IMPACT

AMERICAN ASSOCIATES
Ben-Gurion University
of the Negev

SPRING 2013

DESERT AGRICULTURE

TEACHING TOURISM

NANOTECHNOLOGY ADVANCES MEDICINE

CANCER-SNIFFING DOGS

STUDENTS AS EMERGENCY VOLUNTEERS

LEADING THE WAY TO STEM DESERTIFICATION

BY LLOYD GOLDMAN
AABGU PRESIDENT

I sometimes think I can see BGU's pioneering spirit alive in the buildings themselves, every one of them standing as part of David Ben-Gurion's vision to transform the desert. Inhabiting each, on a daily basis, is a world of learning and research. This work helps improve life for people in the Negev and the rest of the world, too.

This issue of *Impact* focuses on an early and continuing goal: To decrease the sprawl of drylands and make the desert more sustainably hospitable to human life. For nearly four decades, scientists at the Jacob Blaustein Institutes for Desert Research have steadily learned how to make the most of available water supplies and grow an astonishing range of plants and crops in the arid climate. I'm sure you'll be as fascinated as I am to read the update on how the newest, but also the oldest, technologies are making the desert more fruitful.

At another extreme, the young Ilse Katz Institute for Nanoscale Science and Technology works on the inconceivably small scale of the nanometer. You'll learn how 11 teams of researchers are collaborating to build the world's first nanosystem that will deliver drugs directly to targeted parts of the human cell. Success of this five-year, government-funded project could transform healthcare treatment universally.

Read how BGU's award-winning tourism department is producing well educated, versatile managers for Israel's burgeoning tourist industry. And don't overlook the chance to meet some of the BGU students who pitched in to help the municipality of Beer-Sheva during Operation Pillar of Defense. They gained as much from their service as they gave during this stressful period, they say, and notably contributed to strengthening a warm city-campus relationship that continues to set BGU apart from all other universities.

Have a comment? I want to hear it. Send a note to **Impact@aabgu.org**.

IN THIS ISSUE

ON THE COVER: A grove of young olive trees in Wadi Mashash, BGU's experimental desert farm, benefits from ancient techniques that use flash flood waters. This flood occurred in December 2012. Story begins on page 15.

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BGU'S MRI AND FACULTY EVALUATE ARIEL SHARON'S BRAIN FUNCTION

WHEN MEMBERS OF THE AABGU community learned that there was only one MRI machine serving Israel's total southern population of 550,000, as well as the research needs of BGU, they took action. The 3 Tesla (3T) MRI, now the most powerful in Israel, was purchased last year by AABGU for BGU's Brain Imaging Research Center at Soroka University Medical Center.

> "It is important that these new techniques be available in Israel for the large number of patients considered to be in a vegetative state."
>
> — PROF. ALON FRIEDMAN

It was here that former Prime Minister Ariel Sharon was brought for testing in January.

Sharon has been presumed to be in a vegetative state since 2006 due to a brain hemorrhage. However, these recent tests, conducted by neuroscientists who included faculty from BGU, showed that he still has significant brain function.

During the test, scientists showed Sharon pictures of his family, had him listen to his son's voice, and used tactile stimulation to assess the extent of his brain's response to external stimuli. To their surprise, significant brain activity was observed in each test in specific brain regions, indicating appropriate processing of these stimulations.

"We were surprised that there was activity in the proper parts of the brain," said Prof. Alon Friedman, a neuroscientist who heads BGU's Zlotowski Center for Neuroscience and a member of the team that carried out the test. "It raises the chances that he hears and understands, but we cannot be sure."

Additional tests were performed to assess Sharon's level of consciousness. While there were some encouraging signs, these were subtle and not as strong.

According to Prof. Martin Monti from the Departments of Psychology and Neurosurgery at the University of California Los Angeles, who developed the testing methods, "information from the external world is being transferred to the appropriate parts of Sharon's brain; however, the evidence does not as clearly indicate whether he consciously perceives this information."

Prof. Friedman adds, "It is important that these new techniques be available in Israel for the large number of patients considered to be in a vegetative state. Knowing what sensory channels are intact in these patients is crucial for the family and the treating team to stimulate and interact with them."

The MRI was made possible due to the generosity of the Skirball Foundation in New York, Jacob Shochat of Mahwah, New Jersey, and an anonymous couple and other donors from AABGU's Greater Texas Region. ■

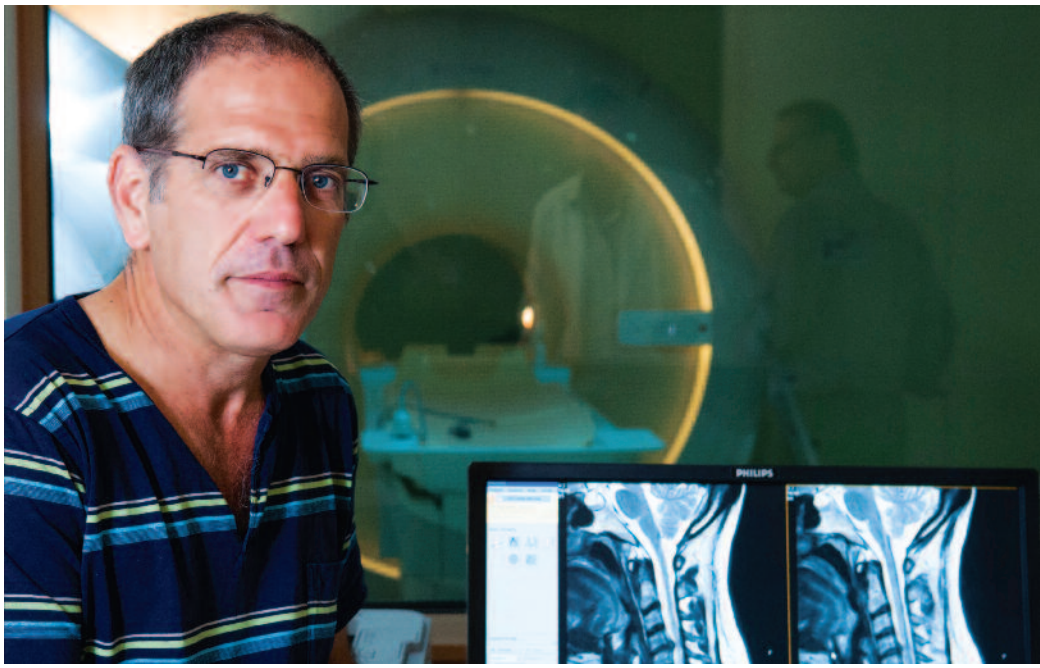

Photo: Prof. Alon Friedman, head of BGU's Zlotowski Center for Neuroscience, with MRI machine used to scan Ariel Sharon's brain

BGU LAUNCHES STEM CELL RESEARCH CENTER

BUILDING ON THE UNIVERSITY'S extensive medical and biotechnical research and expertise, BGU is establishing the Center for Regenerative Medicine, Cellular Therapy and Stem Cell Research. The center's work promises to help treat and potentially cure debilitating diseases, such as multiple sclerosis, diabetes, ALS, Parkinson's, and leukemia.

The center will expand upon the University's current accomplishments in the fields of medicine and biotechnology. It will also centralize all relevant work on campus, grouping together designated researchers from multiple departments, including biotechnology engineering, chemistry, life sciences, and various departments from the Faculty of Health Sciences. Additionally, new faculty and staff will be recruited who specialize in regenerative medicine, cellular therapy and stem cell research, further strengthening the University's efforts in these important fields.

Three major multidisciplinary research programs will comprise the work of the center. Its basic research program will explore the development of bioengineering tools for regenerative medicine, particularly for inducing tissue regeneration, as well as engineering and designing biomaterials and bioreactors.

> The center will expand upon the University's current accomplishments in the fields of medicine and biotechnology.

The drug discovery program will study the pharmacological impact of these agents, in vivo, using relevant animal models of disease. The ultimate aim is to generate viable drug candidates for clinical testing.

Finally, the therapeutic development and application program will examine the efficacy and safety of stem cell or drug-based therapies and their clinical translation for cardiovascular and neurological diseases.

This new center, directed by Prof. Smadar Cohen of the Avram and Stella Goldstein-Goren Department of Biotechnology Engineering, will position BGU as a world leader in regenerative medicine and stem cell research and applications. Cohen's award-winning innovation using algae to prevent cardiac tissue damage following acute myocardial infarction is now in clinical trials.

Dr. Rhoda Baruch, a founder of AABGU's Washington-Baltimore

Top Photo: Prof. Smadar Cohen, founder of the Center for Regenerative Medicine, Cellular Therapy and Stem Cell Research

Region, recently established the Jordan Baruch Stem Cell Research Fund in memory of her late husband (see page 6). The fund will support the center's work by fostering collaborations between selected medical and pharmacological researchers, stem cell biologists and tissue engineers.

Housed in the new state-of-the-art building for Biotechnology Engineering and Environmental Engineering, to be completed in the summer of 2014, the center will occupy an entire floor. It will contain nine research laboratories in addition to offices, meeting rooms, computing facilities, and various service areas.

For more information about the center and funding opportunities, contact your local AABGU regional office.

A NEW GENERATION OF LEADERS

BY DORON KRAKOW, EXECUTIVE VICE PRESIDENT

FEBRUARY 14 marked the first cohort's completion of AABGU's groundbreaking Zin Fellows Leadership Development Program. The 14 fellows, chosen from a pool of candidates from across the country, began their journey in September 2011. The program's goal was to provide the fellows, all between 35 and 50 years old, with an immersion into the issues confronting the development of Israel's Negev desert region, in hopes of inspiring them to take on leadership roles in furthering its development in the years ahead.

The impetus for the program came from AABGU Board Vice President Wayne Woodman. He asked us to design an initiative that will help fill the leadership pipeline for AABGU, a pipeline that will ensure that our support for Ben-Gurion University of the Negev will not simply continue in the years ahead, but will grow in both scope and magnitude. Wayne played a leading role in creating the program. Funding quickly followed, provided not only by Wayne and his wife, Lisa Scheller, but also by a host of others.

Why Zin? The name was taken from the desert canyon near Sede Boqer, home of the Jacob Blaustein Institutes for Desert Research at BGU.

It is also the place David Ben-Gurion chose to be buried after his death. The gravesite sits on a cliff-side overlooking the Zin wilderness, through which the children of Israel came following the Exodus from Egypt. They had been made to wander for 40 years so that the generation which bore the mentality of slaves would fade and a new generation of leaders could arise in their place—a generation ready to take the Jewish people back to the Promised Land. For David Ben-Gurion, who believed that the most important decision he had made in his life was to move to Israel, there could be no other option.

