excellent science education," he says. "And I got what I wanted; it went right along with my ideology."

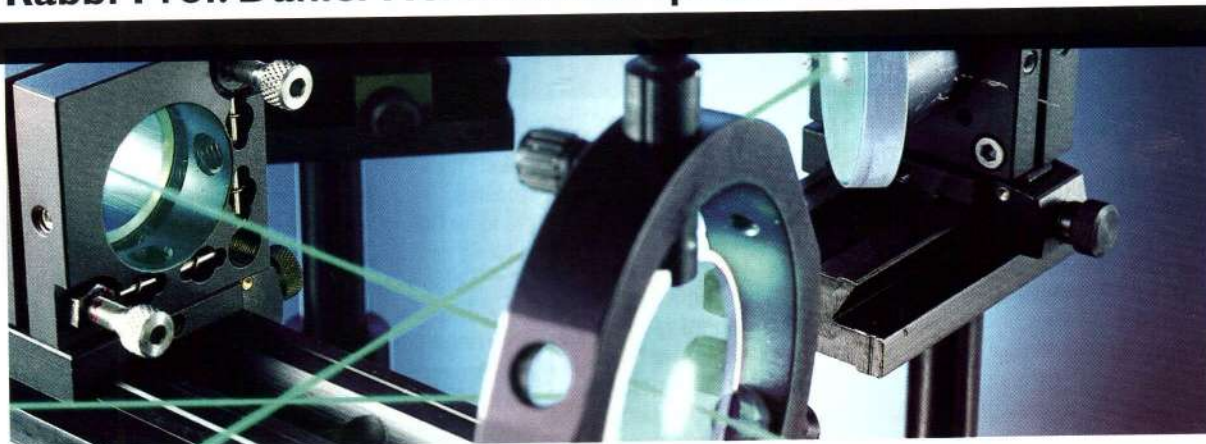
Could one therefore describe Shekel as a "Religious Zionist Capitalist"? Shekel would agree with the first part but not the second. "I never did this for the money," he laughs. "I did it for Israel, because it was the right thing to do."



Dr. Eyal Shekel grew up in Bnei Brak and studied at the Netiv Meir high school in Jerusalem. He joined the IDF's prestigious atuda program, which sends promising students to college first, then requires six years of army service in which they use their degrees. Shekel served as an officer in the air force working in a critical capacity on the electro optical systems used in fighter jets. Shekel lives just outside Jerusalem in the small community of Beit Zayit – perfect for one of his favorite pastimes: bike riding, which he does often with his two sons, aged 18 and 21. Shekel is clearly the consummate entrepreneur, which may be why at least one of his sons is following in his footsteps: the older one is studying in the army's atuda program himself, majoring in, you guessed it, physics.

the future of scientific research in Israel and at JCT:

**Israeli Minister of Science and Technology
Rabbi Prof. Daniel Hershkowitz speaks out**



When Rabbi Prof. Daniel Hershkowitz, a long-time member of the JCT Board of Trustees, received the nod to fill the post of Israel's Minister of Science and Technology, he jumped at the opportunity. The renowned mathematician and tenured professor at the Technion – Israel Institute of Technology sees his new role as “helping bridge the gap between basic scientific research and advanced applied technology.”

That agenda should keep him plenty busy: there is certainly no shortage of scientific endeavor in today's Israel. “Contrary to our size, we are very entrenched in just about every discipline in science,” Hershkowitz says. “Key areas where Israel excels includes all types of alternative and renewable energy, from solar power to algae; marine sciences (where research is discovering how to turn the vast reserves of the ocean into unlimited drinkable water); nano-technology and electro-optics; lightweight satellites; and even stem cell research.”

In the latter case, Israel is at the forefront of worldwide scientific research, in large part because of “halacha” (Jewish law). Hershkowitz explains: “Judaism is very liberal concerning stem cells. Unlike in the U.S., where research essentially stopped due

to religious pressure, there is no prohibition in Judaism against using genetic engineering to manipulate cells. That's because we're not concerned that humankind will try to ‘play G-d,’ as we are ourselves limited by definition. Of course, we must always use our research for good purposes.”

