“What killed the dinosaurs?”
see page 16
message from the president
36th annual board of governors meeting
a peaceful environment
demise of the dinosaurs
optics for diagnostics
committed to the community
an early start
exploding the myths
honorary degrees and dedications
illness report
project dedications
an entering magician
a passion for balance
dedications and honorary degrees
win some, lose some
peptides & polymers
food for thought
going global
fitting the pieces together
info unchartered territory
a kreitman fellow
excellence recognized
summer celebrations
alumni in action

associates organizations

argentina
la. donadeo schwartz, president
asociacion argentina de amigos de la universidad ben-gurion del negev

belgium
dr. june evens, president

brazil
dr. claudia luiz, president

canada
barry d. lonner, q.c., national president

france
georges voisard, chairman

germany
prof. martin stephan, president

israel
reya virtanen-bender, president

japan
koki matoba, president

mexico
ing. nabel dinckesh, president

netherlands
paul a. steen, president

portugal
mennes a. hoolo, president

puerto rico
pamela g. cabin

republic of panama
michael a. hoolo, president

saudi arabia
mohammed b. alshurafa, president

south africa
exton lester, president

switzerland
michel hugo, president

united kingdom
ben gurion university

united states
geert bad, president

BGU Now is published by the Department of Public Affairs
Director: Yossi Harmsz
Editor: Angela Zions
Assistant Editor: Yoel Boldman
Contributors: Sandra Bloom, Elian Clurt, Patricia Green, Roberta Nager, Yuval Mintz
Contact: c/o Sam Barsam, Chair 47 Hove Park Road, Hove, East Sussex BN3 6LH

Ben-Gurion University of the Negev, P.O. Box 653, Beer-Sheva 84105, Israel  |  Fax: 972-8-4672817  |  E-mail: pr@bgu.ac.il  |  Website: www.bgu.ac.il
From The President

August 6, 2006

At this writing, our nation is under duress, with Israeli citizens under attack and several of our soldiers held captive. Ben-Gurion University of the Negev is reaching out to students and staff who have been called up for army reserve duty and we have opened our facilities and hosted summer camps for children from frontline communities. During this extremely tense time, we are all working together to ensure that Israel’s academic endeavors continue, and that all Israelis have a safe haven for their children. This is the spirit of BGU.

It is this spirit of caring that first brought me to BGU thirty years ago. Few of my medical school classmates chose to work in the Israeli periphery and those of us who did so shared the strong conviction of making a difference. I have had the opportunity to visit many universities both in Israel and abroad, but I have never encountered such a group of people who care so much and are so proud of their institution. From academic faculty to administrative staff to students, everyone here has a “neshama yetera” – or added spirit – that characterizes BGU.

This spirit of BGU, which combines open thinking, creativity and strong social awareness, has led me to suspend my medical and research career and take upon myself the responsibilities of President, with the goal of leading our institution from good to great.

The challenges which lie before us are tremendous, particularly now in light of the changes in national priorities. We are committed to being an excellent research university while at the same time spearheading the development of the Negev. These dual missions detract from our competitive edge in terms of resource allocation. In order to achieve a leading position as a research institution, we need to be stronger and better than our counterparts.

During the next decade, we will pursue excellence in research and place BGU among the top universities in the world. To have a meaningful scientific impact, we must focus on our strengths and uniqueness in areas where we have a competitive edge over others and where we have proven expertise. It is hoped that BGU’s scientific achievements will eventually translate into valuable intellectual property, enabling greater independence and growth.

Thanks in part to our generous friends, we are attracting the best and brightest young researchers from top universities in the United States and Europe – Harvard, Yale, Princeton, Max Plank, Oxford – by offering them, beyond material support, open-mindedness, enthusiasm, commitment, collegiality and a warm atmosphere that others may have lost, but which we have succeeded in nurturing at BGU. It is contagious, invigorating and it marks our future.

David Ben-Gurion’s strength as a leader was to forge ahead despite the many obstacles. The current national crisis only reinforces his dream of a safe Israel, anchored by a strong Negev with its flourishing population, science and industry. With your help, we will be able to realize this dream and our wish for a better future for Israel and the Jewish people.

In friendship,

Prof. Rivka Carmi, M.D.
The 36th Annual Board of Governors Meeting

Members of the Board, friends and guests from Israel and around the world came to Ben-Gurion University of the Negev for the 36th Annual Board of Governors Meeting and to celebrate the 100th anniversary of David Ben-Gurion’s aliyah to Israel. At various opportunities throughout the week, guests and University staff bade farewell to outgoing President, Prof. Avishay Braverman, who concluded 16 years in office, and welcomed the new President, Prof. Rivka Carmi.

The visitors took part in the numerous events, including the committee meetings, which covered the spectrum of University activities in the financial, student, academic and Associates arenas. At these meetings, participants heard the reports of the students, academic faculty and administrative staff members and discussed the future development of the University. Inscriptions of the names of new Founders and new members of the Ben-Gurion Society were unveiled on the Founders Wall and the Ben-Gurion Wall in the presence of supporters from around the world.

At the Student Evening, sponsored by the American Associates of BGU, visitors and students became acquainted with one another on a more personal level. During the evening, the Zlotowski Dance Troupe, supported by Suzanne Zlotowski of Geneva, Switzerland and her daughter, Adelene of London, England, gave a memorable performance. Departing from their customary repertoire of Israeli folk dances, they presented a breathtaking rendition of more contemporary Israeli dance. The traditional student auction was led by co-auctioneers Eric Charles of London and Zvi Alon of California, the proceeds from which are dedicated to student activities.

At the Opening Plenary Session, Chairman of the Board of Governors Roy J. Zuckerberg, outgoing President MK Avishay Braverman and Rector Prof. Jimmy Weinblatt addressed the audience. The appointment of Prof. Rivka Carmi as the sixth President of BGU was officially ratified by the members of the Board.

During the Session, awards marking the centennial of David Ben-Gurion’s aliyah to Israel were presented to friends of BGU who have devoted their time and efforts to furthering the development of the University and the Negev. The recipients were Lord Weidenfeld of Chelsea, UK; Edgard D. de Picciotto, Switzerland; Prof. Sir Aaron Klug OM FRS, UK; Dr. Heinz-Horst Deichmann, Germany; Suzanne Zlotowski, Switzerland; Ellen Marcus, USA, who received the award on her own behalf as well as that of her parents, Dr. Howard W. and Lottie R. Marcus; and Prof. Avishay Braverman. Prof. Ya’akov Blidstein from the Goldstein-Goren Department of Jewish Thought was heartily congratulated on his receipt of the 2006 Israel Prize in Jewish Law – the first such academic recognition at BGU.

The Plenary Session concluded with a panel discussion: “From The Casablanca Conference Until Today: Where Are We Now?” chaired by Honorary Chairman of the Board of Governors Lord Weidenfeld of Chelsea of the Orion Publishing Group of London. Participants were Counsellor to His Majesty King Mohammed VI of Morocco and initiator of the Casablanca Conference in 1994, André Azoulay;
Director-General David Bareket addresses the Finance Committee. Seated: Micha Daft (left), Eric Charles

Rector Prof. Jimmy Weinblatt (left) and Prof. Philip Needleman chaired the Academic Affairs Committee

At the Student Affairs Committee Meeting. Seated (l-r): Suzanne Zlotowski, Adelene Zlotowski, Aharon Yadlin, Dean of Students Yaakov Affek, with students
MK Prof. Avishay Braverman; and Chairman of Union Bancaire Privée of Geneva, Edgar D. de Picciotto; and special guest participant, Vice Prime Minister Shimon Peres.

A panel discussion in honor of Prof. Avishay Braverman was held by the architects who planned the buildings on the Marcus Family Campus in Beer-Sheva and the Sede Boqer Campus between 1990 and 2006. They gave a visual presentation of the existing and newly-completed buildings as well as those under construction, all of which have been continually enhancing the aesthetic look of the BGU campuses.

The outgoing president was also honored at a special session at which renowned Israeli writers, most of whom are members of BGU's Department of Hebrew Literature, read from their works. These included Department Chairman Prof. Yigal Schwartz, Department members Prof. Amos Oz, Professor Emeritus Aharon Appelfeld, Prof. Haim Be’er, Prof. Ori Bernstein, Dr. Tal Frenkel Alroy, Nidaa Khoury, Orit Meital and Motti Perry, as well as the popular writer Etgar Keret, who also teaches a course at the University.

The final and most moving farewell to Prof. Avishay Braverman was held at a nearby events center together with his close friends and acquaintances. The visibly moved outgoing President noted that although he was leaving Beer-Sheva to pursue his political career, the city and the region and in particular, the University, would always hold a special place in his heart and he would do his utmost to advance its development as long as he was able.

Honorary Doctoral Degrees were conferred upon eight prominent figures who have made distinguished contributions to science, humanity and culture through their scholarship and concern for others.

André Azoulay, Counsellor to His Majesty King Mohammed VI of Morocco, was honored for his efforts toward coexistence between Jews and Arabs in the Middle East and Northern Africa as founder of the "Identity and Dialogue" organization and for his insight in recognizing the importance of a stable economy for the advancement of peace in the Middle East and of Ben-Gurion University of the Negev as an academic partner in this process. Azoulay initiated the Casablanca Conference and pursues all efforts for peace in the region by bringing together leaders and building bridges of trust between nations and states.

President of the Supreme Court of Israel, Justice Aharon Barak, was a child survivor of the Kovno Ghetto in Lithuania who rose to become the highest judge in the State of Israel and an award-winning academician, who received the Israel Prize in Legal Sciences in 1975. He is a member of the Israel Academy of Sciences and Humanities, a teacher of prominent legalists and writer of basic texts on teaching law. He was honored for his support of the study of law in the Negev and for being one of the leaders of Israel’s constitutional revolution, who champions human rights and ethics, justice and equality.

Jewish philanthropist and community leader Stephen K. Breslauer was honored for his leadership in Jewish and Zionist organizations in the United States, as founder of the “Identity and Dialogue” organization and for his insight in recognizing the importance of a stable economy for the advancement of peace in the Middle East and of Ben-Gurion University of the Negev as an academic partner in this process. Azoulay initiated the Casablanca Conference and pursues all efforts for peace in the region by bringing together leaders and building bridges of trust between nations and states.

Roberta and Ernest Scheller, Jr. from Villanova PA, proudly point to their names on the Ben-Gurion Wall.

Ghetto in Lithuania who rose to become the highest judge in the State of Israel and an award-winning academician, who received the Israel Prize in Legal Sciences in 1975. He is a member of the Israel Academy of Sciences and Humanities and the American Academy of Arts and Sciences, a teacher of prominent legalists and writer of basic texts on teaching law. He was honored for his support of the study of law in the Negev and for being one of the leaders of Israel’s constitutional revolution, who champions human rights and ethics, justice and equality.
Recipients of the award marking the 100th anniversary of David Ben-Gurion’s aliyah to Israel (l-r): Dr. Heinz-Horst Deichmann (Germany), Lord Weidenfeld of Chelsea (UK), Prof. Sir Aaron Klug OM FRS (UK), President Rivka Carmi, Edgar D. de Picciotto (Switzerland), outgoing President Avishay Braverman, Suzanne Zlotowski (Switzerland), Ellen S. Marcus (USA), Chairman of the Board of Governors Roy J. Zuckerberg.

Heads of the worldwide Associates offices (from left): Gérard Worms (France), Harold Paisner (UK), Barry D. Lipson, Q.C. (Canada), Lic. Osvaldo Schwartz (Argentina), President Rivka Carmi, Carol Saal (USA), Raya Strauss Bendror (Israel), Paul A. Nouwen (Netherlands).

At the panel discussion on architecture (from left): Michael Chayutin, Lloyd Goldman, Prof. Avishay Braverman, Roy J. Zuckerberg.
States and in Israel, amongst which he is the Vice-President of the American Reform Zionist Association (ARZA). A member of the University’s Board of Governors, Breslauer was also the founding Chairperson of the Greater Texas Region of the American Associates of BGU and currently serves on the Executive Board of the national organization. Together with his brothers Jim and Ben he has served as trustee of the Samuel and Helene Soref Foundation, facilitating significant projects for the University.

Yair Green, Advocate, of Israel was recognized as an outstanding jurist and a successful attorney, a man with strong Jewish and Israeli cultural values, active in cultural institutions, Chairman of the Hora Jerusalem Association and founder of the Green Foundation for the Encouragement of Studies and Education which provides scholarships to students, and deeply committed to the advancement of scientific and medical research in Israel through the Yeshaya Horowitz Association. Green is a member of the University’s Board of Governors and serves on its Executive and Investment Committees. Morris S. Kahn of Israel was honored as a generous philanthropist and successful businessman, an entrepreneur and manager who founded the Amdocs company, the Aurec Group, and other companies in the fields of communications and hi-tech. He was acknowledged for his philanthropic activities, including the LEAD youth leadership program to develop Israeli leaders, for his endeavors on behalf of ecology, for his contributions to education, higher learning and research, and for his ongoing support of Ben-Gurion University and the National Institute for Biotechnology in the Negev.

Maestro Shlomo Mintz, one of Israel’s foremost violinists, was acknowledged as a child prodigy who immigrated from Russia to Israel and won over his audiences and critics worldwide. He is a soloist as well as an orchestral violinist, violist and skillful conductor. He is the recipient of prestigious music prizes and a respected judge in international competitions. He served as Music Advisor to the Israel Chamber Orchestra and was one of the founders of the Keshet Eilon International Violin Mastercourse that has fostered talented violinists around the globe and raised the prestige of music in Israel.
At the "Writers Read” tribute. Seated: Prof. Yigal Schwarts, Chair of the Department of Hebrew Literature (left), Prof. Avishay Braverman. Standing (l-r): Prof. Haim Be'er, Matti Perry, Dr. Tal Frenkel Alroy, Nidaa Khoury, Orit Meital, Prof. Tamar Alexander, Prof. Amos Oz, Prof. Nissim Calderon, Etgar Keret
The preeminent Israeli actress Orna Porat left her native Germany after World War II to tie her fate with that of the Jewish people and immigrate to Israel. She was recognized for her role as one of the first members of the Cameri Theater Ensemble who has garnered accolades both in Israel and abroad and numerous prizes, including the Israel Prize for Theater in 1979. She was commended for her efforts to bring theater to Israeli children through the establishment of the Orna Porat Theater for Children and Youth, which has helped cultivate a young audience of theater lovers.

Prof. A. Michael Spence of the United States, Nobel Prize laureate in Economic Sciences for 2001, was acknowledged as a theoretician whose innovative ideas and contribution to general equilibrium theory revolutionized the way of thinking of his colleagues and enabled an understanding of economic processes. He is a dedicated, award-winning academician who has filled key roles in the academic world, leading the Graduate Business Schools at Harvard and Stanford to new heights.

The Spitzer-Salant Building for the Department of Social Work was dedicated in the presence of Prof. Avishay Braverman, Prof. Alean Al-Krenawi, Chairman of the Charlotte B. and Jack J. Spitzer Department of Social Work, and Kathleen Spitzer at the dedication ceremony of the Spitzer-Salant Building for the Department of Social Work.

From right: Samara Spitzer, Prof. Avishay Braverman, Prof. Alean Al-Krenawi, Chairman of the Charlotte B. and Jack J. Spitzer Department of Social Work, and Kathleen Spitzer at the dedication ceremony of the Spitzer-Salant Building for the Department of Social Work.