For 18 months, with the help of BGU's remarkable faculty, the Zin fellows learned about the region's history, the rise and fall of its civilizations and the process by which it became an integral part of the Zionist dream. They explored its topography, its diverse populations, and how science is driving its development as a living laboratory for discovering how to make the world's arid zones more hospitable for human habitation. They examined the current approaches to education and social welfare, and delved into the region's security challenges in the aftermath of attacks from the Gaza Strip.

The program's culmination took place in Israel. By its final day, the essence of the matter was clear. The future of Israel will largely be defined by how successful we are in the Negev, which comprises roughly 60 percent of the State and yet is home to fewer than 10 percent of its people. It is here that much of the unfinished work of nation-building lies—and where the pioneering of Israel's future continues unabated. Ben-Gurion University is the engine driving this development.

In his introduction to a 1961 book chronicling 6,000 years of Negev history, David Ben-Gurion wrote: "The transformation of the Negev into a center of agriculture, industry, mining, commerce, learning, and research, and as a bridge of trade and political ties between the continents of Africa, Asia and Europe, is the central pioneer task of this generation of Israelis and of world Jewry." That work continues. And now a new cadre of leaders will lend their skills and dedication to making this vision a reality.

Perhaps Rob Mann, a Zin fellow and business and Jewish community leader in Chicago, put it best. He told us that even upon arriving in the Negev for the program's final week, he still wasn't certain what he was doing there. But by its final day he knew.

"I'm a Zionist," he said, for the first time in his life. "Where else should I be?" ■

RHODA BARUCH
CHEVY CHASE, MD

WALKING THE EXTRA MILE

TO EXPLAIN why she and her late husband Jordan cared so much about BGU for more than three decades, Dr. Rhoda Baruch goes back to the couple's early history.

They married four years after meeting as Brooklyn College freshmen. In 1942, Jordan dropped out to enlist in the Army, where he served in both the European and Pacific theaters. When the war ended, he was sent on a special assignment to Japan to repair telecommunications equipment.

He returned in 1946 with a box of medals—ready to resume studies at MIT, where he had received special training courtesy of the Army—but housing was short. He and Rhoda found an attic room with kitchen privileges and the young couple began "making do." But Jordan soon became ill with terrible symptoms.

"It was very frightening," Rhoda recalls. "I called the doctor at the MIT infirmary. He drove right over. It took a few trips up those stairs to confirm what he suspected, that Jordan had contracted malaria. He went so much beyond the line of duty. And one of the professors came in every single day so Jordan could keep up with his studies.

"We recognized that BGU, like MIT, is the kind of place where the faculty, the researchers, the medical staff—everyone walks that extra mile to support people and do something special.

"What the people of BGU have in addition to their brilliance and creativity is a sense of compassion and dedication that touched us so much."

Rhoda's most recent trip to Ben-Gurion University confirmed that feeling once again, she says, and gave her the opportunity to share it with her whole family. The occasion was a special ceremony to dedicate the Jordan Baruch Stem Cell Research Fund, established by Rhoda in honor of her husband, who passed in 2011, after sharing 67 years of marriage.

"I brought 20 members of our family," Rhoda says. "They were thrilled with the memorial and with Israel, which made me very happy. And all were so impressed with BGU—the concern for members of the community, the research into water use, the robotics work—they were dazzled."

Drs. Rhoda and Jordan Baruch (pronounced Bah-ROOSH) became involved in AABGU in the 1980s. "The Washington, D.C. chapter was born in my living room," Rhoda explains. "A close friend arranged a parlor meeting and the chapter just grew from there."

Jordan remained an active member for the rest of his life and Rhoda continues to serve on the regional board. They have been generous supporters and created the Mendel Wasserman Career Development Chair in Desert Studies, named for Rhoda's father.

Jordan and Rhoda both enjoyed remarkable careers. Jordan was known for a dizzying brilliance that made him an innovator and leader in many fields. He became an electrical engineer with three degrees, who did pioneering work in acoustics research. He consulted to the National Institutes of Health and the American Hospitals Association, designing new medical equipment and working toward computer systems for hospitals and universities at a time when computers barely existed.

He taught electrical engineering at MIT, business management at Harvard, and both subjects at Dartmouth. Participating in a government seminar on innovation led to his appointment as assistant secretary of commerce for science and technology under the Carter administration. He was instrumental in establishing China's first management school and helped strengthen United States business ties with China. He also helped create a research foundation to promote economic development between the U.S. and Israel. When he left Commerce, Jordan established a consulting firm that supported the integration of strategy and technology in developing countries.

Rhoda, for her part, earned a doctorate in psychology and worked at Harvard, Dartmouth and the George Washington University School of Health. Concerned with how to promote mental health awareness, she founded the Institute for Mental Health Initiatives and accomplished groundbreaking work in connecting with the media and making mental health part of the public health environment. She also co-wrote a book, *Creative Anger*, published in 2007.

In Rhoda's perspective, both her husband's lifework and her own lead back to their reasons for supporting BGU.

Jordan shared David Ben-Gurion's dream to make the desert bloom—"not in the ordinary sense, but to see things like algae grow, and be brilliantly used for medical treatments. In my own research on resilience—the yin and yang of it—I see that to overcome adversity we need the challenge, but also the special kind of help that we see in BGU. It gives the support that fosters resilience. We have to help them with it." ■

LARRY GOODMAN
CHICAGO, ILLINOIS

HELPING BGU AND BEER-SHEVA GROW TOGETHER

LARRY GOODMAN sees a lot of synergy between Ben-Gurion University of the Negev and the city of Beer-Sheva. Acting on this conviction, he chose to adopt both.

"Twelve or 13 years ago I was looking for a place in Israel where I could be helpful," he recounts, "and saw a number of projects. I visited BGU and was very impressed with the University and its growth, and the potential I saw there.

"I have a propensity for doing things that make a real difference. So I started supporting the University and then Beer-Sheva because I feel the city and the University are one."

The city—which has doubled in size since that time—could not have become so successful without BGU, he points out. At the same time, the University needs a vibrant Beer-Sheva. Without its infrastructure and cultural opportunities, Goodman believes, talented people might not come to BGU.

In line with this belief, he was the major donor to the new Ben-Gurion University train station, which makes the city and campus more accessible to Tel Aviv and other cities.

Through the Lillian and Larry Goodman Foundations, Larry also provided major funds for the Engineering Administration Building, and, most recently, the Lillian and Larry Goodman Open Apartments Program, which was named for him and his wife and close partner, who passed in 2009.

Goodman feels especially attached to this program, which gives students free housing in poor neighborhoods in return for volunteer work in those communities. He "accidentally" connected with Open Apartments at its outset, he explains, because a BGU staff member told him during a visit one day about the idea for such a program if housing could be found. That night he dined with a member of Israel's Ministry of Housing and prevailed upon him to locate available apartments.

Seventy-three apartments are in use today. "The program helps not just the students, but the entire community," he says. "It improves the city's makeup and culture and the lives of children and families."

Goodman also supports Soroka University Medical Center, another asset for both BGU and the community. And for Beer-Sheva, in line with his desire to promote culture and social service along with education, the Foundations funded the Ilan Ramon Play Park and buildings for the Bat Dor Dance Company, the Lillian and Larry Goodman Theater and Acting School and the Lillian and Larry Goodman Child and Family Center, now being expanded for the third time.

Larry takes satisfaction from these projects' direct impact on BGU. "I've spoken with professors who wouldn't take the job without some of the features—one wanted to know if there was a dance school, another one asked about an acting school. And the family center is important to many people."

Goodman's initial career was in retailing. After serving in WW II, he founded the Community Discount Stores, a forerunner of the modern self-service department store. He built a 35-store chain over 17 years, then sold it and founded a commercial real estate firm, the Goodman Group and American Asset Management Services. The company operates office buildings and shopping centers in seven states.

Today, he spends half his time running the business and the other half actively directing the Foundations. He is proud that several of his grandchildren are involved in them as board members. In addition to the Negev projects, the Foundations fund Jewish causes, hunger relief and drug abuse prevention in the United States.

To Goodman, using his business earnings this way makes basic sense. "If you're fortunate enough to have some wealth, you don't have much choice what to do," he says. "So if you have a feeling you want to leave this place somewhat better than you found it and are able to afford it, why not?"

Larry is a member of BGU's Board of Governors and the recipient of an honorary doctorate. Among his many philanthropic roles, he chairs the American Friends of the Beer-Sheva Foundation. The municipality of Beer-Sheva has expressed its appreciation for what he has contributed with a lifetime achievement award presented last year at an event attended by more than 1,000 people.

"BGU's growth into a world class university has been phenomenal. I contribute to BGU because it's a great learning institution filled with accomplished staff throughout all the disciplines.

"I get a lot of satisfaction out of working with all of our partners in Beer-Sheva. Together we are fulfilling David Ben-Gurion's dream to enrich the Negev region." ■

JESSICA SILLINS
NEW PALTZ, NEW YORK

FINDING A UNIVERSITY TREASURE TROVE

ELEVEN YEARS AGO, an associate of AABGU reached out to the Sillins family knowing of their connections in the hotel industry. BGU's new Department of Hotel and Tourism Management needed help in securing student internships in New York City hotels.

"That's how I got started with BGU," says Jessica Sillins. "I was not familiar with the University at the time, yet once I became more intimately involved, I was excited by the program and the opportunity to spend time with the students, and to learn more about the hospitality program. I am now a great lover of the University and all it has to offer."

Jessica has remained directly involved with BGU's internship program ever since. She organizes placements in New York City area hotels by working with the hotel owners, general managers and students on the daily logistics, visas, housing, and program coordination. Twelve students come each summer and stay three-and-a-half months. She has mentored more than 100 students since the program—which commemorated its 10th anniversary this past fall—began.

"I'm there 100 percent if they need anything, but I encourage them to figure things out themselves. The challenges of life in New York City and working in the internship program are all part of the learning experience."

She takes satisfaction in the success of the Department of Hotel and Tourism Management (see page 13), part of the Guilford Glazer Faculty of Business and Management. "The program has become world-renowned and that's creating a lot of enthusiasm and pride among the young Israelis. It has lifted their vision. For me, it's inspiring," she says.

Jessica is chief executive officer of BTP Real Estate, LLC, a real estate investment and management firm in Manhattan. As a board member of The Robert Sillins Family Foundation, founded by her uncle, she also has several other philanthropic interests.