Not surprisingly, Hershkowitz is a strong advocate of teaching all kinds of sciences early in schools and across the Israeli educational spectrum. “Religious schools should not be tempted, as some are, to decrease support for the sciences in favor of Torah learning,” he stresses. “They must maintain excellence in both. Torah and excellence in science go together. There is absolutely no contradiction.”

Indeed, Hershkowitz goes one step further, linking scientific research with Zionism itself. “When we say ‘Ki Mitzion Teitze Torah’ (From out of Zion shall go forth Torah), the simple meaning is that Israel is the center of Torah in the world. But I think there is another meaning – that we also serve as a center for science and technology. We live in a hostile environment, but our status in science does us good – in that way, it is an integral part of our Zionism.”



Israel's geographic location in a notably tough neighborhood is also one of the keys to the country's success in science, Hershkowitz adds. "We have to think outside of the box to overcome our existential problems. It spurs originality and innovation. That's our greatest asset."

However, it is at the same time one of Israel's heaviest challenges. "Scientific research has never been ranked as high as security or social welfare here. Some people even view it as just 'extra money,' but that's a mistake," he says. "It should be viewed on an equal level; in order to maintain our status as a world leader in scientific research, we must ensure that there is adequate funding."

It's not just about status either. Returning to the issue of defense, Hershkowitz points out that "science and technology are major factors in our security. Some of the budget for military R&D should actually be shifted to civilian research and development."

Investment in R&D starts early and Hershkowitz's ministry is an active supporter of Israel's start-up culture. While there is certainly no lack of venture capital in Israel, that money tends

to flow only once a product or technology has proven it has commercial value. "In earlier stages, though, it's much more difficult to get funding. That's where we enter the picture," he says.

What about the well known and continuing "brain drain" from Israel, where many of the country's best and brightest leave for greener pastures overseas? Hershkowitz hopes that the country's new I-CORE program to create "Centers of Research Excellence" around the country, now in its second year, will attract Israeli scientists back to their homeland, "and once you attract a star, many others will come along too."

Turning to JCT, Hershkowitz singles out the college's commanding position in training professionals with expertise in electro-optics. "JCT is the most impressive school in Israel in this field," he says.

More than that, those optics find themselves soaring higher and higher – into space. "Israel is the world leader in developing lightweight satellites and multi-spectral cameras used on those satellites," he explains. "JCT's optics specialty has an impact on Israel's satellites," and JCT graduates are actively involved.



As Hershkowitz meets with his space age counterparts across Europe in his capacity as Minister of Science and Technology and as he pushes to develop new programs to further advance the country's proven scientific competence, it is clear that, when it comes to the future of scientific research from Israel, the sky truly is the limit.

JCT News

GLOBAL NEWS

Los Angeles

US Western Region Friends of JCT Gala Dinner

450 people attended the Western Region Friends of JCT Gala Dinner which was held on November 3rd at the Beverly Wilshire Hotel in Beverly Hills. Rabbi David Shofet, the Rabbi of Nessah Synagogue in Los Angeles was presented with the Jerusalem College of Technology Rabbinical Leadership Award for his outstanding contribution to the Iranian Jewish Community.

At the dinner, a memorial tribute was made to two outstanding women who were, for many years, linked to JCT and recently passed away: Mrs. Frances Schloss and Mrs. Betty Matoff. It was announced that special scholarship funds in the names of these two special women will be established at JCT. Mr. Michael Medved, the US nationally syndicated radio talk show host, was the keynote speaker. Prof. Noah Dana-Picard, President of JCT, spoke about the college and Dr. Dov Rubin presented the college from the view of a graduate. Mr. Reuven Surkis, Senior Vice President of JCT also attended on behalf of the college. A special thank you to the Iranian American Jewish Cultural Organization for their help in making the dinner an outstanding success.