The impressive state-of-the-art building will facilitate research in hi-tech and enable Ben-Gurion University to spearhead innovations in this field.
Illeana and Eric Benhamou at the dedication ceremony of the Benhamou Technology Hall and the Benhamou Incubation Center

Rubin Salant and his daughter Robin in the newly-dedicated Spitzer-Salant Building for the Department of Social Work

Ricki and Zvi Alon at the dedication ceremony of the Alon Building for Hi-Tech

Arlene and Steve Krieger at the dedication ceremony of the Arlene and Steve Krieger Laboratory

Carol and Dr. Harry Saal get good seats at the dedication ceremony of the Harry and Carol Saal Auditorium
The signing ceremony of the School of Management and the Honors MBA Strategic Development Plan took place in the presence of President Prof. Rivka Carmi, Rector Prof. Jimmy Weinblatt and Prof. Arie Reichel, Dean of the School of Management. Prof. Amos Drory moderated a panel discussion of “The Future of Management in Israel,” participants in which included Roy J. Zuckerberg and Prof. Ehud Houminer, Chairman of the Advisory Board of the Honors MBA Program at BGU and Columbia University.

The Zlotowski Annual Lecture, held in the presence of Suzanne Zlotowski and Adelene Zlotowski, was given by Prof. Rafael Mechoulam of the Hebrew University of Jerusalem, who spoke on “The Discovery of a New Major Regulatory System in Biology.”

The Adam Klug Memorial Lecture, entitled “Economic Growth in Developing Countries: Prospects and Challenges in the Coming Decade,” was delivered by Nobel laureate and Honorary Doctorate recipient Prof. A. Michael Spence of Stanford University. The audience was comprised of colleagues, friends and University staff and students, as well as family members, including Prof. Aaron and Liebe Klug, parents of the late Prof. Adam Klug, and family.

At the Irene and Hyman Kreitman Annual Memorial Lecture, President of the Supreme Court of Israel Justice Prof. Aharon Barak spoke on “The Role of a Judge in a Democracy” to a packed auditorium that included students, faculty and members of the legal profession in the Southern region.

A ceremony was held marking the inauguration of a Career Development Chair in Engineering Sciences, established by Dr. Gabi and Eng. Max Lichtenberg from Israel and Florida. Incumbent of the Chair is Dr. Yuval Elovici from the Department of Information Systems Engineering.

The Sylvia A. Brodsky Psychological Walk-In Service Within the Psychological Services Unit of the Dean of Students Office was dedicated in the presence of Sylvia Brodsky and her daughter Sandra from Philadelphia. This much-needed service will provide students under stress with immediate recourse to guidance and counseling. At the ceremony, Dr. Eva Shinar, Head of the Student Psychological Services, lectured on “A University Psychological Service – An Answer to the Emotional Difficulties of the Young Student.”

The Stanley and Jeanne Abensur Molecular and Cell Biology Teaching Laboratory was dedicated in the presence of Stanley and Jeanne Abensur of Switzerland. Also from Switzerland, Laurence and Dan Ohayon represented their father, Abraham Ben-David Ohayon, at the cornerstone-laying ceremony of the Abraham Ben-David Ohayon Behavioral Sciences Building.

A symposium on the subject of “Biotechnology – Industry and Academia” was held in honor of Yair Green, Advocate, and Morris S. Kahn, under the auspices of the National Institute for Biotechnology in the Negev (NIBN), founded by Edgar D. de Picciotto. Moderated by Prof. Raymond Dwek FRS, Head of the Department of Biochemistry at the University of Oxford, UK, members of the panel included BGU President Prof. Rivka Carmi;
Prof. Ehud Houminer (right) with Prof. Amos Drory, signing the School of Management and Honors MBA Strategic Development Plan

Eng. Max Lichtenberg and Dr. Gabi Lichtenberg with Chair incumbent Dr. Yuval Elovici

At the dedication ceremony of the Sylvia A. Brodsky Psychological Walk-In Service. From left: Sandra Brodsky, Dr. Eva Shinar, Sylvia Brodsky, Dean of Students Yaakov Affek

Stanley and Jeanne Abensur hear an explanation from Prof. Allan Witztum of the Department of Life Sciences on the research being conducted in the Molecular and Cell Biology Teaching Laboratory dedicated in their name
the honorees – Morris Kahn and Yair Green – Nobel laureate Prof. Sir Aaron Klug OM FRS of the University of Cambridge, UK; Assistant Dean for Special Projects, Washington University School of Medicine, Prof. Philip Needleman of Prospect Venture Partners, USA; Director of the NIBN Prof. Irun Cohen; Deputy-Director of the NIBN Prof. Varda Shoshan-Barmatz and researchers at the Institute.

Participants traveled to the University’s Sede Boqer campus to take part in a symposium: “The Jacob Blaustein Institutes for Desert Research Salute their Founders in the United Nations International Year of Deserts and Desertification.” In the presence of founder of the Zuckerberg Institute for Water Research, Roy J. Zuckerberg, and moderated by the Director of the Institutes, Prof. Avigad Vonshak, a panel of distinguished researchers discussed the various efforts made at the BIDR over the years and in the present to combat desertification. They included Israel Prize winners Prof. Yehudith Birk and Prof. Joshua Jortner – who both played instrumental roles in the Council for Higher Education’s early assessment and support of the creation of the Institutes – and former Directors of the Institutes, Prof. Amos Richmond, Prof. Joseph Gale, Prof. Louis Berkofsky and Prof. Uriel Safriel.

A group of young BGU scholars from various disciplines presented personal accounts of themselves and their research to the Board members and guests at a special session presided over by Vice-President and Dean for Research and Development Prof. Moti Herskovitz. They included Dr. Nirit Ben-Aryeh Debby of the Department of Arts; Dr. Ron Folman of the Department of Physics; Dr. Leslie Lobel of the Department of Virology; Dr. Eitan Rubin of the Department of Microbiology and Immunology; Prof. Golan Shahar of the Department of Behavioral Sciences; Prof. Alon Tal of the Jacob Blaustein Institutes for Desert Research; and Prof. Rachel Yerushalmi-Rozen of the Department of Chemical Engineering.

Prior to the procedural activities of the Closing Plenary Session, presided over by the Chairman of the BGU Executive Committee David Brodet, scholarships were awarded by the Chaim Herzog Center for Middle East Studies and Diplomacy to Doctoral and Masters students. Guest of honor Minister of Tourism Isaac Herzog, son of Aura and the late President of the State of Israel Chaim Herzog, presented the prizes together with Chairman of the Chaim Herzog Center, Dr. Yoram Meital. Iraqi-born scholar and former dissident, who later penned the new Iraq’s Constitution, Prof. Kanan Makiya

Prior to the procedural activities of the Closing Plenary Session, presided over by the Chairman of

the BGU Executive Committee David Brodet, scholarships were awarded by the Chaim Herzog Center for Middle East Studies and Diplomacy to Doctoral and Masters students. Guest of honor Minister of Tourism Isaac Herzog, son of Aura and the late President of the State of Israel Chaim Herzog, presented the prizes together with Chairman of the Chaim Herzog Center, Dr. Yoram Meital. Iraqi-born scholar and former dissident, who later penned the new Iraq’s Constitution, Prof. Kanan Makiya

Laurence and Dan Ohayon at the cornerstone-laying ceremony of the Abraham Ben-David Ohayon Behavioral Sciences Building

from Brandeis University, lectured on “A Reassessment of the 2003 Iraq War: Planning, Execution and Aftermath.”

The Session concluded with reports by the chairmen of the various committees and the motions that were ratified by those present.

Guests who remained in Beer-Sheva were invited in the evening to the homes of academic faculty members and had an additional opportunity to make their acquaintance and learn about the University.
Chairman of the Executive Committee David Brodet addresses the participants at the Closing Plenary Session.

Young BGU researchers who spoke at the symposium “Our Scientists: Their Stories” (l-r): Dr. Leslie Lobel, Prof. Rachel Yerushalmi-Rozen, Prof. Alon Tal.

Dr. Ohad Birk address the audience at the Biotechnology symposium. Seated (from left): Yair Green, Morris S. Kahn, Prof. Raymond Dwek, Prof. Irvin Cohen, Prof. Sir Aaron Klug.

From right: Dr. Yoram Mettal, President Prof. Rivka Carmi, Minister Isaac Herzog and scholarship recipient Yali Hashash.

SAVE THE DATES!

Ben-Gurion Day
November 27, 2006

The 37th Annual Board of Governors Meeting
May 13 - 17, 2007
Prof. Alon Tal

A Peaceful Environment

Prof. Alon Tal is one of the few Israelis who can recite the entire Gettysburg Address by heart. Abraham Lincoln’s most famous speech doesn’t have anything to do with the environmental causes to which Tal has devoted his life. What’s important, he says, is that he still remembers it.

“We memorized the speech in elementary school and it stuck with me,” Tal says. “There’s a lesson there for those of us who care about the environment. What you learn as a child, you don’t forget. We have to start them out right, knowing about the environment, understanding and caring about the world they live in. If we teach them early, they’ll never forget.

Even at the relatively young age of 45, Tal easily qualifies as the father of Israel’s modern environmental movement. “The environment isn’t a spectator sport,” he says. “We need players. I’ve been fortunate to have had a chance to participate in some of the efforts to make this land a better place to live, and I’m grateful.”

Tal’s passion for the environment started early in life. Growing up as Albert Rosenthal in North Carolina, the son of a scientist who dealt in environmental pollution, Tal was an avid wilderness hiker and canoer. He came to Israel at the age of 20, with a dual degree in political science and economics. Later, while pursuing another degree in law at the Hebrew University of Jerusalem, Tal worked as a legal assistant in the Environmental Protection Service in what is now the Ministry of the Environment. He then did an internship with then-Attorney General Yitzhak Zamir, who taught him “how to be strong and influential, but also to be honest and pleasant. I saw how, as a jurist, in the eye of the storm, he managed to evaluate and choose the judicious and correct path.”

Tal took time out again to get his Ph.D. in environmental health policy from Harvard before he returned to Israel and set about changing the world. In 1990, he founded Adam Teva V’din, the Israel Union for Environmental Defense (IUED), a public policy advocacy group. In 1996, he founded the Arava Institute of Environmental Studies (AIES) at Kibbutz Ketura, which, together with BGU’s Albert Katz International School (AKIS) for Desert Studies, offers an environmental studies specialization in the Masters degree program.

“The AIES and AKIS programs are based on the principle that nature knows no borders,” Tal says. “The student body is comprised of many Arab students, along with the Israeli and other international students who live, work and study together. We have a dual objective: not only do students build networks
that will enable future cooperative environmental work for the benefit of the entire Middle East, but these programs work towards peace, too. Because we use the environment and not peace as our primary ingredient, we are able to accomplish much more when it comes to the peace element.”

Tal also co-founded EcoPeace, now known as Friends of the Earth Middle East. In 1998, he was elected Chair of Life and the Environment, Israel's umbrella group for environmental organizations. In just a short time during his tenure, the organization grew from 24 member groups to 80. He also serves on the Board of Directors of the Jewish National Fund.

As if all that weren't enough, Tal spent 15 years teaching environmental law at Tel Aviv University. “I wasn't sure I wanted to be involved in the academic world,” Tal says. “I'm an activist. My field is public policy. Although I've always been involved in research, I had the idea that academics were not always fully engaged in world problems – and real problems are what I love best. But BGU offered me a great opportunity, the best of both worlds. I'm teaching, I have a vigorous research agenda, but I'm also intensely involved in public policy – the Ministry of Environment or Israel's Knesset is my lab. For me, this is ideal.”

Tal's current research focuses on water management and stream restoration, evaluation of environmental education and desertification policies. A member of both the Mitrani Department of Desert Ecology and the Department of Man in the Desert at the Jacob Blaustein Institutes for Desert Research, Tal represents the Blaustein Institutes on a number of international committees.

Last January, Tal – sometimes referred to as “Nature's Lawyer” – was awarded the prestigious Charles Bronfman Prize in recognition of his work “to advance the environmental movement in Israel and the Jewish world.” The Bronfman family noted Tal's uniqueness: “He's an outstanding environmental visionary who set out to change the world and has actually done so.”

Environmentalism in Israel differs from that in the US, Tal says. “One of Israel's distinguishing characteristics is our technological optimism. We're big advocates of innovations like drip irrigation to preserve water or using forests to control desertification while offering recreation at the same time. Our new desalination plants are straight out of science fiction. But ultimately, technology can only go so far. At the center is the essence of who we are, of identifying the things that give meaning and value to our lives.”

“My family was very Zionistic,” he says. “When I was 20, I had my Bachelors degree and I enlisted in the Israel Defense Forces. It was during the years that I served as a paratrooper that I began to focus on the environment as the place where I could make the greatest contribution. When you're a soldier, you get a very different view of the world and one of the first things that began to bother me was litter. There is something of an insouciant attitude among many Israelis – the paradox of apartments being so clean you can eat off the floor, but outside, on the stairs or on the streets, they throw trash right on the ground.

“I think it's really a matter of education. In all the years I've been involved, I've seen that Israelis care deeply about the health of their communities. They love this land. When we learn to tap into that love, we can succeed – it'll be just like the Wildflower Campaign of the 1960s. Forty years ago, all of Israel's wildflowers were disappearing – people were picking them. So a huge 'Wildflower Campaign' was started, with a message aimed primarily at children: 'Don't pick the flowers'. It worked – now, no Israeli would even think of picking a wildflower. They learned it as children and they didn't forget. We have to do the same thing again with other major environmental issues – air pollution, open space, the lack of urban planning, water quality.”

Even for a powerhouse like Tal, turning the ship of the Israeli state in a completely different direction sounds like a gargantuan task. “It may be, but you have to do what you can. This is life. You don't get dress rehearsals.”
What killed the dinosaurs? This remains a riddle and a hotly debated topic in the scientific world. To try and explain the demise of the largest creatures that ever walked the planet, Dr. Sigal Abramovich of the Department of Geological and Environmental Sciences uses long-extinct microorganisms several millionths of a meter long.

A paleontologist, Abramovich, who pursued her undergraduate and graduate studies at Ben-Gurion University and received her Ph.D. from Princeton University, returned to BGU three years ago on a Kreitman Foundation Fellowship for Post-Doctoral Research. Her field of specialization is the Latest Cretaceous period, 65 to 74 million years ago, which is marked by the extinction of the dinosaurs and other life forms. Seeking to uncover the cause – or more likely, causes – of this great annihilation, she turned to the study of unicellular marine organisms called planktic foraminifera. An extremely sensitive indicator of paleoenvironmental conditions, including ecological calamities, this group is ideally suited to Abramovich’s goals. These microfossils, she believes, hold the key to explaining what happened at the K-T boundary, the geological layer that separates the age of reptiles from that of mammals. Below this worldwide stratum of rock are numerous dinosaur fossils, above it, are none.

For several reasons, planktic foraminifera represent an ideal tool. “It is hard to study dinosaurs because very few skeletons remain. They don’t give us enough quantitative information,” says Abramovich. In contrast, the microfossils, abundant throughout different marine environments, can serve as a basis for global comparison. Like the dinosaurs, they suffered wide extinction. Located on the bottom of the food pyramid, planktic foraminifera shed light on the existence of other animals. Lending themselves to stable isotope analysis, they also allow scientists to determine temperatures and amounts of animals that existed million of years ago.