"I prefer to be actively involved with my charitable endeavors. I always want to know more about organizations we support," she says. "When I can work intimately with an organization I get a better sense of what I can do as a philanthropist. BGU was very welcoming." She says she discovered "a treasure trove" at BGU.

"As I grow and change, so do my interests. The University allows me to keep learning: Women's issues, the Bedouin community, environmental studies, solar research, and water research—they really excite me."

She has found projects to support that align with these interests and that would not happen without funding: scholarships for BGU's first Ethiopian woman Ph.D. and for Bedouin women; programs at the Center for Women's Health Studies and Promotion; sponsorship of the Israeli-Jordanian Academic Emergency Medical Collaboration and of the biannual desertification conference at Sede Boqer.

"I love that there are so many ideas across the board I have access to, from business to science to women's issues to global issues."

Jessica brought her hands-on style of giving to AABGU as well. In 2006 she became co-chair with Lite Sabin of the Greater New York Region, a role she maintained for five years. She joined the national board in 2007. She currently serves as a vice president.

Her models "for giving outside yourself" were her parents, she says. "If you can't give financially, giving of your time can be even more fulfilling. They have been mentors and models for living a life that includes charity, in a big way."

She finds board work satisfying: "It's always a learning experience and allows me to become more connected with the organization I am serving."

Jessica, who is raising a six-year old with her partner in New Paltz, New York, as well as working fulltime and handling her other commitments, has visited BGU three times.

"I always long to go more often than I'm able. I love it. It's an incredible place. It's like being a kid in a candy store—I am given incredible access and become reacquainted with the students and the University each time I visit." ■

URI KARTOUN: TURNING ROBOTICS INTO DATA MINING

DR. URI KARTOUN discovered a passion for robotics as a BGU undergraduate. Three degrees later and with some engineering experience under his belt, he turned his specialized knowledge to one of the 21st century's major challenges: how to make sense of huge masses of data.

Uri first studied accounting and economics at The Hebrew University, but after a year moved to BGU. "The social life of BGU was a main reason," he acknowledges. But once he'd joined the Department of Industrial Engineering and Management, there were robots.

"Working with the equipment, integrating virtual reality into my robotics was fascinating and amazing. So I decided to continue with my master's and Ph.D., focusing on collaborative human-robot learning. In this type of system, the robot performs a task and learns by interacting with the environment. But if it doesn't learn fast enough, it asks for human intervention."

BGU lived up to all his expectations. He worked on a variety of robots under excellent advisors. During his doctoral experience he decided to experiment inside a research organization and secured a one-year internship with Washington Hospital Center's R&D lab.

"We worked on implementing technology into health care, experimenting with robots to carry equipment and track it in real time, and on developing software for new mobile devices."

When he finished his Ph.D. at BGU, Uri wanted to return to the

In March of this year, Uri accepted a post as research fellow at Massachusetts General Hospital's Shaw Laboratory, working also with Harvard.

Center's lab. But it was now part of Microsoft, which had launched a robotics unit. He accepted an internship there, then moved into a full-time job for four years. Working on medical informatics at Microsoft's Health Solution Group proved exciting, but as an industrial engineer, he found his research prospects limited.

"I wanted to innovate on my own—to be the guy who brings the ideas. So I started to get into machine learning, a sub-domain of artificial intelligence that works to make sense of large data sets and understand them better."

Uri started experimenting on weekends, without any specific direction, but soon turned his attention to one of his own new concerns—how to invest money, which he was earning in more quantity than he'd been used to.

After some experimentation, he invented his own mathematical method for combining a number of specifications to evaluate investments in terms of risk, ratings, investment style, and other factors. The financial instruments can include bonds, stocks, mutual funds, or ETFs (exchange-traded funds).

The system functions like a search engine, Uri says, and is easy to use so that even unsophisticated investors can make better decisions. "It's like an advisor tapping you on your shoulder, saying here are other opportunities—take a look."

The system worked so well for him that he founded a company called Stockato and began looking into ways to bring his search engine to the market. He successfully patented his invention in August 2012, and promising conversations with investment companies followed.

"They found my search methods unique and sophisticated," Uri reports, "but identifying the direct commercial value was hard. I saw how completely you have to focus on developing a new company, and how risky that is. The experience was fascinating—and it helped me decide that my next career stage would be a move back to academia."

He specifically hoped to return to developing medical information systems.

In looking for a suitable post-doctoral position, he gave talks about applying his algorithms to healthcare at institutions, including MIT, IBM Thomas J. Watson Research Center and Harvard Medical School. In March of this year, Uri accepted a position as research fellow at Massachusetts General Hospital's Shaw Laboratory,

Continued on page 30

THE INTERNIST AND HIS CANCER-SNIFFING DOGS

URI YOEL, M.D., a 43-year-old specialist in internal medicine and instructor in BGU's Faculty of Health Sciences, conducts research on the ability of dogs to smell cancer. His finding: there is no doubt that dogs can differentiate the smell of cancer cells from non-cancerous cells in cell cultures.

> "Our research proves that dogs can smell cancer cells in vitro, and that different types of cancer share the same smell print."
>
> —DR. URI YOEL

This research project, like so many others, was born of serendipity. During Dr. Yoel's residency, his advisor, Prof. Pesach Shvartzman, incumbent of the Mayman Chair in Family Medicine, invited him to join an investigation into dogs' capacity to detect cancer. The project was the idea of a family friend, a dog trainer, eager to extend his subjects' skills to beyond sniffing out drugs and explosives.

The concept of using the sniffing ability of dogs to detect cancerous cells first emerged a decade ago in an article in a medical journal about a woman who discovered she had melanoma when her dog repeatedly barked at her tumor. This set off a tidal wave of letters from readers who had had similar experiences.

"In the case of lung cancer or melanoma this did not come as a great surprise, as it made sense that the cancer could be smelled on the patient's breath or skin. Regarding other forms of the disease, like breast cancer, it was less evident," says Yoel. "All smells leave a molecular footprint, but with something like breast cancer it was hard to understand how this worked."

Yoel volunteered to enter the project. First, the two canine participants were taught to smell and detect cell cultures originating from malignant breast cancer and to differentiate them from non-cancerous cell cultures. When the dogs were ready, they were tested for their ability to find one malignant cell culture plate located between four other non-cancerous cell culture plates.

The experiment raised fascinating questions: Do all cancers share a common smell or do different forms of the disease have distinct odors? Are the dogs detecting material from cancer cells themselves or the body's reaction to the disease, in the form of necrosis or inflammation?

And while Yoel wanted the animals to scan all types of cancers, the dogs would identify one form and ignore another.

"We checked this with in vitro cell cultures of breast and lung cancer and melanoma. It was logical that if the dogs respond to cell cultures, they are reacting to the smell of the cancer itself," says Yoel.

The dogs were taught to smell breast cancer cell cultures, but were also tested for their ability to recognize lung cancer and melanoma. They scored a perfect 100 percent in all cases.

"Our research proves that dogs can smell cancer cells in vitro, and that different types of cancer share the same smell print. Again, we cannot know for sure if, in vivo, the dogs are reacting to the cancer itself or to the body's reaction to it. I think that the cancer itself has a special smell print the animals detect, though it may be a combination of the two factors."

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SMALL SOLUTIONS TO BIG CHALLENGES

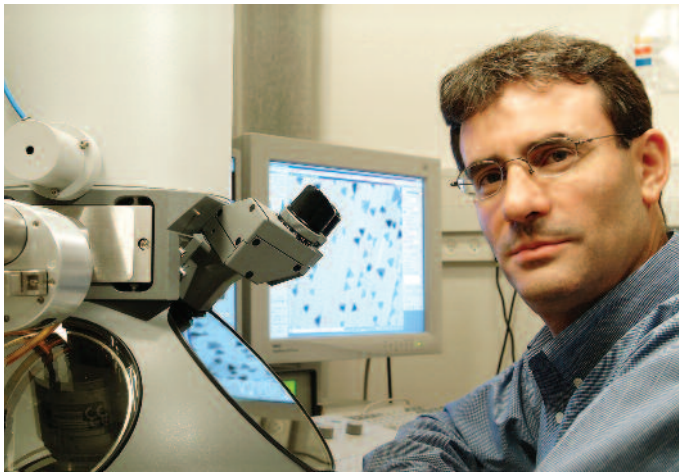
NANOTECHNOLOGY ADVANCES MEDICINE

"IT'S AN EXCEPTIONAL TIME for us in many ways," says Prof. Yuval Golan of the six-year old institute he directs, the Ilse Katz Institute for Nanoscale Science and Technology (IKI). Recent achievements have strengthened BGU's foothold on this revolutionary research from which the world expects so much.

IKI, devoted to research on the nanoscale, has three focal areas: Energy, including projects that turn waste products into fuel and convert light and heat into electricity; photonics; and human health.

Evidence of BGU's leadership and expertise in these areas is found in recent funding from the Israeli government for two flagship projects: development of a novel system for targeted drug delivery, and of a nanomaterials-based night vision device for defense and medical purposes. BGU was the only university to receive two major grants from INNI (the Israel National Nanotechnology Initiative).

IKI also met its own goals in expanding the number of labs, researchers and volume of research. It recruited six additional world-class specialists to fill targeted roles. More students were selected for the competitive nanotechnology undergraduate program, and for a new interdisciplinary Ph.D. program that gives students mobility across traditional disciplinary lines.



Prof. Yuval Golan

Most important to Prof. Golan and his colleagues, who come to IKI from many disciplines, is the fascination of the work itself: "We have a list of research challenges that are very exciting and far reaching," he says. "Solving each challenge is a big accomplishment and the challenges converge, so that when you solve all or most of them, you can develop amazing technology."

The photonics research project led by Prof. Gabby Sarusi aims to produce night vision goggles that convert infrared light invisible to the eye into visible green light. His group, one of 12 collaborating units, will use sensitive nano-materials coated onto a regular pair of eyeglasses that will allow the wearer to see in pitch dark as if in full moonlight.

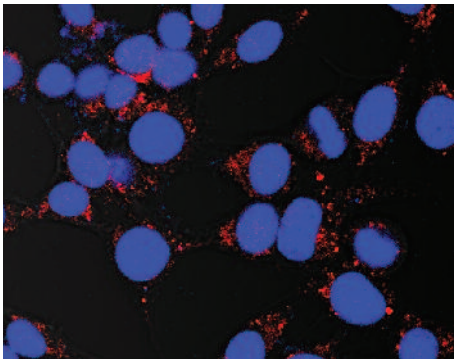
Top photo: Cellular uptake of a modified starch carrying a therapeutic (red) by an ovarian cancer cell line (green) 1.5 hours after being exposed to the nanoparticles. Prof. Yosi Kost group.