Dr. H. Stephen E. Schloss, Prof. Noah Dana-Picard, Rabbi David Shofet being presented with the Jerusalem College of Technology Rabbinical Leadership Award and Reuven Surkis

Photo by: Oriy Halevy

Toronto

Canadian Friends Gala Dinner

The Canadian Friends of JCT held a prestigious gala dinner in March 2011 at the newly opened Ritz Hotel in Toronto. The event was held to honor both JCT and Israel's achievements in the world of hi-tech. The guest speaker was JCT President Prof. Noah Dana-Picard. Canadian Minister of Citizenship, Immigration and Multiculturalism, Jason Kenney, was conferred an honorary degree from the college and Larry Krauss, a board member of the Canadian Friends of JCT, dedicated a chair in honor of his grandparents: "The Rav Eliezer and Rebbetzin Chaytcha Weinberger Research Chair in Torah and Professional Excellence." Also attending were Shai Solomon, JCT's Director of Development and External Affairs and JCT alumnus Dr. Dov Rubin, a founder of NDS in Jerusalem and CEO of Itamar Medical (which develops and markets diagnostic medical devices) and a member of the JCT board of trustees.



JCT President, Prof. Noah Dana-Picard, Canadian Minister, Jason Kenney and Board Member of the Canadian Friends, Larry Krauss

Australia

Hans and Gini Bachrach Oration

The annual Bachrach Oration was held in Melbourne, Australia in February, 2011. The Oration is held in memory of Hans and Gini Bachrach z"l, longtime friends and supporters

of JCT. Attorney Nitsana Darshan-Leitner, who heads the Israel Law Center, was the guest speaker. This was the 13th Bachrach Oration co-sponsored by JCT and the AIJAC. 620 people attended. Hans and Gini's daughter, Nurit, spoke eloquently about her mother who passed away in November 2010 at the age of 84. JCT Senior Vice President for Development and External Affairs Reuven Surkis addressed the audience and talked of developments at JCT.



Reuven Surkis, Prof. Louis Waller, Nitsana Darshan-Leitner, Nurit Bachrach and Dr. Colin Rubinstein at the Bachrach Oration

London

Women's Health Evening

The British Friends of JCT held a women's evening on July 20, 2011 at Frankie's restaurant in the Golders Green neighborhood of London. The evening was a tribute to Lady Amelie Jakobovits (affectionately known as "Lady J"), a'h, the honorary president of Machon Tal and the widow of former Chief Rabbi Lord Immanuel Jakobovits. Lady J passed away after a sudden and untimely illness in November 2010.

At the tribute, Lady J's daughter Aviva Adler spoke about her mother and encouraged the women in attendance to strive to live their lives with the same *joi de vivre* that her late mother did. Over 160 women attended the event. The theme of the evening was "All Stages Of A Woman's Life" and was opened by Dr. Chaya Greenberger head of the School of Nursing at Machon Tal. Greenberger emphasized the school's unique ability to "nourish the soul and mind while achieving an internationally acknowledged degree".

Parlor Meetings

Prof. Noah Dana-Picard was the guest speaker at a series of parlor meetings in the U.S. Mrs. Rori Cassirer, Esq., former president of the American Friends of JCT, hosted a successful event at her Teaneck home, calling together veteran and new supporters of the college. On the opposite side of the country, JCT's West Coast representative, Mrs. Lila Barkhordarian, arranged a number of festive events which were hosted at the Los Angeles homes of Jila Ghodsian, David and Negar Soofer, Dr. Albert and Sima.Toubia, and Rafi and Sheila Ghodsian.

JCT's New Association of French Friends

Following months of joint work, a new association of Friends of JCT has been established in France - with two branches, one in Paris and a second in Nice - known as Les Amis du Machon Lev (AML).

The Chairman of Les Amis du Machon Lev and the Nice Chapter is Prof. Henri Koen, a mathematician and a man of Torah. The Paris chapter is chaired by Michel Nakache and Maurice Bensadoun, both involved in industry and commerce at a high level and who are also very active within the Jewish community. Board members include Dr. Paul Kamoun, an astrophysicist and Dr. Frederique Barkats, a mathematician, in addition to other personalities involved in industry, medicine and the liberal arts.