Among their other advantages, specific members of this group have an especially short evolution period, enabling scientists to easily date them to different events. Widespread throughout many different marine environments, planktic foraminifera are an important component of an ecosystem. And as uni-cell organisms, they are sensitive to changing environmental conditions.

“We must go straight to the fossils themselves to see what happened,” says Abramovich. “Instead of showing us one small interval of time – opening one small window – they open windows a few million years wide.”

The extinction of the dinosaurs remains a subject of raging debate. In the 1980s, a team led by Nobel laureate in Physics Prof. Luis Alvarez and his geologist son Walter put forth their revolutionary theory. In several places around the world, the Alvarezes had discovered a layer of clay containing a high concentration of iridium, an element very rare on Earth. This layer dated to the K-T boundary, some 66 million years ago. As iridium is found far more commonly in meteorites, asteroids and comets than in Earth’s rocks, the scientists reached a startling conclusion: a huge body from outer space had crashed into the planet, killing the planet’s giant lizards, as well as 75 percent of its plant and animal life.

These findings led to an extensive search for a large impact crater 65 million years old. Ultimately, researchers located the site to...
Chicxulub, an enormous buried crater on Mexico’s Yucatan Peninsula. For several years, the meteorite theory of extinction was unchallenged.

About two years ago, Abramovich’s Ph.D. supervisor at Princeton University, Prof. Gerta Keller, rocked this theory. Drilling in the Mexican crater, Keller’s group dated the impact to the last 300,000 years of the Cretaceous period, meaning toward but not at the K-T boundary.

“This means that the meteor couldn’t have been the only killing mechanism,” explains Abramovich. “It may have been one trigger, but there were most likely other large-scale events of disastrous proportions, like severe greenhouse warming, that took place a few hundred thousand years before the K-T boundary.”

Apparently, the dinosaurs were in trouble long before the K-T boundary. Using planktic foraminifera, Abramovich points out several disasters she believes contributed to their downfall. By analyzing the skeletons of the microfossils, she gains information about the oceans’ temperature millions of years ago. This way, she has identified a worldwide heating trend that preceded the K-T boundary by some 450,000 years.

This warming, holds Abramovich, corresponds with intensive volcanic activity in India. At the Deccan traps, in western India, volcanoes released huge quantities of lava, creating greenhouse gases and ultimately leading to extreme warming on a global scale.

Deciding to investigate this idea in different locations around the world, Abramovich and her team have been focusing on the last million years at high resolution. They examined samples from every 10cm of earth, which corresponds to 10,000-year periods. Counting the number of species of planktic foraminifera, they found fewer and dwarfed versions of different species during the warming periods. “This is definitely due to warming – it occurred at the same time. The animals entered a survival mode, which enabled them to live,” says Abramovich, who is now using isotope analysis to further probe the microfossils.

The Negev location of BGU has been a boon to Abramovich’s research. She explains that every major geological period has a “type locality.” Paleontologists work by cutting into the earth and examining layers of rock, each of which represents a specific period. Wide layers are desirable, as they grant researchers detailed descriptions of the period in question. Tunisia provides the best type locality for the K-T period worldwide – nine meters representing the last 300,000 years of the Cretaceous era, the Maastrichtian period. The Negev runs a close second, with its eight meter-deep layer for the same epoch.

Examining samples from this next-to-ideal locality, Abramovich and student, Shlomit Yovel, compare results to those from around the world.

Today, after two decades of scientific battle over the extinction of the dinosaurs, there are still no obvious victors. While scientists have engaged in huge international efforts and gathered vast data bases of geo-biological-paleontological evidence, the answer is still not clear. The world of the K-T mass extinctions is so distant in time, so immense and complex, that the cause of the extinctions remains shrouded in mystery. For now, armed with her revealing planktic foraminifera, Abramovich remains firmly devoted to uncovering the truth.
Prof. Ibrahim Abdulhalim

Optics For Diagnostics

Prof. Ibrahim Abdulhalim was born in the village of Kfar Manda in the Galilee. He always loved physics – so much so that he received his undergraduate, graduate and doctoral degrees in the field from the Technion in Haifa. It was there that he became interested in optical materials and systems. “My niche,” he explains, “is the multidisciplinary specialty of biomedical optics.” His path to BGU’s Electrooptic Engineering Unit has taken him around the world as he balanced academic research with hands-on experience in industry.

His first stop, in 1988, was at the University of Colorado, where he was a research associate in the Optoelectronic Computing Systems Center. He later held research positions at the Optoelectronics Research Center (ORC) at Southampton University, England. After returning to Israel in 1993, Abdulhalim worked in industry, specializing in optical metrology methods for the inspection of the fabrication processes of the microelectronic industry. In 2000, he returned to academia for a year as a lecturer and researcher at the University of Paisley in Scotland. He subsequently came back to Israel to work for a start-up company on guided wave liquid crystal devices for optical telecommunications applications.

Throughout his many years in industry, Abdulhalim maintained his academic pursuits, publishing numerous refereed papers, receiving more than 10 patents and submitting countless research proposals. Eventually, he wanted to return again to the world of academia and accomplished that when he came to BGU in 2005.

“Ben-Gurion University has the only graduate electrooptics program in Israel, though we hope to open an undergraduate program as well,” he explains. “I teach courses on optical properties of biomaterials, biomedical optical devices and optics of the eye and vision. We absorb students from different disciplines such as physics and electrical engineering. Research fields in the unit include atmospheric optics, image processing, semiconductor and liquid crystal devices, optical telecommunications, optical imaging and biomedical optics.

“I wanted to establish the biomedical optics program because it requires multidisciplinary
interests and experience, which is my specialty,” he adds. “Besides, it is where the next revolution in applied optics is already happening, in a similar manner to what optics has done to telecommunications in the last 20 years.

“There are over 400 companies in Israel in electrooptics, so alumni have a better chance of finding work in the field. In fact, many of our graduate students are from industry.” With regard to his research, Abdulhalim says: “All my previous research had been driven by the industries I worked for. I like the fact that there is somewhat more freedom in the university setting, although we have funding issues to contend with.”

Abdulhalim explains that biomedical optics uses optics to build devices, imaging technologies and sensors for diagnostics and monitoring. In lay terms, that includes the noninvasive procedure of shining a certain kind of light inside tissues. One of his research fields is improving an imaging method called Optical Coherence Tomography (OCT) which, he elucidates, is a promising new class of diagnostic medical imaging technology that utilizes advanced photonics and fiber optics to obtain images and tissue characterization on a scale never before possible within the human body. OCT combines the principles of ultrasound with the imaging performance of a microscope, but uses infrared light waves that reflect off the internal microstructure within the biological tissues. The frequencies and bandwidths of infrared light are orders of magnitude higher than medical ultrasound signals, resulting in greatly increased image resolution. “OCT is noninvasive and is particularly suited for ophthalmology – in measuring the thickness of the macula or analyzing individual layers of the retina, for example – and dermatology, with a special emphasis on skin cancer. OCT can diagnosis fast-growing, dangerous melanomas when they are still in their earliest stages, without having to do a biopsy. It can also perform imaging in the brain – it far outperforms existing options of ultrasound and magnetic resonance imaging (MRI). In short, it’s noninvasive, faster, cheaper and provides much sharper images. We are working on improving the resolution of the OCT even further, and have submitted a provisional application for a patent,” he explains.

Other promising electrooptic research involves biosensors. “Biosensors use nano-structured materials (less than 100 nanos) to enhance response and electromagnetic fields by a factor of a million. This increases optical response (example: Raman scattering) by a million,” says Abdulhalim. “The purpose is to use biosensors inside the body to analyze analytes such as blood sugar and cholesterol. We can also use biosensors outside the body to detect toxic materials and contaminants to protect ourselves from bioterrorism. For example, biosensor chips in the water supply can detect poisons.”

Another “hot” research field in the domain of imaging and sensing technology, says Abdulhalim, are so-called T-rays. “T-rays are based on the terahertz (THz) region of the electromagnetic spectrum – defined by frequencies from 0.1 to 10 THz, just between infrared light and microwave radiation. It is a relatively new field that is also opening the door to a wide variety of applications,” he explains. “We can use the new technology combined with a special lens to produce high resolution and sharp images for biomedical applications. For example, we hope to improve early detection of skin cancer and breast cancer. We have submitted a provisional patent for this.”

After spending his childhood in Kfar Manda, Abdulhalim lived for many years in different cities in Israel and around the globe. Upon returning to Israel, he and his family decided to make their home in another village – Neve Shalom-Wahat Al-salam, a unique cooperative 50-family village of Israeli Jews and Arabs in the center of the country – where they have lived for the past five years and where they hope to make their permanent home.
It is now nearly three decades since Dr. Rafi Boehm’s first involvement with the Negev development town of Yerucham. Boehm’s connection to Yerucham began when he was an internal medicine resident at the Goldman Medical School and working in the Soroka University Medical Center. At the time, there was a crisis in Yerucham’s health services and the development town was left without a single physician. Boehm was determined to find a solution for the ailing community and together with his mentor, Prof. Shimon Glick, developed the “Yerucham Project.”

“Basically, the program was that a group of medical residents in the Faculty of Health Sciences volunteered to spend a few months of their residency in Yerucham. That was how we made sure that there would always be at least one or two residents manning the Yerucham clinic at any given time,” explains Boehm.

“So, again, the town was faced with the same problem: adequate medical care on the one hand, but turnover on the other,” explains Boehm. “I decided to volunteer my time and dedicate two days a week in Yerucham, to maintain continuity and contact with the population.”

Boehm finished his residency in 1981, together with the very first graduating class. At the time, there was a graduate program in which the new doctors committed themselves to one or two years of service to the community, most of them in the Negev, before continuing on with residency specializations. An average of two graduates volunteered for Yerucham each year. Though they were committed caregivers and eager to help, they were inexperienced physicians who only spent a year in the community.

As a result, newly-arrived immigrant physicians were sent to Yerucham. These doctors came from a completely different cultural background than the residents and had no experience with Israel’s medical system. Again, Boehm felt that his input was needed. “It was the same scenario all over again in a different guise,” he says. “I continued to volunteer in the town, instructing the new immigrant doctors.”

In 1993, Boehm initiated another Yerucham project within the program for community-oriented primary medical care: a group of internal medicine residents committed themselves to working in Yerucham while in-residence. This was coupled with a philanthropic endeavor of the Sacta-Rashi Foundation, which financed one additional physician in Yerucham beyond the standard “allotment” of the health fund.

“The program was very successful,” says Boehm. “These were no longer inexperienced medical students, but full-fledged physicians, and they guided the newly arrived immigrant doctors in the town. Seven residents completed the program, two of whom accepted full-time positions in the town after their residency. The others went to other places in the Negev.”

Yet Boehm remained involved. “Even now, I maintain the Yerucham human connection,” he says. “Today, I am Deputy Chairman of Internal Medicine Department A at the BGU Medical Center.”

I always try to stop by and check up on ‘my’ patients and show that the human touch is most important of all.

Dr. Rafi Boehm
Committed To The Community
Soroka University Medical Center and anyone from Yerucham who needs to be hospitalized comes straight to my Department. I always try to stop by and check up on ‘my’ patients and show that the human touch is most important of all.”

Boehm is still very much involved in the community.

“For the last nine years, we have involved our medical students in three community volunteer projects,” he says proudly. “Some of our medical students give a Magen David Adom first-aid course to high school students in Yerucham. They learn first aid, of course, but in addition, they absorb the values of community volunteerism. Some of them continue on to serve as medics in the army. Some of the medical students, meanwhile, go on to do residencies in internal medicine in my Department. Everyone benefits.

“Other medical students operate an afternoon ‘health education play room’ in the Yerucham clinics. They take advantage of the time when children wait to be seen by their pediatricians to teach them aspects of health education such as hygiene, dealing with summer/winter bugs, and other topics.

“The average family physician in the health fund is effectively limited to about 7-10 minutes to devote to each patient and this is often inadequate, so we have four rotating students who sit with chronic patients and offer guidance.”

In summary, Boehm has attained the impressive achievement of adding three levels of medical personnel to Yerucham: students and residents, as well as full-fledged senior physicians. All are involved in the town and many students continue to be involved in community medicine.

In addition, he oversees a Senior Citizen’s Association that operates a day care center for handicapped elderly, who are transported from their homes and back, bathed and fed and kept busy in activities. Another project is an after-school community center for children with a wide variety of disabilities. The care-givers provide food and activities adapted to each child and teach the children life-skills. This has been a big success: six graduates of this center live together in an independent apartment and work in a rehab center.

For Boehm, volunteerism and community involvement are a way of life. The recipient of the 2005 Volunteer of the Year Award from Lions Clubs International sums up his life work with two very different phrases: “A society is judged by its treatment of its weakest members,” and also: “I truly love the town of Yerucham and its community and I don’t feel that I am sacrificing anything by being involved.”
The human brain is a wondrous creation. According to studies carried out at BGU, it emerges that infants are able to process basic mathematical calculations and even detect errors.

The influential 20th century developmental psychologist Jean Piaget theorized that in its earliest developmental stages, a baby is aware of sensations, but doesn’t recognize them as coming from external sources. Dr. Andrea Berger has been conducting research that challenges this view. “Today, we know that babies not only are aware that objects exist outside of themselves and have a real physical presence, but they also follow how many objects there are,” explains Berger. She and her colleagues in the Department of Behavioral Sciences and the Zlotowski Center for Neuroscience have demonstrated that not only are very young infants aware of external objects, they can actually count them.

Berger is trying to find out what is going on inside the minds of young babies, particularly regarding their mathematical abilities. “There is some evidence that babies at a very young age have some understanding of quantities, even addition and subtraction.”

The research involves the use of a device which measures the electrical activity produced by the brain in response to a certain stimulus. In this case, the stimulus is a cartoon showing puppets. The babies being tested wear a head-covering resembling a shower cap consisting of 128 electrodes woven together. The electrodes transmit electrical impulses to a computer, which records the brain activity. This electrical scan method, known as “event-related potential” or ERP, analyzes electrophysiological responses. Berger says that the aim of her project is to provide data to back up the theory that “babies can process quantity data very, very early in life and can even perform very basic mathematical operations like addition and subtraction.” The infants in the study were from ages six to nine months. “In order to convince a mother to bring her healthy baby to a lab for research, I have to make it very easy,” explains Berger. “So the whole procedure has to be simple and fun.” Once the designated baby is hooked up and comfortably sitting on its mother’s lap, the experiment begins as the baby is shown a cartoon with a tiger puppet. There is musical accompaniment specially composed for this research to ensure the baby’s attention. A screen comes up to hide...
the puppet and then a second puppet is shown going behind the screen. When the screen is removed, either one or two puppets are revealed. One would expect to see two puppets: 1 + 1 = 2. But if there’s only one puppet, i.e., the incorrect result, how does the infant respond?

“We tried to check how much a baby understands and if it is able to make some basic mathematical calculations, and how to distinguish whether they are correct or incorrect,” explains Berger. The researchers are also filming the baby’s face so they can analyze eye movements.