Current night vision goggles weigh three or four lbs., Golan says, and cost in the $6,000 range. "The idea is to make a film or layer in a one micrometer thickness—thinner than a human hair—that can be attached to existing optical devices so you can see in the dark. These goggles will cost $40 and weigh a few grams."

TARGETED DRUG DELIVERY

Globally, one of the most competitive goals of medical research is to develop a system using nano-size particles to carry a drug, travel through the body and deliver the dosage to specified cells. Since last July, IKI's Prof. Joseph (Yosi) Kost has led a highly complex project to accomplish this goal through a coordinated collaboration by 11 specialized groups.

The five-year INNI-funded project has even higher ambitions than similar ones under way in the United States, Japan, Europe, and elsewhere. "Our approach is to target biomolecules not only to specific cells but to specific organelles within the cells, such as the nucleus and mitochondria," Prof. Kost explains. "Where the drug is delivered can make a big difference. Otherwise you can produce many side-effects you don't want and limit the therapy."

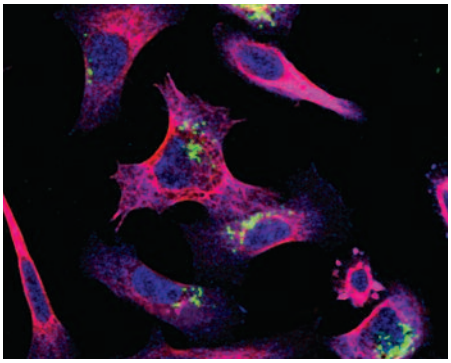


Uptake of siRNA (red) molecules that silence gene expression, delivered by nanocarriers to mouse colon carcinoma cell line. Prof. Smadar Cohen group.

A successful project could revolutionize the medical field's ability to use drugs more safely, effectively and efficiently. The team consists of engineers, physicists, chemists, M.D.s, biologists, and experts in mathematical modeling and prediction. Kost himself is a chemical and biomedical engineer, and also the recently elected dean of BGU's Faculty of Engineering Sciences. Nine of the specialized groups are BGU-based, and two are from other universities.

Prof. Yosi Kost

The project's complexity also warrants a special coordinator, Dr. Muriel Zohar. She brings a doctorate in molecular oncology and experience in the therapeutics industry, and was recruited for this role early in the year. Zohar is creating structures for regular meetings between professors, and among student work groups, as well as reporting guidelines and other communication channels.



Intracellular distribution of plasmid, a small DNA molecule, visualized by confocal laser scanning microscopy. Prof. Ziv Reich group.

She views the project structure as innovative in itself. "In science, you don't very often see something like this," Dr. Zohar says. "You see two scientists working together, or a small collaboration, but it's phenomenal to put together such an amazing depth of knowledge on specific subjects and among 11 strong labs.

"It challenges everyone to think outside their box and has to serve as a spark. Everyone shares a very specific goal with huge implications."

MAKING IT WORK

Prof. Kost compares the ultimate nanosystem and team roles to delivering a cargo. One group focuses on the carrier—the truck. This is mainly the province of chemists. They aim to create a basic carrier to which different biomolecules—the drugs of interest—can be attached. A second group works with synthesizing the therapeutics, the cargo. Another investigates the cellular system that can transport the "truck" with its load.

Other specialists track the carrier's progress and add elements to make it move faster. They also determine whether the cargo was released in whole or part to the targeted cells or organelles within them. If the drug is released somewhere else, it's back to the design drawing board. Other groups review what happens in the target cells and the physiological effects of delivery.

Biology inspires the system's design, Kost says. All materials will be biocompatible. "We're trying to learn from nature how to do it right, and mimic nature to do the work." Depending on which part of the cell it must penetrate, the drug carrier must be between 30 and 300 nanometers in size—one nanometer is one billionth of a meter. The work could not be done, Kost affirms, without the new instrumentation at IKI that enables researchers to see what happens on this infinitesimal scale.

Continued on page 30

TEACHING THE BUSINESS OF TOURISM

BGU'S DEPARTMENT OF HOTEL and Tourism Management is only 11 years old. Despite its youth, the program, part of the Guilford Glazer Faculty of Business and Management, was ranked sixth in tourism research worldwide by the leading industry journal this year. Moreover, four department members were cited in the top-100 list of researchers.

Prof. Natan Uriely

Prof. Natan Uriely, one of the four cited researchers and the department's chair, explains why a program that prepares young people for practical careers has built up so much research strength. "The country needs skilled, educated people who can do the job. Our way of thinking is that we're in academia and our first priority is to generate knowledge."

That knowledge is reality-based, he says. "The program is taught on both the Marcus Family Campus in Beer-Sheva and in Eilat, a tourist town, so most of the research is done where the industry is in front of us, and we work directly with its employees."

BGU's program is also distinguished by its multidisciplinary nature. Prof. Uriely is a sociologist, and other faculty members come from marketing, strategic management, psychology, and other fields. Additionally, experts from the field are brought in for a good mix between academic researchers and practitioners.

The three-year B.A. program accepts 50 to 60 freshmen each year. They take core courses in business administration; hospitality management courses, such as food and beverage management and hospitality industry finance; and tourism management: ecotourism, marketing, sociology of tourism, heritage tourism, attractions management, tourism and regional planning, aviation management, and more.

The department also responds to emerging trends. A new course on health tourism was just added, for example, so that people who travel to Israel for surgery, drawn by its good health system and doctors, are properly catered to.

> "The country needs skilled, educated people who can do the job. Our way of thinking is that we're in academia and our first priority is to generate knowledge."
>
> — PROF. NATAN URIELY

In addition to academics, the B.A. offers a practical training course that includes 1,000 hours of supervised work at hotel and tourism organiza-

Top photo: A view of hotels on the Red Sea taken from BGU's Eilat Campus

tions in Israel and abroad. Students do not consider this a hardship. In fact, competition for one set of opportunities is keen—about 12 students each year are chosen for hotel internships in the New York City area. This program is supported by AABGU Vice President Jessica Sillins (see page 8), and by the generosity of several other donors.

INTERNING IN NEW YORK

This past summer, Techniya Granot and Matan Hiller were among the BGU students who interned in the New York City area.

Photo: Natalie Canavor

BGU students Matan Hiller and Techniya Granot, hotel management interns, in New York City

"I started off in business management," Matan, 25, says. "Then I heard about this program. I was interested because my grandfather ran hotels in Israel. I'm really happy I chose it." He continues to take business courses and is learning French and Arabic.

Matan was placed in Manhattan's Radisson Martinique—"a big, intense hotel," he says. "Many of the guests are airline personnel so it's a fast check-in/check-out 24-hour operation, which was a really good experience." He was assigned on arrival to coordinate housekeeping for three floors.

"They trusted us immediately with all this responsibility! I was in charge of room attendants who have been here for 15 or 20 years." His army experience as a young commander helped, Matan says, along with asking lots of questions.

Techniya, 23, found a very different experience at the Berkeley Oceanfront, a tourist hotel on the New Jersey shore. She felt well prepared by her BGU studies plus work experience handling events and conventions in Israel.

"It's a big hotel with a lot of events and weddings, which is a lot of work! Everybody had to be in sync or it falls apart. Mistakes can happen, especially if there are simultaneous weddings. At this hotel people stayed a week, not overnight."

Tips from prior years were freely shared at meetings before the interns left for New York, all within the general directive, "Work with it; be flexible!" and "Remember you are ambassadors!"

Prof. Uriely visited the New York interns during one summer season and was impressed. "After only one month they were like fish in water. So active, not shy. Of course I hope our training gives them knowledge and confidence, but mostly I think it's Israeli *chutzpah*—the positive side."

Both Matan and Techniya plan to pursue master's degrees after completing their bachelors. BGU now offers an M.A., a source of particular pride for the faculty, given the department's youth. The advanced program expands on managerial skills and academic knowledge, and is scheduled to allow time for employment opportunities.

Two tracks are offered: one for candidates who prefer an applied orientation, and a second that focuses on a research thesis. Most candidates choose the research track, Uriely says. They often collaborate with faculty members and sometimes with other universities.

RESEARCHING TOURISM

Prof. Uriely's own research includes sustainable tourism. "We examine the development of the Negev and different paths it could take. Our message is that the Negev should rely on 'yellow' tourism—nature and ecologically oriented but milder than 'green' tourism—to give us a wider clientele." This conclusion was based on surveying consumer preference in the desert environment.

During a period of terrorism in Sinai, another project examined the relationship between Egyptian service providers and Israeli tourists. "We found that both sides generate a bubble of serenity," Uriely says. "How do they do that? By not speaking about politics—they talk about the good and not the bad things.

"The Egyptians thought, 'These are good Israelis; they came to Sinai.' The Israelis think, 'the people we know at the resort are wonderful.' Both sides say, 'we are very much alike.'"

One student is now working on a master's thesis about protestors coming to a Palestinian village: "We try to understand the linkage between tourism and politics," Uriely explains.

Continued on page 31

DESERT AGRICULTURE
PLANTING SEEDS OF THE FUTURE

RESEARCH ON DRYLANDS AGRICULTURE has come a long way in the past four decades, recounts Prof. Pedro Berliner, director of BGU's Jacob Blaustein Institutes for Desert Research (BIDR). Today the world is growing thirstier for the knowledge that BGU scientists have been pioneering since 1974.

Until recently the importance of drylands' agriculture was not widely understood. "For a long time most agricultural research related to the more humid areas where food was traditionally grown," Berliner explains. "Drylands occupy 40 percent of the world, but it took some time for people to realize that a very large population lives there and it's just as important to support that natural population."

Arid zones tend to be less affluent, so have generally received less attention from central governments, Berliner believes. But now the problem is worsening. Through an ongoing global process called desertification, fertile lands are becoming unproductive. The United Nations acknowledged this global threat by establishing a convention to combat desertification and has recognized BIDR as a world leader in this field.

It also took time for researchers to understand that technologies developed for plant production in wet areas are not suited to drylands. For example, the wetlands of central and northern Europe require deep plowing to turn the soil upside down. Where precipitation is scarce, only the upper layers have to be tilled.

Prof. Pedro Berliner

> "Drylands occupy 40 percent of the world, but it took some time for people to realize that a very large population lives there and it's just as important to support that natural population."
>
> — PROF. PEDRO BERLINER

"Now that we understand our ecosystem better, our techniques are appropriate and we obtain very good yields," Berliner says.