To mark the establishment of the AML a Shabbaton was organized in Nice and Prof. Noah Dana-Picard, President of JCT was invited as Guest of Honor. Whilst visiting Nice and Paris Prof. Dana-Picard was asked to speak in several synagogues and to be interviewed by several journalists from the Jewish radio stations. Activities on behalf of JCT are being planned for this winter in both locations. Last, but not least, JCT is honored to have Rabbi Gilles Bernheim, France's Chief-Rabbi, Rabbi Bruno Fiszon, Chief Rabbi of the Moselle Department and Prof. Jose Sahel, Director of the Vision Institute at Hopital des Quinze-Vingt, on AML's honorary board.

ON CAMPUS

David Anisman Honored by JCT

David Anisman of Toronto, 95, was honored at a JCT luncheon on campus in late 2010. Anisman has been an active JCT supporter for decades. Attending the luncheon were friends and relatives of Anisman, as well as Kurt Rothschild of Toronto, co-chairman of the Canadian Friends of JCT.



Sandra and David Anisman with Kurt Rothschild

Schloss Plaza Dedicated

In January, 2011, JCT dedicated the Schloss Plaza on the main Machon Lev campus, honoring Dr. H. Stephen E. and Mrs. Frances B. Schloss of Beverly Hills. The family was in attendance, including four of Stephen and Frances' children and several of their grandchildren. At the ceremony, both Stephen and Frances spoke warmly and eloquently about JCT. Sadly, Frances Schloss passed away last July. Stephen and Frances served as co-chairs of the West Coast region of the American Friends of JCT. The Schloss family previously dedicated the Schloss Center for Communication Sciences at JCT.



Prof. Joseph S. Bodenheimer, the late Frances B. Schloss z"l, Dr. H. Stephen E. Schloss, Prof. Noah Dana-Picard and Reuven Surkis at the dedication of the Schloss Plaza

Lecture Hall Dedicated

The Moshe Shafir Memorial Lecture Hall in the Editha and Heinz E. Samson Academic Building on the Machon Lev campus was dedicated in January 2011 in the presence of Shafir's wife and children. Shafir's oldest son, Asher, spoke at the event. Moshe Shafir, who was a chairman of the board at Raicol Crystals, was an electronics engineer alumnus of JCT who went on to be a colonel in the IDF. He was a leader in the Israeli hi-tech scene and a JCT faculty member. Moshe Shafir's colleagues at Raicol have set up a fund to support an annual scholarship for outstanding students at JCT. At the dedication, JCT student Aviam Meister was presented with the first scholarship.



The late Moshe Shafir's wife, Sarah, their sons and daughters-in-law at the dedication of the Moshe Shafir z"l Memorial Lecture Hall

Lecture Hall in Memory of Yehuda Siman-Tov z"l Dedicated

A lecture hall, seating 110 people, was dedicated in memory of Yehuda Siman-Tov z"l. The lecture hall was made possible from the Siman-Tov estate and through the efforts of his friend, Uri Haimov and Attorney Yitzhak Friedman.

New Practical Investment Program at JCT Dedicated

JCT opened a new "Portfolio Management Program" in March, 2011, allowing top students majoring in Accounting and Information Systems or Technology Management and Marketing to invest real money (about NIS 1 million) and manage actual portfolios in the Israeli capital market as well as in stock markets abroad. The program is unique in that students predicate their decisions on what is ethical and permitted according to Jewish law.

The program is headed by JCT lecturer Hillel Basch who is also associated with Smart Options, a consulting firm providing risk management services, and is under the supervision of Rabbi Yaakov Goldberg of the JCT Beit Midrash. Amongst the guest lecturers are Rabbi Aryeh Dvir who portrays the halachic implications of investments on the stock exchange. Bank Poalei Agudat Israel invested two-thirds of the cost of the program, with JCT providing the remaining third. Participating in this opening event was the Minister of Science and Technology Rabbi Prof. Daniel Herszkowitz, representatives from Bank Poalei Agudat Israel, JCT management and students.