“Babies look longer at the incorrect answer because they perceive the error. That means the baby can differentiate when something conflicts with what it has perceived. Its brain reacts in a different way when it recognizes that there is something wrong. Our initial results show that an infant’s brain works very much like that of an adult,” she concludes. Using the ERP technique, Berger’s researchers are able to identify the exact millisecond when the baby is presented with an impossible event and can examine the brainwaves and pattern of activity. There has been an assumption that human beings have an innate mental ability to process quantities in the environment. Berger believes this research proves that theory. Her research also shows that the basic brain circuitry involved in the detection of errors is already functional before the end of the first year of life. This data is being published in the prestigious Proceeding of the National Academy of Sciences of the United States of America (PNAS).

Berger studied for her B.A., M.A. and Ph.D. degrees at Bar Ilan University and is conducting her study jointly with Prof. Michael Posner at the University of Oregon, an institution at the leading edge of ERP research and the place where she did her post-doctoral work. Their research is being supported by the US-Israel Binational Science Foundation.

Berger, who joined the BGU faculty in 2000, was the first to bring the geodesic-net ERP tool to Israel and apply it to research on infants.

"There is some evidence that babies at a very young age have some understanding of quantities, even addition and subtraction."

“The overall direction of our work is to look for the development of executive attention and cognitive functions in babies. The way I decided to do it was to connect it to the babies’ perception of quantities.”

She believes that some day the tools used in this research could be applied to detecting learning disabilities or developmental problems at a much earlier age. The findings might one day even help in devising ways to teach children mathematics more effectively.

"The University community mourned the sudden death of Deputy-Rector Prof. Shraga Segal. A faculty member for more than 30 years, Segal helped to establish the Faculty of Health Sciences. Incumbent of the Joseph H. Krupp Chair in Cancer Immunobiology, he was one of the leaders of immunological research in Israel and shaped the University’s curriculum on molecular biology, general and clinical microbiology and immunology.

Segal held a number of senior administrative positions including Dean of the Faculty of Health Sciences, Head of the University’s Center for Cancer Research, Acting Director of the Institute for Applied Biosciences in its transitional period as it became the nucleus of the National Institute of Biotechnology in the Negev, and served two tenures as Chairman of the Department of Microbiology and Immunology.

May his memory be blessed."

In Memoriam
Shranga Segal

The University community mourned the sudden death of Deputy-Rector Prof. Shraga Segal. A faculty member for more than 30 years, Segal helped to establish the Faculty of Health Sciences. Incumbent of the Joseph H. Krupp Chair in Cancer Immunobiology, he was one of the leaders of immunological research in Israel and shaped the University’s curriculum on molecular biology, general and clinical microbiology and immunology.

Segal held a number of senior administrative positions including Dean of the Faculty of Health Sciences, Head of the University’s Center for Cancer Research, Acting Director of the Institute for Applied Biosciences in its transitional period as it became the nucleus of the National Institute of Biotechnology in the Negev, and served two tenures as Chairman of the Department of Microbiology and Immunology.

May his memory be blessed.
Prof. Yitzhak Hen
Exploding The Myths

Prof. Yitzhak Hen, along with other researchers of the early medieval period, is turning history upside down. Attacking myths about 5th to 11th century Romans, Barbarians and Christians, Hen, a member of the Department of General History, is helping to write a new version of history that has become widely accepted, not only in scholarly circles, but in colleges and high schools worldwide.

That the Roman Empire fell, the Vandals were vandals and Charlemagne was the first medieval benign patron of the arts are just some of the myths that Hen is exploding. “Actually, the Roman emperor asked this group to conquer Italy and return it to Roman rule. The Romans settled Barbarians on their soil and drafted them to fight against other Barbarians.”

Generations of schoolchildren have been raised on Edward Gibbon’s *The Decline and Fall of the Roman Empire*, which attributes the end of the classical world to decadence, the rise of Christianity and the Barbarian invasions. Hen counters at least part of this thesis.

Vandals were vandals and Charlemagne was the first medieval benign patron of the arts are just some of the myths that Hen is exploding. “The Roman Empire never fell; it underwent a long period of transformation,” he says, explaining that the invading Ostrogoths were neither invaders, nor “Ostrogoths,” that is, one people from one place. Rather, they were a collection of warriors composed of different peoples – something of a foreign legion. “Actually, the Roman emperor asked this group to conquer Italy and return it to Roman rule. The Romans settled Barbarians on their soil and drafted them to fight against other Barbarians.”

In another reversal, Hen attacks the myth that depicts the Vandals, who controlled large parts of North Africa, as a primitive people of violence. “The Vandals were the most intellectual of all Barbarian cultures,” he says. “They had wide interests and their kings were the patrons of poets and scholars. They collected one of the most famous anthologies of Latin poetry.” In addition, he maintains that the Vandals were Arian Christians and that their king sponsored religious debate and encouraged open-minded thinking. And while they are known as persecutors of Catholics, this was for political, not religious reasons and was less dramatic than is commonly portrayed.

Hen points out that he and his colleagues still use the name “Barbarian” without reservation. “We want to get rid of the ethnic notion of what a Barbarian is and replace it with the idea of diverse groups formed for war,” he says. “Actually,” he continues, “‘Barbarian’ is a neutral name with Greek origins meaning ‘those whose culture is other than Greek.’ It was used to describe Romans and Christians too.”

With a keen interest in Charlemagne, or Charles the Great, Hen is translator of the king’s first biography by Einhard, from Latin to Hebrew. The Carolingian ruler is commonly portrayed as a highly civilized man who revived culture following its post-Roman era decline. “I say there is continuity of culture from Roman times through the Barbarian kingdoms through to Charlemagne,” notes Hen. “He earned his name in history not only for his contributions to culture, but mainly due to his internal ecclesiastical and administrative reforms.”

Hen earned his Bachelors and
Masters degrees from the Hebrew University in Jerusalem. He then went to Cambridge University, where he studied with Prof. Rosamond McKitterick, one of the world’s leading experts in this area. He has been on the BGU faculty for the last three years.

Apparently, Hen had perfect timing, as during the last two decades, early medieval history has undergone a revival. Only recently, he half-jokes, have researchers shown awareness that there was something prior to the 12th century. He explains this neglect by the fact that until recently, few original sources existed – researchers had to search for manuscripts and to read corrupt Latin, a language that diverted from classical syntax and was widely used in that period. “Today, this is the most productive field in medieval history,” he says, adding that new sources, in the form of liturgy, hagiography (that is, Saints’ Lives) and poetry can be used to create a historiographical picture of the early Middle Ages.

Not only benefiting from this trend, Hen has significantly enhanced it. He points to the use of liturgy as a proper historical source as his main contribution. To unravel the mysteries of daily life more than a thousand years ago, he turned to liturgical texts, which he terms “the mass media par excellence” of that period. “This material gets you closer to real life, to the previously silent majority,” he says.

Liturgy is composed of prayers and sermons written according to a set formula. However, each priest or bishop in the early Middle Ages would compose his own text, revealing his personal thoughts. Written in corrupt Latin, this huge corpus of material touches on such unholy topics as paganism, drunkenness and magic. In addition, rulers used liturgy as propaganda and for indoctrination.

In one liturgical text, Hen discovered a bishop’s recrimination of those who wasted money on alcohol instead of giving to charity. Another manuscript included the account of a priest who was preaching in the malaria-infested Alps at a hostel for infected pilgrims.

Hen’s broad knowledge of languages has been helpful in his research. Aside from his fluency in Hebrew and English, he reads and writes French and German and reads Italian, Spanish, Byzantine Greek, Latin, Gothic and Dutch.

“Clearly, all Barbarians behaved like Romans – they spoke Latin, served in the Roman army and were Arian Christians,” he says.

In reality, all Barbarians behaved like Romans – they spoke Latin, served in the Roman army and were Arian Christians.

Prof. Yael Edan has been appointed to the position of Deputy-Rector, replacing Prof. Shraga Segal, who passed away in February 2006.

For the last six years, Edan has served as Chairperson of the Department of Industrial Engineering and Management. She received her doctorate from Purdue University and holds a Masters degree in Agricultural Engineering and a Bachelors degree in Computer Engineering from the Technion. She has been a member of the Department of Industrial Engineering and Management since 1993.

Edan’s research focuses on robotics, sensors, simulation, computer integrated manufacturing and intelligent automation in agriculture. She has instructed and continues to guide many graduate and postgraduate students. She has received accreditation for a number of patents and has published widely in Israeli and international journals.

In reality, all Barbarians behaved like Romans – they spoke Latin, served in the Roman army and were Arian Christians.
Henry Weiss Receives Honorary Doctorate

When Henry and Anita Weiss visited the campus with their family to become more acquainted with BGU and the philanthropic projects they support, the University arranged a surprise ceremony to bestow upon Henry an Honorary Doctoral Degree.

Weiss was honored for his philanthropic endeavors on behalf of the State of Israel in such fields as security and health, especially at BGU. The Weiss family has donated the Henry and Anita Weiss Family Building for Advanced Research, where the Laboratory Facilities for Nanoscale Systems facilitate the advancement of innovative research in hi-tech and nanotechnology.

Outgoing President Prof. Avishay Braverman praised the Weiss family: “Anita and Henry are true friends of the Negev and the University.”

Speaking at the ceremony, Weiss thanked the University for helping him realize a lifelong dream: “I was a pharmacist who always wanted to be a doctor. Now you have proven that if you have enough patience, you can achieve whatever your heart wishes!”

Henry and Anita Weiss (center) with their daughters Rochelle Handy (left) and Donna Lam and her husband, Cantor Nathan Lam of the Stephen S. Wise Synagogue in Los Angeles.

Their commitment to recruiting promising young scientists for the University and developing cutting-edge technologies will ensure Israel’s future for generations to come.”
Etingin Chair in Desert Research Inaugurated

The Maks and Rochelle Etingin Chair in Desert Research was inaugurated at the Jacob Blaustein Institutes for Desert Research in the presence of the benefactors, Maks and Rochelle Etingin from New York, and representatives of the Blaustein family, Arthur and Betty Roswell of New Jersey.

Incumbent of the Chair, Prof. Zvi Hacohen, has been a member of the Albert Katz Department of Dryland Biotechnologies since 1981 and Chairman of the University’s Academic Faculty Association since 1996. His research centers on the various aspects of the production of commercially important lipids in microalgae, the source of fatty acids essential to the development of the brain.

Prizes Awarded to Outstanding Faculty Members

At the close of the academic year, outstanding scholars and lecturers were honored with prizes of excellence. The prizes were awarded at the annual concert sponsored by the Rector. Thirty-seven outstanding lecturers from all the Faculties, chosen through a survey of teaching quality conducted among the students, received awards given by the Office of the Rector and the David and Luba Glatt Fund for the Promotion of Teaching.

Eleven outstanding researchers received awards from the Vice-President and Dean for Research and Development, Prof. Moti Herskowitz.

On the same occasion, the Toronto Prize for Excellence in Research for 2006, established by the Toronto Chapter of BGU’s Canadian Associates, was awarded to Dr. Yoav Tsori from the Department of Chemical Engineering and Prof. Rony Granek from the Department of Biotechnology Engineering.
The widely-acclaimed exhibition recently on display on campus was held in conjunction with an interdisciplinary two-day symposium on "Pain, Flesh and Blood" devoted to various presentations of the sick, suffering and self-gratifying body. The exhibition, curated by Prof. Haim Ma’or and his students in the Curatorship course in the Department of Arts, included the works of 19 Israeli artists who deal with infection, plague, illness and recovery in the vulnerable, injured, sick, disabled and imperfect body.

The early appearances of these artistic expressions emerged in the “Body Art” of the 1970s and developed from the 1990s. As a paraphrase on the concept of “redemption through the gutters,” the exhibition presents the range of expressions from a personal process of “redemption through pain” to turning the injured and helpless body into an esthetic and artistic object.

The artists’ works touch the subject out of personal, familial affiliation or out of a broader human sensitivity. The illness becomes for them a visual story, delivered as an expression of struggle; as a stylish memory of touching the death experience and returning to normal life; as a symbolic perpetuation of the experience. The art work itself becomes a healing tool.

At times, dealing with illness intimidates us and we seek to ignore it. The exhibition attempts to overcome the withdrawal and fear and look directly at the visually and emotionally difficult material, and to extract from it the artistic force.

**Illness Report**

Representations of the Injured or Ill Body in the Works of Contemporary Artists in Israel

The exhibition, curated by Prof. Haim Ma’or and his students in the Curatorship course in the Department of Arts, included the works of 19 Israeli artists who deal with infection, plague, illness and recovery in the vulnerable, injured, sick, disabled and imperfect body.

The early appearances of these artistic expressions emerged in the “Body Art” of the 1970s and developed from the 1990s. As a paraphrase on the concept of “redemption through the gutters,” the exhibition presents the range of expressions from a personal process of “redemption through pain” to turning the injured and helpless body into an esthetic and artistic object.

The artists’ works touch the subject out of personal, familial affiliation or out of a broader human sensitivity. The illness becomes for them a visual story, delivered as an expression of struggle; as a stylish memory of touching the death experience and returning to normal life; as a symbolic perpetuation of the experience. The art work itself becomes a healing tool.

At times, dealing with illness intimidates us and we seek to ignore it. The exhibition attempts to overcome the withdrawal and fear and look directly at the visually and emotionally difficult material, and to extract from it the artistic force.

**Larry Abramson, Rose of Jericho VIII, 2004**
Oil and acrylic on canvas, 100x100 cm

**Yoram Kupermintz, Untitled, 1987**
Acrylic on paper, 120x120 cm
Aya Ben Ron, Blioter, 2002
Print on photographic paper cut and glued in layers; plexiglas box, 100x100 cm

Jossef Krispel, Pupil 1, 2004
Oil on canvas, 60x40 cm

Gideon Gechtman, Stopper on a Shelf, 1985
Aluminum and execution iron, sphere: diameter 38 cm, height 59 cm; shelf: length 41, depth 40.5, height 21 cm

Motti Yifrach, Shoes, 1992, Emulsion on canvas, 150x100 cm
The German communications company Deutsche Telekom (DT) has signed an agreement with BGU to create the Deutsche Telekom Laboratories at the University, which will focus on applied research in the area of information and communication technologies. This is the first time that the telecommunications giant has created an applied research institute outside Germany.

CEO of Deutsche Telekom Kai-Uwe Ricke and a number of senior DT executives were in Beer-Sheva to sign the $12.1 million agreement in the presence of Israeli Minister of Communications and Tourism Avraham Hirshson. During the same ceremony, the University presented Ricke with the Ben-Gurion Negev Award in recognition of his contribution to advancing scientific research in the region.

Prof. Avishay Braverman lauded DT’s decision to invest in the Negev, noting that the decision to locate the DT Laboratories at BGU was a direct result of the University’s efforts to promote applied research, particularly in hi-tech industries in the region. “This fulfills the vision of David Ben-Gurion and Konrad Adenauer to develop science and technology in the Negev and in Israel,” he said.

Visibly moved by his first visit to Israel and the University, Ricke expressed his admiration of Israeli innovation in the field of information technology and security. Describing the agreement to invest in BGU over the next two years, he said, “We are putting down a marker for the research work of DT and the development of the University,” and noted that DT is “examining options to provide venture capital and to establish an incubator model.”