Research at BIDR's three institutes includes every element of desert life: water science and technology; ecology, plant and animal physiology, plant genetics, cellular and molecular biology; environmental physics; the social sciences and desert architecture.

The world is eager for the expertise, and sharing knowledge is built into the Institutes' work. Beyond publication and international projects, knowledge is spread through BIDR's Albert Katz International School for Desert Studies. Graduate students come from everywhere, including third world countries, to learn innovative techniques they can bring back home.

BIDR's current large-scale research projects include cultivating special algae for biofuel and pharmaceutical purposes; fostering fish-growing capacities in the desert; and growing an ever-wider range of fruits, vegetables and flowers.

Top photo: Red bell peppers growing in desert net houses: Their water use and soil quality are computer-monitored by Dr. Naftali Lazarovitch.

Photo: Ronni Strongin

DROP BY DROP

By the 1950s, Israeli scientists understood that water requirements for crops in arid climates are very different from those needed for agriculture in wetter areas. They developed an innovative system called drip, or trickle irrigation.

"In order for a plant to develop optimally," Berliner says, "you need to supply it with water at the same rate it loses it to the atmosphere—a process known as transpiration. To meet this requirement, water should preferably be applied at a high frequency. It turned out that once you had systems in place to apply the optimal rate of irrigation on a daily basis, much higher yields than those obtained in Europe were possible. This is due to the fact that solar radiation did not limit plant production, which is very promising for the world's drylands."

The water sources are not always excellent quality—nor need they be, Berliner and his colleagues have found. The brackish, slightly saline aquifer that runs under the Negev becomes usable for agriculture and domestic use with the right desalination process. Success with fish farming, and growing algae for biofuel, also depend on this marginal water.

Dr. Naftali Lazarovitch, who joined the Wyler Department for Dryland Agriculture in 2006, studies aspects of water flow and solute transport connected to irrigation and water use efficiency in agriculture. He hopes to further optimize the drip irrigation system and protect the environment by applying the newest technology.

"We use different approaches and sensors to tell us the condition of the soil, the plant and the atmosphere. We basically get ideas for research from programs in the field and then investigate with soil physics, plant physiology, micro-meteorology, and numerical modeling tools to simulate the system's condition with computers."

Irrigating in exactly the right amount matters: "Every drop counts and we want to do as much as we can with each one. Water is valuable—and we don't have enough. Also, too much irrigation wastes not just water, but also agrochemicals—fertilizers, pesticides, herbicides. What the plants don't use might be transported below the root zone and might eventually find its way into the groundwater we drink. We don't want this and look at every possible way to minimize contamination."

Growing pomegranates in lysine containers so efficient resource use can be continuously monitored


Bell peppers being cultivated with a combination of desalinated and saline water

WORLDWIDE PRESSURES

Several factors add urgency to the work, Lazarovitch believes. As quality of life increases in cities, the demand for water grows, making less available for agriculture. Second, water quality is generally decreasing, especially in Israel: 70 percent to 80 percent of Israel's municipal water is reused, flowing from cities back into agriculture for irrigation.

By comparison, the country with the closest ratio, Spain, reuses 20 to 25 percent of its water. A third factor is the world's growing concern with the decreasing quality of groundwater. Agricultural systems are part of this issue. Flooding—the main irrigation method used in the United States and in 90 percent of the world—needs to be assessed and, perhaps, regulated, Lazarovitch believes.

A prospective global change in weather that may raise temperatures and lessen rain won't help. "We need to feed seven billion people now, and soon—nine billion,"


Dr. Naftali Lazarovitch

Photo: Ronni Strongin

Lazarovitch says. "And we need to feed the people with good-quality nutritious foods. I can't think of a better system than drip irrigation."

Israel does have several new facilities to desalinate seawater, and some of this water comes to agriculture, but desalinization doesn't offer an easy fix. Here, too, research is essential, Lazarovitch says. "This water has no salt, but no minerals, either. So we're working on how to bring minerals back into the water, perhaps by blending it with saline water in a mix."

Monitoring soil variability with tensiometers, which measure moisture and irrigation needs

> "We need to feed seven billion people now, and soon—nine billion. And we need to feed the people with good-quality nutritious foods. I can't think of a better system than drip irrigation."
>
> — DR. NAFTALI LAZAROVITCH

Lazarovitch is certain that technology will further refine methods and understanding. Improved computers, remote sensing tools and modeling techniques promise better answers with less time in the field. He anticipates being able to measure what's happening in soil, water and plants from a satellite, an airplane or tower. Already, so much data is available that combining it all, and recognizing what's important, presents a challenge—but a welcome one.

"The work is very interesting and there's a lot of room for younger people. Agriculture will be here in the future. We need to do more and more and improve all the time."

IRRIGATION CLUES FROM HISTORY

Some of Prof. Berliner's own current research moves to the other end of the technology scale: He's working to improve irrigation systems like the ones used by the Nabateans, ancient inhabitants of Israel's Negev desert some 2,000 years ago. In arid zones, he explains, precipitation tends to be sporadic and may be high intensity, resulting in flash floods.

"These are usually perceived as bad—causing floods and erosion. But for centuries people in arid lands prepared special plots with retaining walls. The floodwater is conveyed to the plot by dirt channels, infiltrates into the soil and supports crops. We've refined this system to produce trees, fodder and grain in very arid regions."

A desert farm called Wadi Mashash is Berliner's living laboratory. Trees and crops are grown there by capturing the rare flood waters (see cover photo). AABGU's "Plant an Olive Tree" initiative supports this research.

The approach has special appeal because it does not require sophisticated infrastructure, and can almost be implemented with bare hands. In Israel, the system supplements drip irrigation, and is used for forestation and as a way to minimize erosion. For other parts of the world it promises even more.

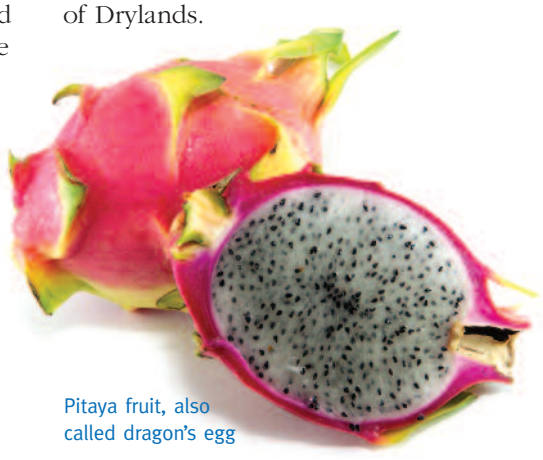
Berliner has operated projects in several Central Asian countries and the system is now also being adapted in India, Kenya and other places. It is so easily learned and transferred, Berliner says, that it may spread steadily, not least by the school's graduate students.

Berliner affirms that new understanding at the genetic and molecular level of plant behavior, and new instruments to measure what couldn't be measured five years ago, offer far-reaching possibilities. But at the same time, he is sure that ignoring the oldest techniques is a mistake. "I'm always surprised that indigenous knowledge is usually very relevant but has often been pushed aside, sometimes by people intent on selling new technology rather than solving problems.

"I think there's a growing realization that techniques that were used for hundreds of years were usually the result of understanding the ecosystem. We should not ignore what people have been doing for centuries. We need to understand and improve those systems to reach higher production levels. Local populations will adapt them quickly."

BRINGING NEW FRUITS TO BEAR

Dr. Noemi Tel-Zur's mission is to develop new crops for the desert environment, specifically perennial fruits—work that is "slower and more difficult than vegetables," she says. Tel-Zur is a researcher and lecturer in BIDR's French Associates Institute for Agriculture and Biotechnology of Drylands.



Pitaya fruit, also called dragon's egg

Dr. Noemi Tel-Zur

One part of her focus is breeding hybrid species of the pitaya vine cactus. An exotic fruit from Mexico and Central America, it was introduced to Israel 25 years ago by Prof. Yosef Mizrahi, under whom Tel-Zur studied. He is now a BGU professor emeritus and consultant, and remains involved with the pitaya research.

"Pitaya is a beautiful fruit but it had a bad taste, so people used it ornamentally, like flowers," Tel-Zur recounts. "We have a lot of knowledge of these species now and want to improve the hybrids so they're better adapted to high temperatures, and also we want to increase the sugar level to give us high quality fruit."

Prolonging storage conditions is another goal: "A major limitation of plants from the wild is that the fruit totally deteriorates after a few days. We wanted to obtain at least two weeks storage time in the house or market. We use a classic breeding and selection program and now have several lines that are much better than the original plant."

> Pitaya "can be very important for the Negev because it can produce good quality fruit with saline irrigation and needs only one-fifth or one-tenth of the water that other crops like citrus and avocado need."
>
> — DR. NOEMI TEL-ZUR

The method, based on crossing two different parent plants and analyzing what they produce together, is time-consuming. It takes at least three years, starting from seed, to find out the "baby's" characteristics. But the first new generation proved so superior that the program was able to supply better material to farmers, with whom Tel-Zur works closely.

"This plant can be very important for the Negev because it can produce good quality fruit with saline irrigation and needs only one-fifth or one-tenth of the water that other crops like citrus and avocado need," she says.

Trying a new crop is risky for farmers because it's hard to persuade people to eat something new, especially if they remember tasting and disliking it. But people proved willing to give the pitaya, sometimes called Dragon's Eggs, another chance and now the fruit and farmers are doing well, Tel-Zur says. Pitaya already enjoys a healthy domestic market, and she expects it to have a good future as an export crop.

Tel-Zur's second fruit of interest is ziziphus. A species called "dom" grows wild in Israel but had received little attention as a potential crop. Another species is popular in China as "jujube," and another in India is called "ber." Each species has important traits and by combining the three through breeding, Tel-Zur hopes to produce improved new hybrids that may prove beneficial for the Negev and other drylands.

"It survives in both extremely high and low temperatures. The fruit is unusually high in vitamins and antioxidants."

Additionally, its flowers serve as a source of nectar and pollen for honeybees. Scarcely any honey is produced in desert areas because they offer so little forage for bees. But ziziphus trees bloom intensely and the honey made from its flowers is considered excellent quality.

Tel-Zur aims to improve ziziphus genetically so it bears plenty of consistently delicious fruit. She is growing three species in an experimental plot and crossing them to produce new plants with the desired qualities. Once results are solid, she will work with farmers to develop the new crop. Tel-Zur is optimistic about her hybrid's prospects and is secure in the value of her deeply focused work.