Rabbi Prof. Daniel Herszkowitz, Minister of Science and Technology, Management of Bank Poalei Agudat Israel (Bank "Pagi") and JCT Management at the dedication of the new practical investment program at JCT

JCT's Answer to the Housing Shortage in Israel

The College is currently in the midst of obtaining funding for the building of a Married Students Residence Hall. Approximately 35% of JCT's students are married and many of them come from the peripheral areas of the country. Many cannot afford the high rental cost of even the most modest apartment in Jerusalem and therefore rent in outlying areas. At present JCT does not have a residence hall for married students, which would be highly subsidized and alleviate the need for students to spend many hours and considerable cost commuting. The planned building will provide housing on campus for over forty couples with young children.

Henry and Betty Rosenfelder Awards

The annual Henry and Betty Rosenfelder Awards were presented this year to outstanding researcher **Dr. Jacob Itin** and outstanding lecturers **Dr. Shulamit Reches** and **Dr. Avi Zilbiger**.

Dr. Jacob Itin – Outstanding Researcher

Dr. Itin is an internationally renowned researcher in Maths and Physics. His research focuses on the application of multi-linear algebra, differential geometry and group theory to electrodynamics, optics, elasticity and gravitation. He is currently investigating the invariant description of modern materials like metamaterials. Theoretical study of this field can be important for sorting and even predicting the qualities of materials in use in modern technology.

Dr. Shulamit Reches

Dr. Reches lectures at the Maths Dept. of Machon Tal. Her PhD work in Artificial Intelligence focuses on statistical models that facilitate decision-making in an environment of uncertainty. While teaching and raising four children she continues to conduct research and write articles in her field of study. She is being honored as an outstanding teacher in appreciation for the quality of her teaching, her devotion to her students and her high level of preparation.

Dr. Avi Zilbiger

Dr. Zilbiger is a senior instructor at the Dept. of Electronics Engineering. He was among the initial team that developed the OFEK 9 satellite and for fifteen years was involved in military and civilian work for Israeli and international firms in the field of communications.

Recently he chose to concentrate his efforts on training the next generation of Israeli engineers. Dr. Zilbiger is a very high-level, quality teacher and has received extremely high grades from his students.

CONFERENCES

Internet Marketing Conference

The annual Jerusalem Internet Marketing Conference was held in May, 2011 for the first time on the Machon Lev campus. The conference aimed to teach participants the marketing skills they'll need to effectively utilize the internet and social networks. The event also provided updates on new trends and directions in the field. The conference was organized by Dr. Avi Kay, who heads JCT's Department of Technology Marketing and Management; he is also the director of the Mark Schuman Center for Entrepreneurship at JCT. The conference was co-sponsored by Interteam, a content development firm; Tens Web Marketing, which focuses on market research and search engine optimization and the Israeli office of PR Newswire. 150 marketing professionals attended the conference.

Conference on Integrating Haredim into the Job Market

At the initiative of the Shmuel Neeman Institute, JCT and JDC Israel, a unique conference aimed at generating practical policy to enable haredim to successfully integrate into the Israeli job market was held in June, 2011. The conference, held on the Machon Lev campus, included a cross section of Israeli business, academia and government CEOs and leaders in the job market participated, along with officials from a variety of government offices, rabbis, representatives from the haredi society, the heads of placement agencies and academics from institutions across the country. There was a special session spotlighting the work of organizations within the haredi community that screen jobseekers and give advice to those who are interested in pursuing academic degrees. The honored guest was Prof. Manuel Trachtenberg, chairman of the committee for Planning and Budgeting of the Council for Higher Education.

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SCHOLARSHIPS AND GRANTS

128 FIDF Scholarships Awarded by IMPACT

The Friends of the Israeli Defense Forces (FIDF) "Impact" scholarships for demobilized IDF combat unit soldiers are one of the most prestigious awards in Israel, covering the cost of tuition at an accredited institution (up to \$16,000 for a full four-year scholarship) along with related expenses, such as textbooks. The program also requires recipients to complete 130 hours of community service each year of the grant. This academic year, 128 JCT students were awarded an FIDF Impact scholarship - an unprecedented high number at JCT and one of the largest of any academic institution in Israel.