The new laboratories will be directed by Dr. Yuval Elovici of the Department of Information Systems Engineering, who also heads its Software Engineering program. He is currently working with DT on a research project that focuses on computer and network security. The laboratories will initially focus on several key areas – security in telecommunications networks; the organization of software components distributed over various networks quickly and efficiently and their adaptation to customers’ business processes; and “intuitive usability,” enabling the customer to use complex communications services in an uncomplicated way.
The Israeli government has committed to provide $30 million towards a $90 million research fund for the National Institute for Biotechnology in the Negev (NIBN) at BGU. The decision is part of a $3.6 billion, 10-year comprehensive plan to bring development to the Negev region. The NIBN is the brainchild of Swiss banker Edgar D. de Picciotto, who provided the incentive, financial support and vision to found the innovative scientific research institute. At an event marking the Government’s decision, de Picciotto declared his intention to continue investing in the Institute’s second stage of growth.

The NIBN was established to create an effective academic platform for the emergence of a successful applied biotechnology industry in the Negev in particular and in Israel in general, while benefiting from the support of internationally-recognized scientists and industrialists. Focused on very specific research goals, the Institute includes an extensive system of peer review and critique to ensure standards of academic excellence and commercial viability. Its international advisory board includes leading global business persons and international luminaries in the field of biotechnology.

Prof. Ramy Brustein from the Department of Physics has been appointed Dean of the Kreitman School of Advanced Graduate Studies. He replaces Prof. Zvi Priel, who recently completed his three-year term.

Prof. Brustein joined the Department of Physics in 1995 as an Alon Fellow. He earned his Ph.D. in theoretical physics from Tel Aviv University, receiving during his studies numerous scholarships in recognition for his outstanding academic achievements. After spending time as a post-doctoral fellow at the University of Texas at Austin with Nobel laureate Prof. Steven Weinberg and at the University of Pennsylvania, he spent two years at the European Center for Nuclear Research (CERN) in Geneva, continuing his research in theoretical physics and cosmology. His research focuses on the interface between particle physics, string theory and cosmology. He has instructed and continues to guide many graduate and postgraduate students and has published widely in leading international journals.
What happens when you cross a math genius with a future doctor? To that theoretical question we give one answer: Prof. Yuval Shahar. Shahar is one of the few who have combined the study of medicine (for a medical degree at the Hebrew University of Jerusalem) with mathematics and computers (for a Masters degree at Bar-Ilan University), which has placed him at the forefront of the emerging field of Medical Bioinformatics. After his military service as a medic he won a scholarship for a Masters program at Yale University, where he studied artificial intelligence (AI).

Two years later, he was accepted to a doctoral program at Stanford University headed by Prof. Edward Shortliffe. Stanford is the academic world’s center of medical informatics and it was there that Shahar was truly bitten by the medical informatics bug. He was to spend ten years in Stanford, first as a doctoral student, then a faculty member, and was the recipient of several prestigious prizes and awards, including a National Institute of Health 5-year personal FIRST award for research and an award from the National Science Foundation to develop his theoretical work on temporal reasoning.

Shahar came from Stanford to BGU in 2000, joining the Department of Information Systems Engineering, which he now chairs. He also established the Medical Informatics Research Center (MIRC) which he heads, thus making the jump from theoretical to applied research. Shahar and his team of researchers use AI technology to develop complex computer programs that are capable of monitoring and processing large amounts of data over lengthy time periods. This technology has earned Shahar the reputation as an international expert in automated medical-decision support systems.

The names of these complex computer programs have roots in several languages: from the Hebrew IDAN (epoch) and DeGel (flag) to Vayduria (a Tibetan healer) to the acronym KNAVE, for Knowledge-based Navigation, Abstraction, Visualization and Exploration. But the one he describes with the most enjoyment evokes associations in all English-speakers: the Spock Hybrid Runtime Application Model – or, simply, “Spock,” named after Mr. Spock of the 1960s TV series Star Trek.

“Various medical associations in the United States produce what they call ‘guidelines’ for physicians,” explains Shahar. “These are text guides with explanations of how to treat everything from hypertension to diabetes and they are very useful, but few physicians actually use them because of lack of time. One of my goals was to computerize these guidelines into a more available format for diagnostic purposes. Also, these guidelines often cover conditions in a general way, such as ‘treatment of diabetes,’ while Spock allows greater complexity, such as ‘diabetes in a pregnant woman with high blood pressure.’

“Another problem I wanted to solve was the large amounts of data that a physician must process in a short amount of time. Family doctors may treat patients who have suffered from diabetes for decades; these patients accumulate results of tests with hundreds of items of data. The physician must monitor these patients for numerous complications such as renal insufficiency, neuropathy (numbness) of limbs, ulcers or toxicity toward drugs – all this, again, in a typically short visit that must address the patient’s present complaints in the context of accumulated data that may reveal trends. Is it any wonder that the physician is likely to miss subtle patterns of change?

“That’s where the KNAVE visual exploration module comes in. It relies on the underlying IDAN module, which performs what we call temporal abstraction – interpretation of clinical data accumulating over time and their summarization as clinically meaningful patterns. We’ve found that it takes only about ten minutes to teach physicians how to use KNAVE and a few seconds for the IDAN/KNAVE combination to review the online blood tests and records and then tap the doctor on the shoulder and say: this patient...
has been slowly developing renal insufficiency – something that the doctor might have completely missed. The resulting interpretation can also be used by the Spock module to suggest a particular guideline and even to walk the physician through it.

“KNAVE is beneficial to specialists as well. Take the example of bone marrow transplant patients who must be carefully monitored for multiple organ toxicity and who can accumulate as much as two thousand items of data in their test results. We have found that it takes a highly-trained medical specialist a full half hour to review these results – and twenty seconds with KNAVE. Moreover, while the physicians have an accuracy rate of 78 percent, using the KNAVE/IDAN system has led to an accuracy rate of 98 percent.

“Spock is called a hybrid system because it is useful even when there is no electronic patient record. If a diabetic patient is being treated and no online medical records are available, Spock will ask the physician to provide basic information appropriate to the specific case: blood sugar levels, blood pressure, presence of anemia, whether the patient smokes. Then it will suggest treatments, based on the information that was input.”

Why the name of “Spock”?

“Well, remember how Mr. Spock in the TV program always knew the answers? His suggestions and answers helped Captain Kirk out, but the Captain always had the final word, of course – just like in our case. Spock suggests guidelines, but the physician can overrule or modify them. It’s the doctor who’s in charge.

“In short, I view our suite of monitoring, interpretation and therapy tools as a valuable set of tools for physicians and not a replacement for them. I see Spock and KNAVE as the 21st century equivalent of the 19th century stethoscope or the 20th century CT and MRI. They don’t replace the doctor; they simply enhance his or her expertise.”

Shahar goes on to explain that medicine is only one application of his technology of temporal abstraction, namely intelligent monitoring and processing of large amounts of time-related information. Other applications include integration of intelligence data accumulating over time, detection of electronic threats in telecommunication networks, fraud analysis, detection of suspicious patterns in financial dealings, or monitoring of traffic and traffic controllers’ actions.

Shahar is also an active member of the Deutsche Telekom Laboratories Team and holds the position of Deputy-Dean of Research in the Faculty of Engineering Sciences.

Recently, Shahar was elected as a fellow of the American College of Medical Informatics, the “Hall of Fame” of the medical informatics field. But ask him what he enjoys the most and he pulls out a deck of cards, as he is also a member of the Israel Magicians Association with a specialty in card magic, as well as an expert bridge player.
A Passion For Balance

For renowned Arabic poet Nidaa Khoury, life has been a constant search for balance, integrity and truth. “Even when I was a child,” she says, “I saw the problems of the world and felt them very deeply. The first poem I wrote was about a soldier who died on the border, alone, without his mother, sister or wife there to comfort him as he died. Even then, I was preoccupied with the meaning of existence, life and death. That’s why, later, I decided to study philosophy. I thought it would help me understand what I was feeling.”

If Khoury’s decision to study philosophy sounds simple, it wasn’t. Khoury, now the author of seven published works of poetry – many of which are translated and studied in universities around the world – was born and still lives in Fassouta, a village in northern Israel about three miles south of the Lebanese border. In Fassouta, all 3,000 residents are Melkite Catholic Arabs. Considering that there were no computers or internet access until a couple of years ago, Khoury’s status as a poet of international renown speaks volumes about her courage and tenacity.

Even more unique is that Khoury didn’t begin serious study until she was a married woman with three children. “I was married at 16,” she says “By the time I was 19 and started university, I already had three children. Now my husband and I have a younger son, too.”

Khoury teaches in the Department of Hebrew Literature. In addition to courses in Creative Thought and Creative Writing, she puts her Masters degree in Comparative Literature to work, teaching a class that contrasts Arab and Israeli cultures. “I use texts from both Arabic and Hebrew literature,” she says. “We study them side by side, so students see where societal values differ and conjoin.”

Khoury’s decision to travel the length of Israel to join the BGU faculty stems from her passion for balance. “I love the desert,” she says. “The open space gives a feeling of open doors. I came to the University several years ago and loved the atmosphere – it’s so relaxed, less materialistic. And I love the way the University works for balance here, by including so many Bedouin and Arab students.”

When Khoury married, her own formal education stopped for a time. She dropped out of high school and only later, on her own, studied to pass her matriculation exams. “My society is very traditional,” she says. “It was very difficult at the beginning when I wanted more education. No one in my family or village could understand. ‘Why is a woman with a husband and a home doing this? Why does she need to study?’ But there was this fire in my heart, something within me. I felt as though something must be changed, and I had to search for it myself.”

Although Khoury’s early poems focus on love, she writes out of her own pain, she says. “I was disturbed with the way society treated women – in our tradition, the ideal woman is beautiful and quiet and in the home. But I saw the beauty of a woman’s soul. Women must have a voice. We, too, have souls that need to reach out in this life, to do things, to say things. Women are needed to bring balance into the world. To make our own unique contribution.”

Much of Khoury’s writing involves spirituality. Before her marriage, Khoury studied at Our Lady of Lourdes School in Tiberias which, she says, “took my soul to another place.”

August 1998

... Oh you my dream that ruptures in my neck
And scatters in many other places
For you and only you
I destroyed the shrines of my sleep
And scandalized the burial of perfume
You were the ultimate God of pain
From the knives of the ages in the meat of the place.”
would balance spirituality with the needs of the body."

Khoury’s first five books were published while she worked in a bank. “For ten years, I saved every shekel and published five books of poetry,” she says, “But I still wasn’t satisfied. I began studying at Haifa University, which again caused quite an uproar. My mother thought I was crazy to leave a good paying job.”

After graduation, Khoury moved into a more public life, teaching creative writing in the town of Tarshiha, and working for the "Association of Forty," a human rights organization pressing for full acceptance for the unrecognized Arab villages in Israel. She went on to form “Path to Peace” and became a member of the General Union of Arab Writers in Israel.

“Everything in life is about balance, she says. “Balance between men and women, between spirituality and the body, between the self and the other, between the Arabs and Israelis.

“Balance is one of the things I appreciate so much about BGU,” she says. “Here, the faculty also works to create balance between teaching the students – giving to them – and taking from them, by listening. Students must be allowed to learn from themselves and each other in their own search for truth.

“In Israel, Arab and Jew must come to know each other in a neutral setting, not just a political one. On the BGU campus, students enjoy that opportunity every day.”

In addition to her seven books already in print, Khoury has two more about to be published: “Communion and Redemption” and “Post-Monotheism.”
The Beer-Sheva North – Ben-Gurion University Train Station and the Mexico Bridge were dedicated as part of the Ben-Gurion Day celebrations in the presence of Prime Minister Ariel Sharon, former Transportation Minister Ephraim Sneh, Beer-Sheva Mayor Yaacov Terner, Chairman of the Board of Israel Railways Moshe Leon, representatives of Israel Railways and University benefactors.

Designed by architect Danny Lazar, the new station and bridge create a dramatic new gateway to the University and the city of Beer-Sheva. Lazar explained that the project offered him a unique opportunity “to transform the northern entrance to the city – to create symbolic structures that would carry Beer-Sheva into the future.”

The station was built through the combined initiative of BGU, Israel Railways and the Beer-Sheva Foundation and was made possible through a donation by Larry Goodman of Chicago, IL. A long-time member of the University’s Board of Governors and Chairman of the American Committee of the Beer-Sheva Foundation, Goodman – together with his wife Lillian – has previously built important projects in the city of Beer-Sheva and the University.

The Mexico Bridge was built with the support of the Mexican Associates, led by their President, Ing. Pedro Dondisch, who has been vital in promoting the legacy of the first Prime Minister at the Ben-Gurion Research Institute for the Study of Israel and Zionism at BGU’s Sede Boqer campus.

Larry Goodman addresses the audience

Prof. Avishay Braverman with Ing. Pedro Dondisch at the entrance to the Mexico Bridge
Honorary Doctoral Degrees and Ben-Gurion Negev Awards were bestowed upon a group of committed and accomplished individuals during the annual Ben-Gurion Day commemorations which began a year-long celebration in honor of the 100th anniversary of David Ben-Gurion’s aliyah. Vice Premier Shimon Peres was the guest of honor at the ceremony. Honorary Doctoral degrees were conferred upon the following recipients:

Prize-winning Israeli actor, singer, director and songwriter Yossi Banai (who has since passed away) received the award for his multi-faceted talents, including his ability as artist and performer “to illuminate the small miracles of daily life and thus express his great love for his homeland and the ordinary people who inhabit it.”

Ralph I. Goldman of the United States – who has served as the Executive Vice-President and Honorary Executive Vice-President of the American Jewish Joint Distribution Committee (JDC), as well as advisor on Diaspora Affairs to David Ben-Gurion – was recognized for his efforts as a dedicated philanthropist who supports worthy causes in Israel and the Diaspora and promotes Jewish education and leadership.

Prof. Jehuda Reinharz, an internationally-renowned scholar of Jewish and Israeli history, who has been serving as President of Brandeis University for the past decade, was honored for his prowess as a teacher and researcher and for his dedication to strengthening relations between Jewish communities and academic institutions in the United States and Israel.

Terry Meyerhoff Rubenstein of the United States, third-generational leader and Executive Vice-President of the Joseph and Harvey Meyerhoff Family Charitable Funds Foundation, was honored for her leading role in the Jewish philanthropic world and in promoting education and culture in Israel, particularly in the Negev.

Retiring Israeli Supreme Court Justice Jacob Türkel was recognized for his support of the University throughout the years as a member of its Board of Governors and Executive Committee and Chairman of its Constitutional Committee, and for dedicating “his time and energy to promoting higher education in the Negev and molding the character of BGU.”

Ben-Gurion Negev Awards were given to two citizens of the Negev: Eliyahu Levant, the chess grandmaster who came to Beer-Sheva upon his immigration from the Former Soviet Union and single-handedly placed the city on the world chess map; and Menachem Perlmutter, a Holocaust survivor and longtime member of BGU’s Board of Governors and Executive Committee, who has been active in promoting settlement in the Negev for over fifty years.
Not all negotiations end with clear cut winners and losers. In fact, negotiations can often be resolved to the joint satisfaction of both parties: all involved can take home a bigger prize. This view, which may be counter-intuitive to most of us, encapsulates the philosophy of Dr. Simone Moran of the Department of Management. Steeped in a background of decision-making and psychology, Moran seeks to identify and define common errors of negotiators and to teach her students how to overcome them.