Ziziphus

"Starting from nothing, in Israel major crops like avocado, passion fruit and mangoes have been created with breeding and marketing. My vision is for these small niche crops to become important for a lot of families in Israel, and people in other parts of the world, and that this research will improve their lives." ■

BGU STUDENTS SHINE AS EMERGENCY VOLUNTEERS

WHEN THE SIRENS that signal incoming missiles began going off in Beer-Sheva last November, Ben-Gurion University and much of the city shut down. But many students did not go home to their families and safer terrain during Operation Pillar of Defense. They stayed to help Beer-Sheva. And many of those who initially left came back. One was Mickey Aziz, a 26-year-old student of education and youth studies.

"I went to Jerusalem, to my family," he recounts. "We were all sure it would be another outbreak that would last a day or two. But as it worsened, I understood it would be longer. I knew the families in Beer-Sheva were suffering and realized I could go back and see how I could help."

Mickey joined a center in the city's social service department to coordinate volunteers with people calling in for help. The needs ranged from the everyday—helping the elderly shop and get their medicine, entertaining frightened children, cleaning up the streets—to connecting panicked people with mental health support.

"Lots of students joined in," Mickey says. "They felt that Beer-Sheva had been home to them for the past three or four years and they wanted to give something back to the city."

Many students volunteered through the Student Association and BGU's Department of Community Action. They were deployed to clean up bomb shelters, distribute flashlights, organize children's activities, help the mentally challenged and special needs populations, and much more.

Since 2010, a growing volunteer coordination system equips students with the skills, as well as the spirit, to help the community during emergencies. That year President Prof. Rivka Carmi sent a letter to the entire BGU community asking for volunteers. Thousands declared themselves willing. Dr. Limor Aharonson-Daniel, who heads the Department of Emergency Medicine, followed up with a query to match skills with jobs defined by the municipality and home front command. Response was strong.

When the alarms began sounding repeatedly in November, a single message immediately drew 600 ready-

Top photo: BGU emergency medicine students staffed ambulances during Operation Pillar of Defense. From left: Eyal Oz; Ketty Slivanov; Leah Reback; Clinical Coordinator Oren Wacht; Yigal Novichok; Moshe Cohen; Miryam Yudborovski; Leon Chrempech

and-willing volunteers. "We prepare and train them for everything," Dr. Aharonson-Daniel says, "but the main stresses we work toward are missiles and earthquakes, which you must generally take into account in Israel." Some students are prepared by their studies: Aspiring educators, social workers and psychologists are well suited to work in the relief centers.

At times, unpredictable requests came in. "When a mental health center manager called wanting musicians to take people's minds off things, we put it on the University Facebook page and in half an hour had 20 people to play music," Aharonson-Daniel recalls. Another time, a family returned to their destroyed house at 7:30 p.m. and, overwhelmed, called for help. People were found to help clean and put things back in place.

Dr. Aharonson-Daniel worked closely throughout the operation with Tami Ivgi-Hadad, recently hired as Beer-Sheva's first volunteer coordinator for emergency situations. "In normal times I e-mail students for a variety of help," Ivgi-Hadad says. "So at the beginning of *Amud Anan* [Pillar of Defense] all I had to do was send one message to the University coordinators, and hundreds of students asked to volunteer."

EMS STUDENTS PITCH IN

Those training to become emergency medicine specialists (EMS) in BGU's unique academic program turned out in number to contribute their know-how. The second- and third-year paramedic students initiated a three-shift, 24-hour per day schedule themselves, to be sure there would always be volunteers at the ambulance station, Aharonson-Daniel explains.

Oren Wacht, a paramedic who earned an M.A. from BGU and just submitted his Ph.D. thesis, teaches in the Department of Emergency Medicine. He committed himself to coordinating the station 24/7 for the period. He was pleased by the students' enthusiasm.

"The situation in Beer-Sheva was very tense—the shops were closed, the alarms and missiles were very chaotic and scary. But they chose to stay and give something from themselves to the place where they chose to study. It's the BGU spirit to participate," Wacht says.

In turn, the future paramedics were inspired by the experience. Wacht adds, "It was a good opportunity to see what the work is about and do something for the community. When you feel vulnerable, do something active—it's a better experience than staying home waiting."

Twenty-three year old Leah Reback, a second-year EMS student, agrees. "When I saw it wasn't a two-day operation I told myself I couldn't sit home doing nothing, being useless, so why not do something I'm good at? It was amazing—a great feeling to do something that mattered."

With two friends from the undergraduate program, she operated an ambulance that handled day-to-day situations so that other ambulances could deal with the more extreme emergencies. "We went to anyone who needed us, mostly to people who were scared or stressed or didn't feel well. A lot of them just needed to talk to someone who is seemingly in a position of authority."

The lesson for Leah: "It made me realize that not everyone who calls an ambulance has medical issues that are physical; they just may need someone

Dr. Limor Aharonson-Daniel with Oren Ben-Shitrit, a master's student at the time, during a hijacked and derailed train drill

Oren Wacht, BGU graduate and lecturer, mans crisis phone during Operation Pillar of Defense

to talk to and be reassured that everything is okay and that you'll take care of them when everyone else is scared to go outside. It made me look at traumatized people as patients too—not different from someone who has a heart attack. People need to know that someone is there for them in the darkest, scariest times."

The volunteer network is unfunded, occupying everyone's personal time. Still, Aharonson-Daniel hopes to better equip everyone for future emergencies. She works with a city engineer on a training program for advanced structural engineering students. Should an earthquake occur, they will be ready to inspect buildings for safety and supplement what the municipality can handle.

Other specialized jobs need people who can speak Russian and Amharic (Ethiopian), as well as geographic information systems experts. Additionally, she plans to staff a University resilience center that provides on-campus health care in emergencies.

Ahraronson-Daniel sees a deeper dimension to the volunteer program. "It enhanced the relationship with the municipality to one of great trust right now. We're really working together.

> "The students chose to stay and give something from themselves... It's the BGU spirit to participate."
>
> — OREN WACHT

We feel a part of the city and the city is really happy."

Tami Ivgi-Hadad confirms this. "Student volunteering is very important to Beer-Sheva. It connects the school to the residents, to the character of the city, to disadvantaged populations, and special needs residents.

"Personally, I can tell you that when Operation *Amud Anun* began, I was barely in the position two months, mother of two babies…the work was intense and around-the-clock. Today, I do not know what I'd do without the help of the students, those who came and volunteered at my right hand."

As for the volunteers, they found the experience life-changing.

"I learned to see how in times of need we're all part of the same community, the same family," says Mickey Aziz. "We're all there to help each other and be a part of something. This put Beer-Sheva in our hearts. The experience will be part of my student life here and something I will feel and take with me wherever I go."

For Leah Reback, the eight days reconfirmed her commitment to her life as an emergency medicine specialist. "If you have something to believe in—a cause, religion or whatever—there's nothing to be scared of. We're here to do what we do best. Defending ourselves. Treating trauma patients. That's our reality." ■

BGU students volunteered in bomb shelters to distract and keep children busy during the onslaught of missiles from Gaza in November.

REGIONAL NEWS

For information about upcoming events in your area, please visit: www.aabgu.org/regions-events

GREAT LAKES

Ernie Simon, *Chair*
Larry Goodman, *Honorary Chair*
Steven Franklin, *Director*
(847) 983-3630
greatlakes@aabgu.org

Gene Lerner, Prof. Dan Blumberg and Milt Levenfeld

Prof. Smadar Cohen (center) with Joyce and Fred Tavill

BRINGING BGU TO THE MIDWEST

The Great Lakes Region has been busy bringing the spirit of the Negev to the heart of America.

Dr. Natan Aridan, lecturer at BGU's Ben-Gurion Research Institute for the Study of Israel and Zionism, spoke about Zionism in the 21st century at Temple Beth Israel in Skokie, Illinois. He also met with Israel's new Consul General to the Midwest, Roey Gilad.

Regional Director Steven Franklin joined Prof. Smadar Cohen, chair of BGU's Avram and Stella Goldstein-Goren Department of Biotechnology Engineering, for meetings in Cleveland, Ohio. A highlight of Prof. Cohen's visit was a wide-ranging group discussion at the beautiful home of Joyce and Fred Tavill.

Prof. Dan Blumberg, deputy vice president and dean for research and development and director of BGU's Homeland Security Institute, spoke to supporters and local officials in Chicago about emerging homeland security technologies being developed at BGU.

Prof. Yuval Golan, director of BGU's Ilse Katz Institute for Nanoscale Science and Technology, discussed the University's latest nanotechnology innovations with an audience of scientists and supporters at the Illinois Science and Technology Park in Skokie, Illinois.

LOCAL IMPACT ON THE NATIONAL BOARD

A hearty *mazal tov* to Rob Mann of Chicago upon his election to AABGU's national board. Rob is a member of the inaugural class of AABGU's Zin Fellows Leadership Development Program and longtime leader of the Jewish community.

Stewart Flink of Chicago represented the region at the recent AABGU national board meeting in Delray Beach, Florida. Stewart also shared his expertise with BGU by creating and teaching an advanced alternative investments course at the University's Guilford Glazer Faculty of Business and Management.

GREATER FLORIDA

Greater Florida Advisory Committee:
Rich Bernstein, Alan Hurst, Max Javit, Billy Joel, Edward Kaplan, Jan Liff, Joel Reinstein, Lyon Roth, Dr. Rubin Salant, and Marty Weinberg
Elise Dolgow, *Director*
(561) 705-0117 florida@aabgu.org

MEET GREATER FLORIDA'S NEW NATIONAL BOARD MEMBERS

The Greater Florida Region congratulates its newest AABGU national board members: Max Javit, Edward Kaplan and Marty Weinberg.

Max Javit is a retired businessman who visited BGU with his wife, Rachel, for the first time in June 2011.

Edward Kaplan, a CPA and estate planning attorney, first visited the University with his wife Marilyn in June 2010.

Marty Weinberg, a retired estate planning attorney, is president of the board of the Edgar and Elizabeth Zantkar Foundation, which has been supporting BGU since 1993.

HOSTING THE MIDWINTER NATIONAL BOARD MEETING IN DELRAY BEACH

On February 25 and 26, the region welcomed AABGU national board members from across the country to warm, sunny Delray Beach for a full program of meetings and events.

BGU alumnus Dr. Dan Gincel was the featured speaker at a dinner for board members and local leaders. Dr. Gincel is vice president of BioAbroad, a nonprofit organization with the mission of reducing Israel's "brain drain" by helping Israeli scientists, physicians and entrepreneurs abroad return to Israel.

More than 130 people attended AABGUniversity, a series of talks by BGU faculty members Dr. Ilana Nisky, Department of Biomedical Engineering; Prof. Yaniv Poria, Department of Tourism and Hospitality Management; and Prof. Mordechai Zalkin, Department of Jewish History.