200,000 Euro Grant for Electrodynamics Research

Prof. Yaacov Friedman, JCT Vice President for Research and Development and Dr. Jacob Ittin of the JCT Mathematics Department have been awarded a 200,000 Euro grant from the German-Israeli Foundation for Scientific and Research Development (GIF). The grant is intended to further their work in exploring the full range of electrodynamics, from applied physics to general relativity. The GIF program was established in 1986 and is funded jointly by the German Federal Ministry for Research and Technology and the Ministry of Science and Technology in Israel.

JCT Meets SAMIS Foundation Challenge Grant

The SAMIS Foundation of Seattle awarded JCT with a challenge grant of \$500,000 for the college's "Ethiopians for Engineers" program. JCT was selected after SAMIS Foundation trustees visited the Jerusalem campus and learned more about JCT's special program to benefit students from Israel's Ethiopian community. The trustees also met with outstanding students from the program. The SAMIS Foundation was established in 1987 by Sam Israel and has granted over \$20 million to organizations that have advanced its mission to "enhance the quality and continuity of Jewish life". The challenge grant enabled JCT to match the gift by raising an additional \$500,000 through donors and friends around the world.

JCT Electro-Optics Graduates Help the Department

A number of graduates of the Electro-optics Department have given donations for the purpose of purchasing equipment for the Electro-optics student laboratories. Their gifts have made it possible to substantially upgrade the equipment enabling the students to advance in their projects. Thank you Electro-optics Department alumni for your generous gifts!

2011 GRADUATES

548 students graduated from JCT this year. Degrees were awarded in a wide variety of subjects, including accounting and information systems, communication systems engineering, computer science, electronics engineering, electro-optics engineering, industrial engineering and management, medical engineering, science teaching, software engineering and technology marketing and management. The graduation ceremonies were honored with a number of special guests, including Tel Aviv Chief Rabbi Yisrael Meir Lau, Israel Minister

of Science Rabbi Prof. Daniel Herszkowitz (who received an honorary "Fellow" award from the college), Deputy Finance Minister Rabbi Yitzhak Cohen, Givatayim Chief Rabbi Yosef Glicksberg, Director General Motti Feldstein, of the Kemach Scholarship Fund which supports 5,000 haredi men and women studying in professional and academic courses, Tzipi Hotovely, a Likud member of the Knesset and chairperson for the Committee for the Advancement of Women's Status, Jerusalem Deputy Mayor Yossi Deitch, and JCT President Prof. Noah Dana-Picard. Dr. David Harari, the 2011 Israel Prize Laureate in Engineering, was the guest speaker at the graduation ceremony of JCT's Machon Lev. Chaim Fink, of Israel's Shemen Industries - one of the country's leading suppliers of edible oils - awarded scholarships for higher education to several outstanding students at the college's Machon Lustig Institute for Haredi Women in Ramat Gan.

First MBA and Nursing Degrees Granted

We extend our congratulations to our first graduating class to receive their degrees from Machon Tal's School of Nursing. In addition to meriting the BSN degree, all of the students passed the national licensing examination of the Ministry of Health with the highest grade average in the country. Moreover the first MBA classes at the Machon Lev and Lustig campuses received their degrees. We wish all of our graduates the best of luck in their future careers.

SUPPORTING JCT'S "ETHIOPIANS FOR ENGINEERS" PROGRAM

Telfed Hosts Scholarship Awards Ceremony

A ceremony was held on November 8th at Telfed (South African Zionist Federation) at which 10 scholarships were awarded by Telfed to young Ethiopian olim students. An additional 15 scholarships were given by the Mincha Lemechora Foundation which was founded by Jack Lahav, Chairman of the American Friends of JCT. The ceremony also corresponded with the third Yahrzeit (memorial) of the late Major Ilan Raiz z"l. Major Raiz's wife, Leah Raiz, established the Keren Perot HaIlan Scholarship Endowment Fund at JCT in his memory, which primarily gives assistance to pre-military Ethiopian "olim" students.