“Laymen generally think of negotiations as win-lose situations, as a sort of war over who will get more of the pie,” says Moran. There are two main approaches to negotiations, she explains. When creating value, negotiators seek a way to expand the pie. When claiming value, negotiators assume that the pie is fixed and their primary goal is to attain a greater portion of that fixed pie for themselves. “This second approach places parties on both the defensive and offensive and causes people to miss the point of creating a win-win situation. I want both parties to give and to take in a way that will benefit all. Of course, in the real world it’s more complicated, but you can still end with a win-win situation.”

People hate to lose. That basic element of human nature, according to Moran, works against us in negotiations. To negotiate effectively, we must sometimes give in a less important area to gain in a more important area. In multi-issue negotiations agendas, where several subjects are under consideration and parties have different priorities among the issues, Moran suggests what she terms the Integrative Gambit Offer (IGO).

Borrowed from chess, a gambit is an opening move in which a player sacrifices a particular piece in order to achieve an overall advantage. However, while a gambit in chess represents an attempt to gain advantage at the opponent’s expense, an IGO in negotiations does not involve harming the other party. Unlike typical concessions within negotiations, IGOs are not demanded or requested by the other party, but are proposed by the negotiators themselves.

In the case of negotiations over an apartment rental for example, Moran points to air conditioning, electrical appliances, date of entrance and number of yearly payments as issues that are likely to have different priority for different negotiators. “To me, the entrance date may be the most crucial issue, while for the other party the number of payments may be of supreme importance,” says Moran. “The wisdom lies in offering to give up something that is not important to you in order to get something that is more important.” In addition, IGOs can demonstrate good will and build trust. While this may seem like logical, natural behavior, Moran holds that people don’t often initiate it. Why not? Quite simply, she says, because of the way we process information and make decisions. She explains that rather than looking at the whole picture and integrating the information about all the negotiating issues, people tend to process the information of each issue separately. Also, people are particularly averse to losing and thus incurring a loss on one issue is not easily compensated for by a parallel gain on a different issue. Separate issue processing combined with loss aversion result in negotiators often missing the potential to create value; they are reluctant to make proposals that entail a loss on any issue, even if such an offer could actually benefit them.

In her research into IGOs, Moran, along with Prof. Ilana Ritov of the Hebrew University, used 170 management students who acted as buyers and sellers. The researchers distributed negotiation scenarios to the students and asked them to negotiate and write down all of their offers and counter-offers. Then they checked to see if the students made gambit offers or volunteered to give
Finally, they examined the optimal outcome, the maximal win-win situation that would increase the pie for all. Their findings: at a given stage of negotiations, an IGO proposal enhances the chance of reaching an agreement. “A possible explanation is that in proposing IGOs, parties send the message that they are willing to be flexible towards the other side, which might create an atmosphere of camaraderie and may lay the basis for trust and reciprocation, or mere imitation,” says Moran. Unfortunately, although these offers improved the outcome for all, participants did not use them enough.

Moran is anxious for others to benefit from her findings. “I teach important concepts about managing negotiations successfully that involve strategies for enlarging the pie and creating value,” she says, adding that a key challenge is to teach these principles in a way that makes them easily transferred from the classroom to real life situations.

Moran graduated with a Ph.D. with honors from BGU, where she teaches courses on negotiations, judgment and decision making and organizational behavior.

Among her other numerous research projects, Moran has explored the effect of emotions on negotiations, specifically how envy influences deception. “Part of our non-rational behavior in negotiations comes from our emotions. Our feelings can limit our ability to negotiate rationally,” she says. But how does emotion cause us to deceive or to be truthful? While the literature of decision-making explored ethics and deception – when do we show all our cards and when don’t we? When do we make promises we don’t intend to keep? – it hadn’t previously covered the widespread emotion of envy.

Moran checked subjects’ willingness to deceive the objects of their envy. In a study carried out with Maurice Schweitzer from the University of Pennsylvania, they created a competitive work scenario to induce envy or had participants read outstanding résumés of other individuals. In one experiment, students were given fictional résumés about other students and were pitted against them in negotiations. The results here were absolute: in negotiations with someone who had the so-called ‘ideal résumé’ – service in an elite army unit, top grades, vacations to exotic spots etc. – students lied more than when they didn’t envy their rivals.

“Apparently, when you envy someone, you do a cost-benefit analysis,” says Moran. “You adopt unacceptable behavior at a low psychological cost.” In other words, when we envy people, we can belittle them without compunction because we feel justified. We assume the objects of our envy are arrogant and vain, indulged and smooth-talking.

The element of shadenfreude, of deriving pleasure from the troubles of others, also plays a part here. There’s little price to pay and immense satisfaction in deceiving the objects of our envy, or in the accepted jargon, greater benefit at lower cost. Translating this into organizational behavior, Moran explains that while we think we must market ourselves or flaunt our achievements in interviews and meetings, blowing our own horns has its own dangers too.
The Land of Israel claims the world’s first water purification scheme: after our ancestors fled Egypt, they were thirsty, but found the water at Mara too bitter to drink. According to the Bible, Moses solved the problem by throwing a tree into the water, which instantly made it sweet.

The process of creating potable water has never been so simple or so cheap.

The good news is that relief is on the horizon: Dr. Roni Kasher, who recently joined BGU, will open a new laboratory in the Department of Water Desalination and Treatment at the Zuckerberg Institute for Water Research of the Jacob Blaustein Institutes for Desert Research in Sede Boqer. His plan? To design a new water purification membrane, an innovation that will benefit not only Israel, but also countries facing acute water shortages around the world.

If ever a man came tailor-made for the job, Kasher is it. Born 42 years ago in Hawaii to Israeli parents, he has spent the last 15 years researching and working in organic chemistry, specifically with peptides and polymers, substances likely to figure in tomorrow’s more efficient water facilities. In every previous field of endeavor, Kasher focused on some aspect of peptide design and operation: he has a Ph.D. in organic chemistry from the Hebrew University of Jerusalem; for post-doctoral work, he opted for the laboratory of the former President of Israel, Prof. Ephraim Katzir, a pioneer in proteins and biopolymers. Back in 1948, Katzir established one of the first research facilities in the world in this field at the Weizmann Institute of Science. After his time at the Weizmann Institute, Kasher spent three years working on projects designed to eradicate organic pollutants in Israel’s coastal aquifer.

Through it all, Kasher’s focus has involved peptides – what they are, how they work and what they can be designed to do.

“Peptides are small fragments of proteins,” Kasher explains. “They are composed of the same building blocks as proteins – the amino acids, but peptides sometimes have biological functions that are very different. They can be either natural or synthetic, and because of their unique properties, they may hold the key to creating more efficient water treatment options than are now available. Today, removing salt from either seawater or groundwater is accomplished by reverse osmosis (RO), which utilizes synthetic polymer membranes as a kind of filter. Since polymers are related to peptides and proteins, a more creative use of peptides might well represent a breakthrough in water treatment.”

Reverse osmosis had its origins in Florida in the 1950s, when a process called “surface skimming” was developed. Salt water was passed over a membrane – a plastic divider – and fresh water would fall through, leaving the salts behind. In the 1960s, the term “reverse osmosis” was coined when the process was enhanced by using a pump to apply pressure to the salt water to force it through the membrane. Normally, if salt and fresh water exist on two sides of a membrane, the fresh water will filter into the salt side. By applying pressure to force the flow to run in the opposite direction, reverse osmosis occurs. Fresh water is extracted from salt water.

“Israel is chronically short of sweet water,” Kasher says. “We need to be able to purify our resources in both our underground aquifers and the Mediterranean. If we can desalinate, we’ll have an abundant supply. In Israel, we understand how serious a shortage of drinking water would be.”

Internationally, Israel has led the way in water treatment programs. In the 1980s, in Eilat, a commercial RO plant was established to desalinate brackish groundwater. In August 2005, a new state-of-the-art RO plant opened in Ashkelon, representing the first of several large-scale seawater desalination facilities in some stage of development. When fully operational, the Ashkelon plant will provide about 15 percent of Israel’s domestic water.

Kasher’s commitment is to enhance and improve the efficiency
of the basic element in water treatment – the membranes that do the actual work in filtering out impurities.

“The membranes we use now are far more efficient than earlier versions,” Kasher says. “They have good flux – water flows through while salt doesn’t. We’ve also made great strides in the engineering aspects of reverse osmosis – how much pressure to apply, how much efficiency to expect. But up to now, we’ve neglected the chemistry. We don’t really understand how the membrane itself works. Of course, over the years, many different kinds of membranes have been tested and some are better than others. But we haven’t studied how they work. More importantly, we haven’t studied how they could be chemically designed to make them better.”

Kasher describes the RO membrane as a three-layer ply: the working component is the “thin film” which lies next to the salt water; under that is a thicker layer of porous material, then a stiff layer for stability. “If we understood the chemistry of the process, we could design more efficient membranes,” he explains.

One current problem is with bacteria. “Bacteria collect on the surface of the thin membrane,” Kasher says. “As the bacteria layer builds up, it clogs the membrane, so gradually the membrane becomes less permeable. Removing the bacteria is costly, for several reasons. First, the unit is taken out of operation; second, it’s treated with a chemical, often chlorine, which might pose problems of its own, such as generation of carcinogenic agents from organic substances. Repeated cleaning also shortens the life of the membrane, so it has to be replaced. Beyond all that, labor costs are considerable.

“A specifically designed anti-microbial peptide, which could bind with the thin film, would represent a serious breakthrough. What if peptides could modify the surface of the membrane so that it would – by itself – prevent the growth of bacteria? If an anti-microbial peptide could target and kill the bacteria before they built up, that would represent a significant advance in cost control.”

All of Kasher’s previous work with peptides will come into play on this new project, in which he and a team of experienced researchers will work on developing more efficient membranes. “This is an opportunity to take a big leap forward in desalination technology,” he says. “It’s an exciting project – not just for Israel, but for every thirsty country in the world.”
Food For Thought

Food fuels all human beings. Types of food, their function and influence on the body are vastly different, though, and can make or break an individual’s health. In her field of molecular nutrition – what is known as nutrigenomics – Dr. Ruth Birk, a member of the Faculties of Health Sciences and Engineering Sciences and the National Institute for Biotechnology in the Negev, uses the tools of molecular biology to investigate how nutrition affects people’s health at a cellular level. Her research hopes to lay the foundation for future solutions, in the form of special diets, drugs or other therapies for specific illnesses.

What we eat, holds Birk, has a fundamental effect on our wellness or on the development of chronic diseases such as diabetes, heart disease and some forms of cancer. She points to obesity as a current phenomenon that has reached epidemic proportions. According to the formula of Body Mass Index (BMI – a computation that divides weight in kilograms by height in meters squared and a value of over 30 is considered obese) one quarter of Western society is considered obese. Furthermore, about 15 percent of the world’s school-aged children are estimated to be carrying excess body fat, with an increased risk for developing chronic disease.

“We’re talking about a serious problem from several aspects – with economic implications and major effects on health, quality of life and longevity,” states Birk, who is a firm proponent of preventive medicine and nutritional education. At the same time, she believes in the importance of molecular research, which can illuminate obesity’s underlying mechanisms at the most basic level and generate biotechnological solutions such as specially designed functional foods and pharmaceutical compounds that may alleviate the problem.

In her research, Birk, who completed all her studies at the Hebrew University’s Faculty of Agriculture in Rehovot and worked at the Weizmann Institute of Science before joining BGU five years ago, examines fat from two viewpoints – digestion and storage. Fats are an essential part of our diet: they are a key factor in normal function and development throughout life, especially in infancy; however, they also act as facilitators of major chronic diseases such as arteriosclerosis, diabetes and obesity. Fat should not be considered as one homogenous group. “The fundamental building blocks of dietary fat (triglycerides) are fatty acids. Each fatty acid has different effects on body metabolism and behavior,” she says.

Absorption into the body of food in general and fat in particular, depends on its digestion. Prior to its absorption, fat must be broken down into fatty acids by digestive proteins (enzymes) produced primarily by the exocrine pancreas. The digestive enzymes are the major “portal” of nutrients into the body. The interactions of nutrients, hormonal and neural factors in the regulation of the pancreas are not fully understood. This regulation can work both ways – on one hand, it is important as a means to enable digestion of fat, thereby facilitating entry of essential specific fatty acids into the body; on the other hand, inhibitory regulation can act in preventing overflow of fat into the body, abrogating development of chronic diseases. It is noteworthy that many of the new developments in weight-control drugs are based on inhibition of exocrine pancreas lipase (fat digesting enzyme).

In this field, Birk works on optimizing the digestion of different types of fats by pancreatic enzymes in neonates. Dietary fat, both in breast milk and in formulas, provides the major source of energy during infancy. She focused on special fat groups such as long chain polyunsaturated fatty acids, which play a key role in brain and normal retinal development during infancy, and on medium chain fatty acids, which are given as supplements facilitating growth of under-weight preterm babies. Among other findings, she demonstrated that fat fortification of neonate’s diet beyond a certain threshold diminishes the generation of pancreatic enzymes, leading to less, rather than enhanced, absorption of fat. Another study in her lab showed that
overconsumption of saturated fatty acids, which are consumed extensively in a Western diet, causes intracellular accumulation of fat in exocrine pancreas tissue and is associated with cellular dysfunction and cell death, ultimately contributing to the pathogenesis of pancreatic diseases.

Another aspect of Birk’s research deals with the biological signals that control satiety and hunger and the mechanisms through which they regulate the synthesis and secretion of digestive enzymes by the exocrine pancreas. She proved that some of the signals that regulate satiety and hunger also regulate the release or inhibition of digestive enzymes. Modifications of these signals might serve as pharmaceutical compounds that reduce digestion and absorption of dietary fats.

Birk is also researching fat storage. Overflow of fat into the body is directed to storage at the most efficient fat storage place – the fat cell or adipocyte. Until some ten years ago, it was thought that adipose tissue was physiologically inactive, designed mainly for storage. Following the discovery that it secretes many proteins that signal the brain regarding the amount of fat stored in adipose tissue, the view has changed.

“This has opened a new world of research on adipose tissue, not only as a storage place, but as a metabolically active tissue that plays a critical role in the regulation of satiety and hunger,” notes Birk.

Adipose tissue develops from “innocent” pre-adipocytes into fully differentiated storage cells that have the metabolic capability of efficiently storing fat. In this process, several genes are “turned on” one after the other in a known sequence. Birk’s lab is studying a set of new genes that play an important role in this process. “We still need to learn the complete sequence of genes involved, which will enable us to manipulate the formation or lack of formation of adipose tissue. We also study how this sequence is regulated by specific fats and specific metabolic states, such as diabetes and obesity” says Birk.” On one hand, fatty acids act in enhancing the formation of fully differentiated fat-storing adipose cells. On the other hand, some of these fatty acids inhibit their formation.” Special fatty acids also show promising results when they are incorporated into diets designed for people who want to lose or gain weight. This research is of interest not only in terms of basic science; it is also a first step in finding new strategies that could facilitate or inhibit development of adipose tissue.