New and longtime AABGU supporters attended a luncheon seminar on "What Impact Will 2013 Tax Law Changes Have on Estate and Income Planning?" by noted tax and financial planning expert Neal Myerberg, who serves as AABGU's planned giving advisor.

AABGU National Board Member Rubin Salant, Natasha Novikova, Sandra Joel, and AABGU Vice President and member of BGU's Board of Governors Billy Joel attended the reception in Delray Beach.

Marleen Forkas and AABGU National Board Member Edward Kaplan

AABGU SNOWBIRD EVENTS

The Greater Florida and Mid-Atlantic Region recently co-sponsored two successful programs: the 14th annual snowbird luncheon at the Bridge Hotel in Boca Raton and an inaugural snowbird reception at The Breakers Palm Beach.

Very special thanks to Carol and Steve Winig, Marilyn and Edward Kaplan and Dorothy Levy for co-hosting these events.

GREATER NEW YORK

Lite Sabin, *Chair*
Kevin M. Leopold, *Executive Director-Northeast*
Jay Leipzig, *Senior Philanthropic Advisor*
Liora Avitan Seltzer, *Associate Director*
Dana Ben-Benyamin, *Program Manager*
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WELCOME TO THREE NEW REGIONAL BOARD MEMBERS

The Greater New York Region welcomes new regional board members: Carla Boden, Carol Kimmel and Steve Kleinman.

Although Carla Boden is technically "new" to the organization, she's been part of the AABGU extended family for years. Carol is the daughter of Harold Commings, a longstanding AABGU supporter and member of the Living

Left: Carla and Mitch Boden in BGU's Living Legacy Garden where her family's name is inscribed **Right:** AABGU Northeast Executive Director Kevin M. Leopold; National and Regional Board Member Rochelle Etingin; AABGU President Lloyd Goldman; Regional Board Member Carla Boden; Senior Philanthropic Advisor Jay Leipzig; Regional Chair Lite Sabin; BGU Board of Governors Chairman Alex Goren

Legacy Society, together with his wife Miriam. The Commings serve on the Greater Florida Region's Aventura Advisory Committee.

Harold's passion for BGU inspired Carla and her husband, Mitch, to visit the University for the first time in November 2011. Upon their return, the Bodens raved about their experience, and Carla wanted to help build awareness for BGU. She has already hosted a program with Dr. Amir Shapiro, director of BGU's Robotics Lab, at Temple Sharey Tefilo-Israel in South Orange, New Jersey.

Carol Kimmel, a New Jersey native, and her late husband, Charles, were introduced to the organization by their dear friend and former AABGU president, Michael Sonnenfeldt. Carol visited BGU about eight years ago. She is honored to serve on the board and have an impact on BGU's future.

Born and raised in Hartford, Connecticut, Steve Kleinman was introduced to BGU recently when he hosted a program featuring Prof. Avigad Vonshak, director of the Ben-Gurion Research Institute for the Study of Israel and Zionism. Steve was looking to get involved in an organization that shares his values. "The researchers at BGU are creating something from nothing, which will make the world a better place—not only for Israelis, but for everyone in the world," he says.

Carol, Steve and Carla are excited to be part of the AABGU community, and are committed to helping fulfill David Ben-Gurion's vision for the Negev desert.

GREATER TEXAS

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GOURMET KOSHER EXTRAVAGANZA RAISES AWARENESS AND FUNDS FOR STEM CELL RESEARCH

The Greater Texas Region held its 12th Annual Gourmet Kosher Extravaganza in Houston on February 5. It was attended by over 300 people, including many new friends to AABGU.

The festive evening, chaired by Elise and Mark Newman, featured a kosher meal prepared by Houston's finest chefs.

David Barish received the AABGU David Ben-Gurion Leadership Award in recognition of his passion for Israel and service to the Houston Jewish community.

David Barish and Linda Jayaram with the AABGU David Ben-Gurion Leadership Award and the gift presented to David, created and donated by Bill Meeks

Left: Prof. Smadar Cohen spoke passionately about the potential of stem cell research. **Right:** The Barish family at the 12th Annual Gourmet Kosher Extravaganza

On a recent visit to BGU, David Barish and his wife, Linda Jayaram, met Prof. Smadar Cohen, chair of the Avram and Stella Goldstein-Goren Department of Biotechnology Engineering.

Prof. Cohen was moved by Linda's story of suffering from multiple sclerosis (MS) and how stem cell injections helped her go from being in a wheelchair to walking. "I thought to myself that I'd like to have a center that could bring about cures for the most awful diseases," shared Prof. Cohen at the Houston extravaganza.

Proceeds from this event are supporting the new Center for Regenerative Medicine, Cellular Therapy and Stem Cell Research at BGU (see page 4). The center will conduct multidisciplinary research to develop treatments and cures for diseases such as MS, diabetes, ALS, Alzheimer's, Parkinson's, and leukemia.

MID-ATLANTIC

Jack R Bershad, *Regional Chair*
Connie and Sam Katz, *Philadelphia Chapter Chairs*
Marla and Dr. Robert Zipkin, *Philadelphia Chapter Vice Chairs*
Claire Winick, *Director*
Andrew L. Demchick, *Associate Director*
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A DEEP COMMITMENT TO THE FUTURE

The dynamic husband and wife team of Lisa Scheller and Wayne Woodman, Philadelphia chapter officers, are the initiators and major benefactors of AABGU's Zin Fellows Leadership Development Program. They are also members of the program's first cohort, which traveled to Israel in February for a unique seminar focusing on the Negev's role in the future of Israel (see page 5).

Lisa and Wayne are dedicated members of their community. A vice president on the AABGU national board, Wayne works in the investment management business with The Investment House, LLC in Los Angeles. He also chairs the Lehigh County Republican Party. Lisa, daughter of longtime benefactors Roberta and Ernest Scheller, Jr., is a distinguished business leader and Lehigh County commissioner.

Zin Fellows faculty members Prof. Isaac (Sakis) Meir and Dr. Paula Kabalo with Lisa Scheller and Wayne Woodman at Sede Boqer in February

MID-ATLANTIC REGION CONTINUES TO EXPAND

The region welcomed the Honorable Yaron Sideman, new consul general of Israel to the Mid-Atlantic Region, to Philadelphia at a reception hosted by Aimee Katz and Julia and Stephen Harmelin.

Pam Stein, co-chair of Tomorrow's Leadership Committee, and Alan Govberg hosted Dr. Lynn Schler, director of BGU's Africa Centre.

Stanley Ginsburg hosted a luncheon for new AABGU community members, and Connie and Sam Katz opened their home for a "Latkes and Vodkas" Chanukah celebration. Both events featured guest speaker Prof. Amos Drory, BGU's vice president for external affairs and incumbent of the Ernest Scheller Jr. chair in innovative management.

In February, a first-time snowbird reception in Palm Beach was hosted by Rita and Joe Scheller, and the 14th annual Boca Raton snowbird event was co-sponsored by AABGU's Mid-Atlantic and Greater Florida Regions.

Shirley Tauber held a reception at her home featuring BGU Prof. Nadav Davidovich, a public health expert.

AABGU's second Pittsburgh event was held in April. A host committee has been formed with the goal of developing an AABGU chapter in Pittsburgh.

The Philadelphia chapter's annual tribute event attracted over 200 guests. To celebrate AABGU's 40th anniversary, the chapter recognized the family of the late Harry T. Dozor, a Philadelphian and first AABGU national president. Left to Right: Philadelphia Chapter Chairs, Sam and Connie Katz; tribute brunch honorees Dr. Carroll and Charlotte Weinberg; young Harry Dozor (front); Dr. Rick Dozor; and Philadelphia Chapter Vice Chairs Marla and Dr. Rob Zipkin

NEW ENGLAND

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BGU PARTNERS WITH MIT, BRINGS STUDENT INTERNS TO ISRAEL TO CONDUCT RESEARCH

The New England Region takes pride in the strong partnership between Ben-Gurion University of the Negev and the Massachusetts Institute of Technology.

BGU is an active participant in MIT International Science and Technology Initiatives (MISTI), a program connecting MIT students and faculty with research and innovation around the world.

Entering its sixth year, the program has sent 38 student interns to BGU for the 10- to 12-week program. The interns are undergraduate and graduate students from diverse backgrounds, representing 14 academic majors, including brain and cognitive science, chemical engineering, nuclear science, mathematics, and economics.

Interestingly, many of the interns are not Jewish and have no prior connection to Israel. The experience of living in Israel and working closely with Israelis has a lasting impact, making them natural ambassadors of BGU and Israel.

Through the program, MIT students have had the opportunity to work with many of BGU's top researchers in fields where the University takes a leadership role.

Right: MIT sophomore Victoria McCrave, an aeronautics and astronautics major, working in a lab at BGU.

"MISTI Israel was an amazing opportunity where I got to step out of my comfort zone and experience the culture of this area of the world."

— VICTORIA McCRAVE

Prof. Dan Blumberg with Amy Klein and Brian Lefsky during their recent visit to BGU

These include Prof. David Faiman, solar energy; Prof. Zeev Wiesman, biotechnology; Prof. Isaac Meir, desert architecture; Prof. Jack Gilron, water research; and Dr. Nadav Shashar, marine biology.

Placement of the MIT interns is coordinated by BGU's Prof. Yosi Kost, dean of the Faculty of Engineering Sciences. The University is eagerly looking forward to hosting the next group of interns.

The New England Region is excited to continue building upon its proud tradition of educating members of the community about BGU's importance to the Negev, the State of Israel and the world. Several exciting programs are being planned in the coming months.

For more information about some of the inspiring developments taking place at BGU, or to arrange a special visit to the University on an upcoming trip to Israel, please contact Kevin Leopold at (646) 452-3686.

NORTHWEST

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Daphna Noily, *Director*
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MEDICAL CARE FOR THE DEVELOPING WORLD AND UNDER-SERVED COMMUNITIES

Dr. Ingrid Tauber and Frank Taforo hosted a reception for Dr. Alexandra Johnson, a graduate of BGU's Medical School for International Health (MSIH). Dr. Johnson currently lives in Colorado and plans to practice OB/GYN in rural communities.

Regional Board Member Steve Krieger with Dr. Ingrid Tauber

Dr. Paul Blanc, Danna Aharon Slusky and Dr. Devra Davis

Zvi and Ricki Alon, Eli and Carmela Pasternak

SUPPORTING OCCUPATIONAL AND ENVIRONMENTAL HEALTH

BGU alumna Danna Aharon Slusky hosted a gathering for donors to BGU's John Goldsmith Memorial Prize. The prize, awarded annually to a BGU student in occupational and environmental health, was initiated by Dr. Paul Blanc, of UC San Francisco, in honor of his mentor.