Representatives from Telfed (South African Zionist Federation), Shai Solomon, Jack Lahav, and Adi Yonas, present scholarships at the ceremony.

Yedidut Toronto

Yedidut Toronto have been supporting the growth of JCT's program for Ethiopian olim women at Machon Tal and recently gave a generous donation to subsidize 27 women. Since Yedidut Toronto has commenced its support, the program has shown tremendous growth, doubling in size over the last two years.

Migdal Insurance Company Donates Scholarships

Through the initiative of Meir Steiner, the Migdal Insurance Company donated five sustenance scholarships. This year three young men and two young women benefitted from their generosity.



Regina (Gini) Bachrach z'l



Rebecca (Betty) Matoff z'l



Shlomo Merzel z'l



Frances B. Schloss z'l

Regina (Gini) Bachrach z'l, was a strong supporter of JCT. Gini and her husband Hans z'l were very interested in science and technology and their compatibility with traditional Judaism, hence their strong support for JCT for many years. They also helped to sustain a number of important programs at the college, in particular the "Ethiopians for Engineers" program, as well as programs for members of the haredi community. When Hans passed away in 1997, JCT and Gini, together with ADAC, jointly coordinated an annual memorial oration in Melbourne, Australia in his name; last year it was held in memory of both Hans and Gini z'l. Over the course of her long life there were many mountains Gini successfully scaled. She grew up in Vienna, but her childhood was blighted by the Anschluss and, in 1938, she escaped to England on one of the kindertransports together with one of her brothers. Her marriage to Hans in 1957 in London transformed both their lives and they embarked on a life together which was to affect the lives of scores throughout the Jewish world. For many years Gini withstood harsh illness. She did not allow her body's limitations to restrict her communal, social and family life. She has left a legacy of respect and affection in the hearts of her loving family and her devoted friends. Gini Bachrach died in Jerusalem on 21st November 2010 at age 84 and is survived by her daughters, Sharon, Nurit, Leora and Yehudit, sons-in-law and many grandchildren.

Rebecca (Betty) Matoff z'l was born on 18th December 1904 and passed away at the age of 106 on 13th September 2011. During the last years of her life she resided in Los Angeles, California. Family was everything to Betty; she was one of six children, with three brothers and two sisters. She had been married, however for a short time and was independent almost her entire adult life. She did not leave behind any children or grandchildren; nonetheless she is sorely missed by the many whose lives she touched. Betty loved life and everything about it, but she especially loved people. She spent much of her time giving and was highly involved in many philanthropic and community endeavors. She was very involved in JCT, having established with her brother the Abromowich Hall in the Editha and Heinz E. Samson Academic Centre in memory of their parents, Mendel and Eva Abromowich. She also established the "Wall of Thanksgiving" on the Machon Lev campus which gives an opportunity for permanent public recognition by friends of JCT to honor their parents, siblings, teachers and friends for acts of kindness and charity performed for them during their lifetimes. In addition, our beautiful stained glass windows in the Beit Midrash were "adopted" by Betty and are known as "The Rebecca (Betty) Matoff Windows".

Shlomo Merzel z'l was, for many years, a member of JCT's Board of Trustees and JCT's Executive Committee. He also served on the Executive

of the Israel Friends of JCT. Merzel was instrumental in helping to bring members of the haredi community to study at JCT. Born in Chicago, Merzel completed his university studies at Roosevelt and Northwestern Universities where he received a Bachelor's degree in Business Administration and a Master's degree in Educational Administration. After making aliyah with his wife in 1958, he devoted his professional life to this field, first as the principal of the Netiv Meir High School and then for 16 years at the Horev schools, starting as principal of the Horev girls school and then as head of the entire Horev system until he retired in 1993. In 2005 he received the "Yakir Yerushalayim" (worthy citizen of Jerusalem) award from the Jerusalem Municipality for his contribution to education. Merzel was also active in a number of other important institutions as a member of the board of governors such as Eretz Hemda and the Sharei Tzedek Nursing School. He was also involved with Yad Sarah. Merzel passed away in May 2011 at the age of 79. He is survived by his wife Rivka and their children Aviva, Baruch, Leah, Yael and Michal.