With regard to Birk herself, does she follow a strict dietary regime? “I eat a balanced diet. I am not a fanatic – we should never forget the quality of life aspect,” she answers. “We should always, though, be aware of what we put in our bodies.”
Dr. David Brock

Going Global

Dr. David Brock speaks English with a fascinating mix of accents, and it’s no wonder: born in Cape Town, South Africa, he received his doctorate in Education in the United States and taught for nine years at the University of Auckland, New Zealand before settling in Israel. It was in 1997, during a sabbatical year, that he came to Israel for five weeks and met his future wife, Shlomit. He went back to New Zealand before ultimately deciding to return to Israel. Today, he teaches International Management and Strategy in the Department of Business Administration at the School of Management. “When I made aliya,” explains Brock, “my Hebrew was not very fluent. I taught my classes in English during my first year, but every semester thereafter, I added more and more Hebrew and now I speak mainly Hebrew, with a few English words thrown in.”

Brock’s fields of expertise and research are global law firms, multinational corporations and planning in these companies and their subsidiaries. “For many years, it was a given that law could not be global because each country has its own legal system,” explains Brock. “However, that started to change in the 1990s. Governments deregulated professional services and new technologies emerged that facilitated internationalization. International professional service providers also emerged, such as the firms KPMG and Price Waterhouse Coopers of the ‘Big Four’; these service providers typically supply accounting, consulting and often legal services on an international scale.”

Brock explains the development of global law firms as a natural outgrowth of this process. “Large companies such as General Motors and Wal-Mart don’t want to have to start looking for a local attorney in every new country they penetrate; they would rather have one law firm that takes care of all their needs. Also, since other service providers such as accounting have gone global, law companies face pressure to follow suit.”

When one company exports to a number of different countries, there are two opposing points of view: multi-domestic and global. The multi-domestic approach views each country as a separate market, while the global strategy is, well, more global. “Take McDonald’s, for example,” says Brock. “Every McDonald’s tries to maintain the same style of service, the same Golden Arches ambience, the same Egg McMuffin. You can pick out a McDonald’s in every Main Street all over the world. The fries are always the same, as are the Idaho potatoes. True, there are differences: Israel has the only kosher McDonald’s, New Zealand has Kiwi-burgers and each country has its own local regulations. You could say that McDonald’s is 90 percent global and only 10 percent multi-domestic.”

But there is a catch: it is not at all clear whether internationalization pays off. “Our research,” says Brock, “shows that internationalization, or leaving one’s home country to market goods elsewhere, has its drawbacks. The firm often goes from a more profitable market to a less profitable one, causing a loss in revenue; and it loses its hard-earned home reputation in an unfamiliar new market. This impinges on rate of development, on reputation and on wealth.”

So why do firms internationalize, despite the pitfalls? Why don’t they stop when it becomes less profitable? “The customers demand global,” explains Brock. “A customer gets used to Hertz or Avis rental cars and

Internationalization, like any new phenomenon or new technology, has a learning curve. Eventually, it has a chance to become profitable.”
comes to expect them not just in the big markets but in smaller places too. The companies have to maintain branches in less profitable places as well to satisfy the customers, even if they don’t make a lot of money in doing so.”

Brock does not see internationalization as a passing fad. “I believe that the world will continue to internationalize until the entire marketplace is truly global. Of course, there will always remain pockets of resistance or localization. For example, just like some Israelis want only Israeli products, other countries have this phenomenon as well. But they are in the minority. The world is going the way of Wal-Mart: although Wal-Mart is officially an American company, it imports its items from wherever in the world the products can be obtained for the lowest prices. Even when they market in the United States, their products are mainly imported.”

But global firms can ultimately succeed as well. “In our research,” notes Brock, “we discovered that there are phases of negative returns in internationalization, phases when the companies lose money. But internationalization, like any new phenomenon or new technology, has a learning curve. Eventually, it has a chance to become profitable. For example, we studied the mechanism of creating profitability. The major key is to use leverage. The law firm must delegate and farm out work to junior lawyers, maintain as few partners as possible and a low ratio of senior-junior lawyers. This can be very challenging in foreign markets with unfamiliar cultural, language and legal systems.”

Another important field is that of planning in the subsidiaries of multinational corporations. Should the planning be determined only by the parent company in the country of origin, or by the country in which the subsidiary is based?

“For example,” says Brock, “The global IT system for BMW has a huge, expensive computerized spare-part inventory system. The New Zealand BMW subsidiary developed a local, more manageable system for their limited selection of BMWs. In this way, the parent German BMW Company allowed for flexibility on the part of its subsidiary. However, the Japanese carmaker Nissan insisted that Nissan New Zealand follow the Japanese model.

“When to adopt local preferences is not a simple question. It depends on interaction between the cultures of the two countries, and we use measures of national culture. In our research, we have developed a ‘predictive model’ that we hope will enhance profitability. International business can clearly be very profitable – firms just need to avoid the pitfalls, find the correct localization-globalization balance and above all, keep learning.”
Of all the things you might not expect to see in a Russian-born Israeli mathematician’s office is commentary from Calvin & Hobbs, but there it is: an American cartoon, featuring the tousle-headed kid engaged in a philosophical debate with his father, exploring the balance between teamwork and individuality.

Mathematical theorists like Dr. Nadya Gurevich of the Department of Mathematics – who is already a rising star in the field of automorphic forms – seek balance. Individually, they are a small, lofty group of individuals around the world who frequently work alone, laboring over problems most of the rest of us didn’t know existed, yet find satisfaction in sharing both projects and results.

“What fascinates me in math is exploring the relationship between things,” Gurevich says with a twinkle, “when things from two different fields meet and I find that a method I used in one problem also works in another.”

If that sounds terribly abstract, it is. The pursuit of pure math – applying theoretical concepts to abstract problems, searching for answers that may not have any immediate practical application at all – isn’t for everyone. But for Gurevich, the hours spent pouring over problems so complex that they can’t even be explained to math amateurs, the process is satisfying. Every now and then she sees results and that makes all the effort worthwhile.

Born in Russia in 1974, Gurevich made aliyah when she was 15 years old. With an undergraduate degree summa cum laude from Tel Aviv University, she went on to receive her Ph.D. from the Weizmann Institute of Science, winning grants and prizes for excellence all along the way, including most recently a sizeable grant from the Israel Science Foundation.

From 2000-2003, Gurevich was a Veblen Research Instructor at Princeton University and the Institute of Advanced Studies. “I was determined to come back to Israel,” she says. “But I enjoyed the work that I did at Princeton. I was invited to BGU to give a talk and was really impressed by the opportunities I saw. When I was offered a position at BGU, I accepted. I didn’t really think about any other place.”

Gurevich’s fascination with math began when she joined a Math Circle – an extra-curricular math club – when she was about 11 years old. “I liked the math,” she says, “but the way the teachers presented it was a large part of the attraction. They didn’t stuff us with facts; instead, they found ways to give us interesting problems, to inspire us to find non-standard solutions. I was fascinated. In my other classes, it was very rare that something would make me say ‘Wow!’ But in Math Circle, there were lots of ‘wow’ experiences. I’d see how some piece of information fit into a problem in a new way – it was a delight.”

Finding a way to explain what Gurevich actually does isn’t easy for those whose math skills stop at the basics. Gurevich’s specialty lies in “automorphic forms,” which was invented to solve problems in number theory, one of the oldest in mathematics. Work in automorphic forms combines ideas from algebra, geometry and analysis, which is why Gurevich says it’s so powerful.

Success in her field results from a combination of both individual and team work, Gurevich says. One of her early successes was in a collaborative effort where she and two colleagues explored a piece of mathematical “folklore.” “Folklore is something that is thought to be true,” she says, “not because anyone has actually studied it or proved it, but just because it’s commonly accepted.

“We were working on one of those common assumptions. It wasn’t a huge, earthshaking thing, but when we disproved it, it surprised even us; it was very satisfying. Of course, we checked it over and over and then we asked others to check it as well. There was general agreement that we were right.”

Gurevich presented their work at a conference in Israel in 2001. “There were several responses and ultimately, general assent that we were right, so we sent it on to more
senior people and it was generally accepted. When that happens, it’s exciting.”

It’s not only her own success that pleases Gurevich. “What delights me is seeing good results – it doesn’t have to be me who finds it. I just love seeing new ways of looking at a problem.”

Pure math includes a sense of artistry, a sort of revelation in uncovering a truth that has always existed but hasn’t been known before.

“Think of a very large picture,” she says. “At the moment, you only see small parts of it, but then you suddenly see that pieces connect. Now you see more of the whole picture. What I do is like that. Making it possible to see how things connect, so we reveal a reality we haven’t seen before.”

It’s in that sense that making a mistake isn’t a disaster. “What frustrates me is when something I’m focusing on doesn’t work, when the pieces of information I have don’t fit together. There are no contradictions in math, so that means I’ve made a mistake somewhere.

“But that’s not all bad. Mistakes can be good. When the pieces don’t fit, I go back and find the error. So then, again, I’ve learned something I didn’t know before and that’s very pleasing: to find a new piece of information.”

Whether any aspect of pure math has any practical utility is beyond what Gurevich does. “I don’t know about practical aspects,” she says. “I’m a theorist. Other people work on practical applications. But of course, they do occur – some pure math concepts are useful in code theory, cryptography.

“In my field, we seek out the unknown. We try to establish the relationships between things. We strive to pin down knowledge no one had before. In a sense, it’s a search for truth.

“What we’re looking for is out there. It exists. We just work to reveal it.”
Dr. Ohad Medalia
Into Unchartered Territory

Dr. Ohad Medalia, a structural biologist, has a whole new way of looking at cells. The 36-year-old scientist’s special approach has already won him numerous prizes and a great deal of professional recognition. Though he had offers from the European Molecular Biology Laboratories at Heidelberg University, the Weizmann Institute and the Hebrew University, Medalia opted for BGU and, in particular, the National Institute for Biotechnology in the Negev (NIBN).

“BGU is the most dynamic university and only academic institution in Israel that is clearly climbing and developing. At BGU, I was able to assume the challenge of establishing an electron microscopy facility that is able to compete with other electron microscopy laboratories around the world,” he enthuses.

Using a unique variation of electron microscopy, Medalia is able to view the three-dimensional organization of a eukaryotic cell without damaging the cell or treating it with chemicals. This means that he can image dynamic structures and view their interaction with different proteins, medicines and chemicals at a molecular level, in a natural state.

Eukaryotic cells are single- or multi-cellular organisms which contain a distinct membrane-bound nucleus. To observe different aspects of these cells, like dynamic organelles, cytoskeletal structure and protein complexes – in their native context – scientists need special tools. They must employ a non-invasive imaging technique of high resolution, combined with a method of arresting cellular elements as they function. A highly advanced form of microscopy, electron tomography (ET), is the answer, according to Medalia. “With its unique potential for 3D visualization of large structures that have the ability to change shape, such as intact cells, ET has revolutionized the way cells are viewed,” he says.

This precise visualization can yield an understanding of how cells build medicines, detergents and other chemicals. Until now, scientists had to rely on viewing “artifacts” of cellular activity, which were not exact.

“To create many medicines today, scientists try to take the structure of ribosomes, the small structures responsible for assembling proteins into chains using amino acids, and check where to build synthetically and to place inhibitors,” explains Medalia. “To do this, the first prerequisite is doing an extraction of the complex, which is problematic. There are structures in the cell that can’t undergo purification, that can’t be treated.”

Medalia solves this problem by practicing structural biology in situ. To do this, he needs to see the structure at a very high resolution. Electron tomography is the only method existing that enables observation of the activity of whole cells at a resolution of only a few nanometers. For this purpose, BGU purchased a Helium-cooled 300kV microscope, the only one of its kind in Israel. Medalia uses this device for his own projects and for cooperative efforts with researchers at the Weizmann and Max Planck Institutes.

Medalia first became acquainted with the prestigious German institute when he was a post-doctoral fellow at the Structural Biology Department in the Max-Planck-Institute for Biochemistry in Martinsried, Germany from 2001 to 2005. During the previous five years, he attended the direct Ph.D. program in Organic Chemistry of the Feinberg Graduate School of the Weizmann Institute of Science. He holds a B.Sc. degree with honors in Chemistry from Tel Aviv University.

Meanwhile, according to Medalia,
push the plasma membrane. Polymerization/depolymerization refers to the chemical process that combines or separates several monomers – simple compounds that can join together – to form or to break down polymers.

Using live cell imaging techniques, it is possible to reveal many of the factors contributing to this dynamic process. However, explains Medalia, due to the dimension of actin filaments and the “crowdedness” of the filamentous network, electron microscopy has been an important tool for analyzing the actin content at cellular protrusions. “Only a 3D view of this network in an unperturbed state could shed light on the secret of cell movement,” he says, adding that a major project in his lab focuses on elucidating another aspect of cell motility: the 3D structure of the adhesion machinery of cells.

Another of Medalia’s main research efforts concentrates on the structural analysis of the nuclear periphery, the nuclear pore complex and the nuclear lamina. The cell nucleus is an extremely complex compartment that is responsible for many processes in a living cell. However, its organization at the nanometer scale still represents what Medalia terms “uncharted territory.” And while much has been learned in recent years about the movement of soluble transport factors across the nuclear pore complex (NPC), high resolution images of the structure of this large macro-molecular machine are still not available. “Since a clear picture of the molecular organization and dynamics of the NPC are basic requirements for resolving the workings of the transport mechanism, a major project in my lab involves acquiring a high resolution image of the structure of these complexes,” he says.

How bacteria carry out photosynthesis constitutes a third major research area. Medalia is collaborating with Dr. Avi Minski from the Weizmann Institute of Science on this project, which is still in the data acquisition stage. Work on this important project is being conducted with a team of five: a post doctoral student, two doctoral students, a graduate student and a technician.

Mедalia modestly belies the fact that he has received a prestigious prize for his research on almost a yearly basis. He was awarded an Alon Fellowship for 2004, the 2003 MPIB Junior Research Award, the Elchanan E. Bondi Memorial Prize for Ph.D. students in 2001, the Rothschild Fellowship in 2001, the European Commission Individual Fellowship in 2001, the Lev Margulis Young Investigators Award of Merit in 2000 and the Wolf Foundation Fellowship for Excellent Ph.D. students in 1998.

Mедalia was a key speaker at a conference celebrating the first anniversary of Israel’s first Nobel Prize in Chemistry, awarded to Professors Avram Hershko and Aaron Ciechanover. At the gathering, entitled “The Science of Ubiquitin and Proteasome,” he spoke on “The structural analysis of macromolecules in eukaryotic cells revealed by cryo-electron tomography.” In addition, Medalia regularly delivers lectures at structural biology-related conferences in Israel and around the world.
Industrial Engineering and Management sounds like a weighty field to the uninitiated, but when discussed by the ebullient young Kreitman Fellow, Sagit Kedem-Yemini, it appears to be a creative and intriguing art.

The field of industrial engineering is dedicated to the improvement of business processes, inclusive of both machines and human personnel in the rapidly changing modern environment.

Quantitative and qualitative approaches to the industry’s future comprise Kedem-Yemini’s area of research. Case studies presently under her supervision encompass even the military industry.

“We are focusing now on the structure of businesses as a whole, rather than as a fragmentation of different departments,” states Kedem-Yemini. Her projects comprise investigation of the term “modularity” – thus far never applied in this particular context. To define the role, characterize the influencing factors on it and provide recommendations to businesses on achieving the desired level of modularity in their departments is her specialty.