CYBER SECURITY: KEEPING ISRAEL AND ALLIES SAFE

Prof. Bracha Shapira, chair of BGU's Department of Information Systems Engineering, spoke about BGU's Cyber Security Lab at Carol and Harry Saal's Palo Alto home and at the Tiburon home of Nancy Goldberg.

Right: Joanne Harrington; Carol D. Saal, vice chair of BGU's Board of Governors and past AABGU president; Lorry Lokey; and Board of Governors member Harry Saal

SOUTHWEST

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Philip Gomperts, *Director*
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SAFEGUARDING ISRAEL AND ITS ALLIES

The Southwest Region hosted a Homeland Security Symposium and Luncheon on February 17 at the Beverly Hilton Hotel featuring researchers from BGU's Homeland Security Institute (HSI).

HSI Director, Prof. Dan Blumberg, spoke about robotics and remote imaging from space and airborne platforms, and provided an overview on the work the Institute is doing to keep Israel and its allies safe.

Prof. Bracha Shapira, chair of the Department of Information Systems Engineering, shared her expertise in the field of cyber security, a growing concern. Cyber attacks are said to be the biggest threat we face.

Prof. Gabby Sarusi, a member of the Ilse Katz Institute for Nanoscale Science and Technology, talked about the nano-thin infrared night vision glasses he received a major grant to develop (see page 11).

Glenn Yago, senior director of the Israel Center at the Milken Institute, moderated the panel discussion.

The luncheon honored the International Judea Foundation (SIAMAK) for establishing the Project Jacob Fund at BGU. Initiated by SIAMAK's president, Dariush Fakheri, the fund supports the commercialization of innovative research.

Steve Pomerantz, former head of the FBI Counterterrorism Division, gave the luncheon's keynote address. Proceeds from the event will benefit HSI.

At the Homeland Security Symposium: Dariush Fakheri; Prof. Amos Drory, BGU vice president for external affairs; Ruth Flinkman-Marandy; Ben Marandy

Ardyth and Samuel Freshman, Prof. Julie Cwikel and Judge Leon Kaplan

NEW PERSPECTIVES ON ISRAEL

Prof. Julie Cwickel, director of BGU's Center for Women's Health Studies and Promotion, spoke at the home of Samuel and Ardyth Freshman in Beverly Hills.

She highlighted the Positive Parenting Project, which is expanding the center's outreach by offering counseling to new parents of high-risk children in the Negev. The program was designed and supported by Judge Leon Kaplan (Ret.), a member of AABGU's national board.

In January, Prof. Emeritus Fred Lazin gave a lecture providing an in-depth analysis of Israel's upcoming elections at the Stephen S. Wise Temple in Bel Air. Thanks to the Weiss, Lam and Handy families for their assistance with this event.

WASHINGTON/BALTIMORE

Edie and Art Hessel, *Washington D.C. Chapter Chairs*
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MAKING AN IMPACT ON STEM CELL RESEARCH

The Washington/Baltimore Region thanks Dr. Rhoda Baruch for establishing the Jordan Baruch Stem Cell Research Fund. Rhoda and 20 members of her family attended the dedication ceremony of this new fund at BGU on December 30, 2012 (see page 6).

EXPLORING JEWISH HISTORY AT THE LIBRARY OF CONGRESS

The region co-sponsored a presentation with the Library of Congress by Kobi Kabalek called "Failure and Memory." It explored how the rescue of Jews during the Holocaust is depicted in post-war German film.

Kabalek, currently a Ph.D. candidate in history at the University of Virginia, received his undergraduate and master's degrees from Ben-Gurion University. He teaches at BGU's Department of History and for American students studying abroad in the Ginsburg-Ingerman Overseas Student Program.

BALTIMORE AND DAVID BEN-GURION

Partnering with the Baltimore Jewish Council and the American Jewish Committee, the region presented "Inside David Ben-Gurion's Head" with Dr. Paula Kabalo. Dr. Kabalo is the director of the Israel Studies International Program at the Ben-Gurion Research Institute for the Study of Israel and Zionism.

Her presentation focused on conversations and correspondence found in David Ben-Gurion's archives between Ben-Gurion and Baltimore natives Jacob Blaustein and Joseph Meyerhoff.

The region recently joined the Baltimore Israel Coalition, a consortium of local organizations working to support Israel. Look for AABGU at Baltimore's upcoming Israel 65 Celebration on June 2, 2013.

Greg Lipscomb enjoyed two days at BGU in December.

AABGU newcomers Judith Salvo, Susan Wells and Glenn Marcus with BGU's Kobi Kabalek at the Library of Congress

VISIT BGU ON YOUR NEXT TRIP TO ISRAEL

Many members of the AABGU local community recently visited the University, most for the first time. Thank you to Maury Epner and Deborah Fox Epner, Wendy Rudolph, Mark Eckman, Greg Lipscomb, and Ted Leibovitz for spending time at AABGU's home away from home in the Negev. To arrange your tour of BGU, contact Keren Waranch at kwaranch@aabgu.org or 240-482-4844.

For more information about upcoming events, visit:
www.aabgu.org/regions-events/washington-baltimore/

URI KARTOUN

Continued from page 9

working also with Harvard. He plans to conduct research related to data mining and predictive modeling, using patient electronic medical records (EMR) data.

He's excited about this new journey and the outstanding researchers he'll collaborate with. Several are also entrepreneurs, he observes. His career path seems natural to him, but at the same time, unexpected.

"What brought me here is the combination of robotics, medical applications and my financial background," Uri says. "I never would have anticipated working with data sets that are new to me–data sets related to genetics."

What about Stockato? The systems he developed for the company have great potential, he believes. They can handle large collections of data and provide classifications and predictions in real time. The machine-learning algorithms may be applicable to biosurveillance, able to predict a heart attack or epileptic seizure, for example, by classifying biomedical data.

And his patent is good for 20 years, he points out. ■

NANOTECHNOLOGY

Continued from page 12

FROM BASIC SCIENCE TO APPLIED RESEARCH

Within the larger goal, the research group's two immediate areas of interest are to use the delivery system to treat cancer and diseases related to metabolic syndromes, such as obesity and diabetes. Even existing drugs for these diseases and others may be ineffective if not delivered to the right cells or cell parts. They often produce undesirable side effects when the dosage is too high.

"If we can target to reach intracellular organelles, we may be able to lower the side effects, a huge step," Kost says.

Dr. Zohar explains that this year's work focuses on the cellular level, and that by its end a number of nanoparticles will be produced. Researchers will observe their characteristics and activity. The project will then move to testing the models in vitro—incorporating the novel drug for metabolic syndromes—to see if delivery is localized and the cargo released as planned. Animal studies will follow, and ultimately clinical trials, but the timeframe cannot be predicted.

A nanotech researcher in a clean-room

"The challenge is to show this concept works," Kost says, "that we can get what we're interested in to the target and see the biological effect we expect to see. We're going all the way from basic to translational research. It's why we have M.D.s to keep us on track.

"At this point the research is basic, but we definitely see the goal: to have something that addresses human health and benefits those who need it. It's an ambitious project.

I know that we have to put all that we have into it." ■

CANCER-SNIFFING DOGS

Continued from page 10

The next step is to check the dogs' reaction to people with cancer. Yoel will begin by training the dogs to identify lung cancer. To do this, he will expose them to hundreds of smokers to look for those with early stage disease.

However promising, this research is hindered by the fact that it is conducted solely by volunteers, including Yoel. To take the project further, Yoel must employ two dog trainers for at least a year. He will also need to add two more dogs as backups in case one of the original two trained animals is unable to work. Furthermore, he needs a permanent place in which to house the canines.

"Even before we start training the dogs, we must see if they are suitable for this type of work," he says. "We need to see the dogs' qualities as puppies and trace their development. All this takes time—and modest resources."

This compelling research and Yoel's intensive work as an internist at Soroka University Medical Center are linked to his personal ethic, which centers on active connection to others. His private life is no less governed by the principle.

Yoel, his wife, Michal, and their five children live at Kfar Rafael, a community close to Beer-Sheva for adults with mental disabilities. The Yoels share their home with six mentally disabled adults and Michal oversees the group.

"I became an internist because it combines connection with people, the thought process of diagnosis, research, and intensive care," says Yoel. "And living at Kfar Rafael, you devote more than a little time to others. This has made for a life filled with meaning." ■

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BUSINESS OF TOURISM

Continued from page 14

Some projects answer calls from the tourism industry. The department was asked to study the effect of tourism law, for example, and this resulted in a book, *Tourism Law in Israel*. However, Uriely acknowledges the industry is slower to value research than he'd like. It's also a challenge to move well-educated people into promising opportunities.

"This is a worldwide problem and progress is gradual. But as our graduates get out and work in the industry, they hire our new graduates." Former students are employed in hotels, travel agencies, restaurants, airlines, the wine industry, convention businesses, the food and beverage industry, tourism offices, and more. Most choose to stay in Israel.

Assessing the outlook, Uriely says, "the potential for the Israeli tourism industry is huge, especially given the unique draw of Jerusalem. There are already four million tourists a year, but the geopolitical situation is a barrier."

This uncertainty doesn't dampen the students' optimism. "More tourists are coming all the time. It's growing every year," Matan observes. He may decide to continue studying and then work for a year in the United States, but his long-range plan is to be in Israel. "My dream is to own a small boutique hotel with my parents."

Techniya already works part-time for a convention and events planning firm and aims to qualify for a high-level position there. "I'm an events person. I'd like to plan with my own ideas. And someday I might run my own events-planning business."

She has no doubt that BGU is where she wants to be now, and that the future is promising. "There's so much potential in Israel. We know we can take what we learn to a place we want to take it." ■

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EARLY MAY 2014

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The tour brochure will be available in September 2013. To request your copy, contact travel@aabgu.org or call 1-800-962-2248 ext. 1601.

FACULTY LEADER
DR. ELI PAPO

Dr. Papo is vice director of BGU's Moshe David Gaon Center for Ladino Culture and a lecturer in the Department of Hebrew Literature. He is also a rabbi, a native of Sarajevo and the non-resident spiritual leader for the Sarajevo Jewish community.

DATES

Early May, prior to the start of the 44th Annual Board of Governors Meeting at BGU that begins on May 18, 2014. The option to continue on to Israel will be available.

AMERICAN ASSOCIATES
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