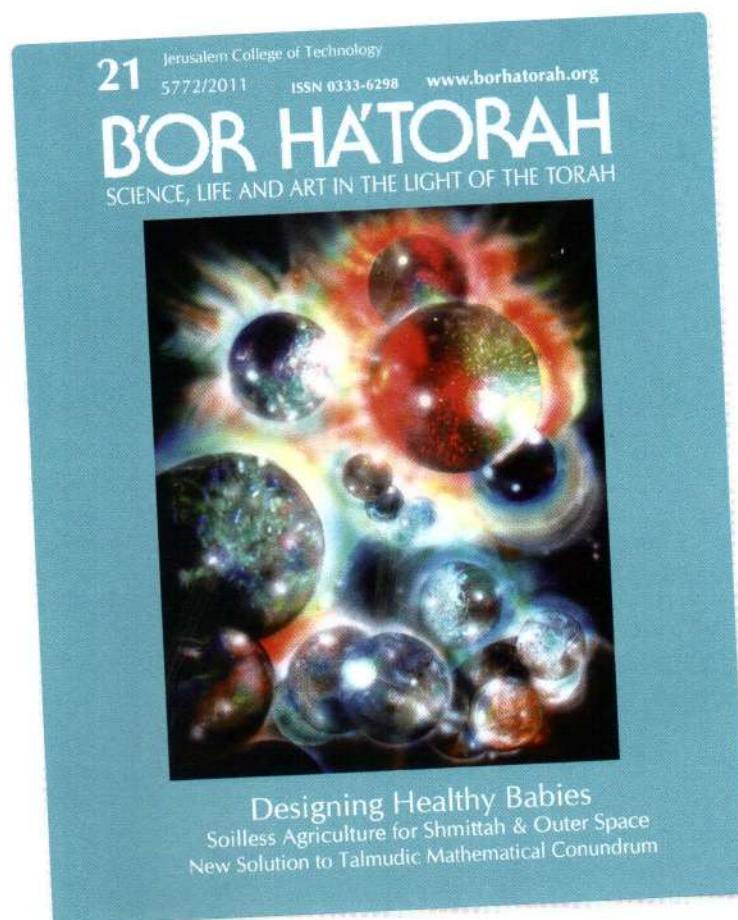
Frances B. Schloss z'l served with her husband Stephen as co-chair of the West Coast region of the American Friends of JCT. Schloss was born in Oklahoma City, Oklahoma and received her Bachelors Degree with Honors in American History from Radcliffe-Harvard College. She taught for two years at the Rambam Torah Institute in Los Angeles before embarking on a 38-year career as a financial advisor, working first for E.F. Hutton in Beverly Hills and later for Morgan Stanley Smith Barney where she held the position of Senior Vice President, Wealth Manager. Jewish heritage and Jewish life were central to Schloss's upbringing. Her passionate feelings for Israel were instilled in her by her parents, starting with the blue pushke of the Jewish National Fund that always held pride of place in their home. In the 1960's Schloss was an early advocate in the efforts to save Soviet Jewry. Frances and Stephen Schloss became active supporters of JCT almost twenty years ago, attracted by the college's unique combination of "Torah and Science". The couple were awarded honorary fellowships at JCT, where they established the Dr. H. Stephen E. and Frances B. Schloss Center of Communication Sciences. The central plaza on the Machon Lev campus is also named in their honor. Schloss became more actively involved with JCT and took on the role of co-chair of the West Coast Friends of JCT after getting to know Prof. Joseph Bodenheimer, Reuven Surkis and other JCT staff members. Schloss sadly succumbed to cancer after a five-year battle. She is survived by Stephen, sons Hal, Mike and Benny, daughters Marian Merritt and Judy Lampert, and 15 grandchildren.

On behalf of the students, faculty, graduates and administration of the Jerusalem College of Technology, we convey our heartfelt condolences to their families.

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