Kedem-Yemini offers the advantage of a keen insider’s views after several years of working in industry. Her experience as a project manager in semiconductors, coupled with a constant interest in streamlining and software organization, rendered her an outstanding applicant for the Kreitman Foundation Fellowship program. “I believe that I am now better able to serve industry from the research end, rather than the day to-day inside work,” she says.

A native of Beer-Sheva, Kedem-Yemini left the challenges and rewards of her high-powered industrial engineering position to pursue her doctorate degree at BGU. Her years in the industry ran the gamut from construction of the Intel plant in Kiryat Gat and Tower Semiconductors to co-manager of purchasing, logistics, warehouse and ERP system management to Information Technology Manager. But her background of outstanding achievement and high honors in pursuing her undergraduate and graduate degrees at BGU kept her mentors not merely interested in her post-graduate career, but active in encouraging her to return for her doctorate degree.

“I have found a warm home at BGU,” Sagit confides. Though her exceptional achievements, both in industrial experience and academic performance, ensured her acceptance in the Kreitman program, she attributes much credit to her mentors and to the other Fellows. Twice-monthly meetings and lectures provide her with increased support and direction.

While the Kreitman Foundation Fellowship’s standards are demanding and rigorous, Kedem-Yemini’s unique situation renders the schedule more challenging yet. Unlike most, she balances her classes, research and study with a full family life: four children under the age of ten, the youngest a baby, and a husband who has also opted to change careers. His decision to enter law school after years in
Prof. Ya’akov Blidstein Wins Israel Prize in Jewish Thought

Prof. Ya’akov (Gerald) Blidstein of the Goldstein-Goren Department of Jewish Thought was awarded the 2006 Israel Prize in Jewish Thought.

The prize, Israel’s highest honor, was presented in a special Independence Day ceremony. Incumbent of the Miriam Martha Hubert Chair in Jewish Law, Blidstein immigrated to Israel from the United States with a Ph.D. from Yeshiva University and joined the BGU faculty in 1972. Over the years, he has served in a number of senior positions, including Dean of the Faculty of Humanities and Social Sciences, Chairman of the Goldstein-Goren Department of Jewish Thought and Chairman of the Goldstein-Goren International Center for Jewish Thought. A member of the European Academy of Sciences and Arts, Blidstein is an internationally-renowned scholar in Maimonides’ Halachic law and philosophy, with a special emphasis on political philosophy. His work in Jewish law focuses on Jewish public law and the interface of law and social ethics.

The citation issued by the Ministry of Education, Culture and Sport, noted that “Prof. Ya’akov Blidstein is the outstanding researcher of rabbinic thought from the medieval and modern period. His research into the relationship between democracy and halacha has had a major impact beyond academe, in Israel and around the world.”

“I believe that I am now better able to serve industry from the research end.”

“but it is a help that my husband and I support one another fully. Our respective happiness within our chosen fields makes it easier. He is so delighted with his career-change, and I with mine.”

Industry may have lost a dynamic insider, but the field of Industrial Engineering and Management itself and BGU together stand much to gain by the efforts of this enthusiastic Fellow. And one has to envy her students for the energy, vision and dedication she brings to the classroom.
Excellence Recognized

Prof. Herzl Aharoni from the Department of Electrical and Computer Engineering has been nominated as a Fellow of the Institute of Physics. The Institute is one of the largest international organizations in this field, with 37,000 members worldwide. It is devoted to increasing the understanding and application of physics. It believes in and promotes ethical integrity in all scientific activity, including education, research, publication and the exploitation of knowledge. Prof. Aharoni was recognized for his achievements over 40 years in the fields of physics and technology. He specializes in microelectronics and new process development of semiconductor electronic materials and devices.

Aharon Appelfeld, professor emeritus of the Department of Hebrew Literature, was awarded the prestigious Nelly Sachs Prize in Dortmund, Germany. The prize is named after the Jewish author Nelly Sachs, who was awarded the Nobel Prize in Literature in 1966 with S.Y. Agnon. The citation lauded Appelfeld for his literary efforts toward international understanding. The judges noted that Appelfeld’s wide literary works “advance spiritual tolerance and appeasement as the principles of peaceful co-existence.” This year, Prof. Appelfeld also received the insignia of Commander in the Order of Arts and Letters from the French Republic, established in 1957 by the French Minister of Culture in recognition of outstanding achievement in the arts and literature.

Dr. Gonen Ashkenasy of the Department of Chemistry has received the prestigious Career Development Award of the Human Frontier Science Program (HFSP). Ashkenasy did his post-doctoral training at the Scripps Research Institute in California, working with novel assemblies of peptides. His research concentrates on de novo functional peptides and proteins. The HFSP supports novel, innovative and interdisciplinary basic research focused on the complex mechanisms of living organisms. It encourages novel collaborations that bring biologists together with scientists from fields such as physics, mathematics, chemistry and computer and engineering sciences to focus on problems at the frontier of the life sciences.

Prof. Dan Bar-On from the Department of Behavioral Sciences, together with his research partner Prof. Sami Adwan from Bethlehem University, was recognized by the European Association for the Education of Adults (EAEA) with a special Grundtvig Award for “active citizenship for a democratic society.” The EAEA is a European NGO with 115 member organizations from 40 countries working in the field of adult learning and representing more than 50 million learners Europe-wide. According to the EAEA, their project “proves that in spite of the ongoing violent conflict and the tremendous obstacles, the sides involved can develop enough trust and hope to co-operate and jointly create a product that may promote peaceful co-existence between the sides.”

Dr. Edna Monselise Ben-Izhak of the Department of Chemistry has received the Recanati-Chais-Rashi Award for the Entrepreneur Teacher in recognition of her contribution to the advancement of special needs children. The award is given to those teachers whose work reflects ability and achievement over and above dedication and competent performance of the standard curriculum and who have succeeded in developing unique initiatives which apply effective responses to the problems and challenges arising from the complex and ever-changing reality of today’s schools. Dr. Ben-Izhak initiated the “green classroom” for her pupils, instilling in them the principles of ecology and environmental sciences which has enhanced the quality of life in their community.

Prof. Sammy Boussiba, head of the Microalgae Biotechnology Laboratory at the Jacob Blaustein Institutes for Desert Research and incumbent of the Miles and Lilian Cahn Chair in Economic Botany in Arid Zones, was appointed President of the International Society of Applied Phycology (ISAP), a nonprofit organization that aims to promote research, preservation of algal genotypes and dissemination of knowledge concerning the utilization of algae. A member of the Albert Katz Department of Dryland Biotechnologies, Boussiba focuses on the mass production of microalgae for various commercial purposes, utilizing the high temperature, brackish or sea water and solar irradiance that abound year round in the desert.

Prof. Sami Adwan from Bethlehem University, was appointed President of the International Society of Applied Phycology (ISAP), a nonprofit organization that aims to promote research, preservation of algal genotypes and dissemination of knowledge concerning the utilization of algae. A member of the Albert Katz Department of Dryland Biotechnologies, Boussiba focuses on the mass production of microalgae for various commercial purposes, utilizing the high temperature, brackish or sea water and solar irradiance that abound year round in the desert.
Prof. Abe M. Baruchin of the Faculty of Health Sciences and Chief of the Aesthetic & Laser Surgery Unit at Barzilai Medical Center in Ashkelon, has been chosen President-elect of The International Society for Laser Surgery and Medicine (ISLSM) and re-elected as Secretary-General for two additional years. The ISLSM was founded in Tel Aviv in 1975 and was the first society of its kind. Since then, many medical laser societies have been formed. The ISLSM holds its meetings every two years, each time in a different country.

Dr. Yoram Etzion of the Faculty of Health Sciences and the Department of Internal Medicine at the Soroka University Medical Center and Director of the Cardiac Arrhythmia Research Laboratory, received the 2006 Neufield Award of the Israel Cardiology Society for work on understanding the mechanisms that change the electrical function of the diseased heart that may lead to the development of cardiac arrhythmias. The prize is given each year to a physician for innovative research in the field of cardiology.

Dr. Michal Hershinkel of the Department of Morphology in the Faculty of Health Sciences and the Zlotowski Center for Neuroscience and incumbent of the Ilse Katz Career Development Chair in Health Sciences Research, has received research grants for her work in zinc homeostasis and brain development. First, she received the Bergman Bi-national Science Foundation Award – in addition to a regular BSF grant. The award is granted to young researchers “whose proposals are judged to be of exceptional merit” by the BSF. She has also received two major grants from the Israel Science Foundation – one for research and another for equipment, as well as a grant from the National Institute for Psychobiology in Israel, an organization with the goal of “identifying workers engaged in promising research in psychobiology in Israel.”

Prof. Aharon Galil, Director of the Zusman Child Developmental Center at the Faculty of Health Sciences, has been honored by the Keren Shalem Fund for his original program that helps medical students learn to work with special needs patients. The Fund’s annual award is given to honor contributions to services for the developmentally disabled in communities across Israel. Created ten years ago, the week-long course helps students at the Joyce and Irving Goldman Medical School understand the sensitivities of special needs patients.

Prof. Haim Belmaker from the Faculty of Health Sciences and incumbent of the Hoffer/Vickar Chair in Psychiatry, was elected President of the International College of Neuro- psychopharmacology, an association of about 1000 members from 57 countries. About one-third of the members are psychiatrists, a third are laboratory researchers of drug effects and a third are research psychologists. The organization promotes development of new medications for the treatment of mental and emotional disorders and scientific evaluation of existing treatments. The CINP consults with the World Health Organization in setting goals and standards for medication treatment of emotional and behavioral disorders. There are 16 members in Israel.

Prof. Joseph Kost from the Department of Chemical Engineering has received an award from the Jacqueline Seroussi Foundation for his innovative research on a new method for treating breast cancer. His research focuses on developing gene-based treatments of cancerous growths. The Jacqueline Seroussi Memorial Foundation for Cancer Research is a non-profit entity, established in Israel by the AJAX Trust to encourage, on an international level, laboratory and clinical investigators whose research efforts are directed to that of malignant disease.

Prof. Yigal Ronen, Dean of the Faculty of Engineering Sciences and a member of the Department of Nuclear Engineering, has been selected as a foreign member of the prestigious Russian Academy of Engineering. Ronen serves as the Vice-President of the International Euroasian Academy of Science and President of the Israel Nuclear Society. His research interests include theory and concepts of nuclear reactors and transport theory. At BGU, he has served as Dean of the Kreitman School of Advanced Graduate Studies and as Vice-Rector.
Summer Celebrations

The largest graduating ceremonies in the University’s history took place as 5278 new graduates received their Bachelors and Masters degrees. The breakdown by Faculty is as follows: Humanities and Social Sciences, 2151; Natural Sciences, 480; Engineering Sciences, 1238; Health Sciences, 510; School of Management, 864; and 35 graduates who received their Masters degrees from the Albert Katz International School for Desert Studies at the Blaustein Institutes for Desert Research. A record number of Doctoral degrees were conferred as 208 graduates received their Ph.D.s from the Kreitman School of Advanced Graduate Studies. The degree recipients included 73 from the Faculty of Humanities and Social Sciences; 45 from the Faculty of Engineering Sciences; 37 from the Faculty of Health Sciences; 6 from the School of Management; and 7 from the Interdisciplinary Studies program.

At the ceremony of the Joyce and Irving Goldman Medical School, 59 new doctors from the 24th graduating class received their M.D.s, including Dr. Rania Okabi, who is the first female Bedouin to become a medical doctor. At the same ceremony, 70 students of the 32nd incoming class took the Physician’s Oath.

Twenty students graduated from the Faculty of Health Science’s Medical School for International Health (MSIH) in collaboration with Columbia University Medical Center. The MSIH is a unique collaborative medical degree program designed to train doctors for the practice of global health.
Dalai Lama Receives Ben-Gurion Negev Award

His Holiness the 14th Dalai Lama of Tibet, Tenzin Gyatso, the exiled Buddhist leader and Nobel laureate, visited BGU in February. He was presented with the Ben-Gurion Negev Award as a symbol of his pioneering spirit like that of David Ben-Gurion. The Dalai Lama was recognized as: “an exemplary individual who has remained steadfast as a guardian of ancient traditions and heritage and a symbol of hope and faith; and in acknowledgement of the laureate of the Nobel Peace Prize in 1989, who has led the people of Tibet for more than half a century in the quest for universal responsibility, solidarity, tolerance and mutual understanding and respect.”

Honorary Professorship for Prof. Broelsch

An Honorary Professorship in the Faculty of Health Sciences was presented to Prof. Dr. med. Christoph E. Broelsch, FACS, Chairman of the Department of General, Visceral and Transplantation Surgery at the University Hospital of the University of Duisberg-Essen in Germany. Prof. Broelsch is one of the pioneers in the field of living-donor transplantation procedures, especially of the liver. During his visit to the Faculty, Prof. Broelsch delivered the keynote lecture at the conferment ceremony of M.D. degrees on the subject of “The Development of Living-related Liver Transplantation Procedures – The First Two Decades.”

Honorary Doctorate for Claude Lelouch

The renowned French film producer and director Claude Lelouch was awarded an Honorary Doctoral Degree at a ceremony that took place as part of the “Jewish Eye” World Jewish Film Festival held in Beer-Sheva for the first time.

Lelouch, winner of a prestigious Palm d’Or and a Grand Prix Award at the Cannes Film Festival and two Academy Awards for Best Original Screenplay and Best Foreign Film for A Man and a Woman, has figured prominently as one of the most popular and influential filmmakers in Europe.

Over the years, he has returned repeatedly to Israel, where he also filmed scenes for two of his films. The University recognized his cinematic achievements and acknowledged the “son of Jewish immigrants to France, who retains a special affinity to Israeli cinema, to Israel in general and the Negev in particular.”

Claude Lelouch

The 14th Dalai Lama of Tibet

Prof. Christoph E. Broelsch

Composite
Nostalgia was in the air at the first comprehensive reunion of the alumni of the Department of Industrial Engineering and Management, organized by the Department together with the BGU Alumni Association. The gathering included the alumni of every graduating class since the Department’s founding in 1973. From the earliest graduates to those who only recently left campus, the visitors enjoyed a tour of the Marcus Family Campus and the Department’s impressive new laboratory and research facilities. The alumni were keen to learn about developments at the Department and the University, but first and foremost, they wanted to chat with classmates and teachers. Much attention was drawn by the Class Photos and by the several retired faculty members and administrative staff who came to honor the gathering. Prof. Nachum Finger, a former chairman of the Department, and former BGU Rector, welcomed the participants, being the link between the first graduating class – when there were 23 graduates – and the most current one, with approximately 230 graduates. He presented an overview of the development of the Department since its establishment in 1969. BGU Deputy-Rector, Prof. Yael Edan, a former chairperson of the Department, reviewed together with Prof. Gad Rabinowitz the academic development of the discipline and its impact on the curriculum, noting the important part played by the graduates in the development of the hi-tech industry in Israel. The 4,000 graduates of the Department are a significant component of Israel’s highly skilled engineering and managerial resources and many graduates already hold important leadership roles in the country’s economy. Rector Prof. Jimmy Weinblatt lauded the quality of the Department and its role in the development of the University, being an important incubator of the disciplines of Hotel and Tourism Management, the School of Management and the Departments of Communication Systems Engineering and Information Systems Engineering. An international evaluations committee recently placed the Department among the top Industrial Engineering departments in the world.

Entertainment at the event included music provided by an all-alumni band and concluded with a karaoke competition.