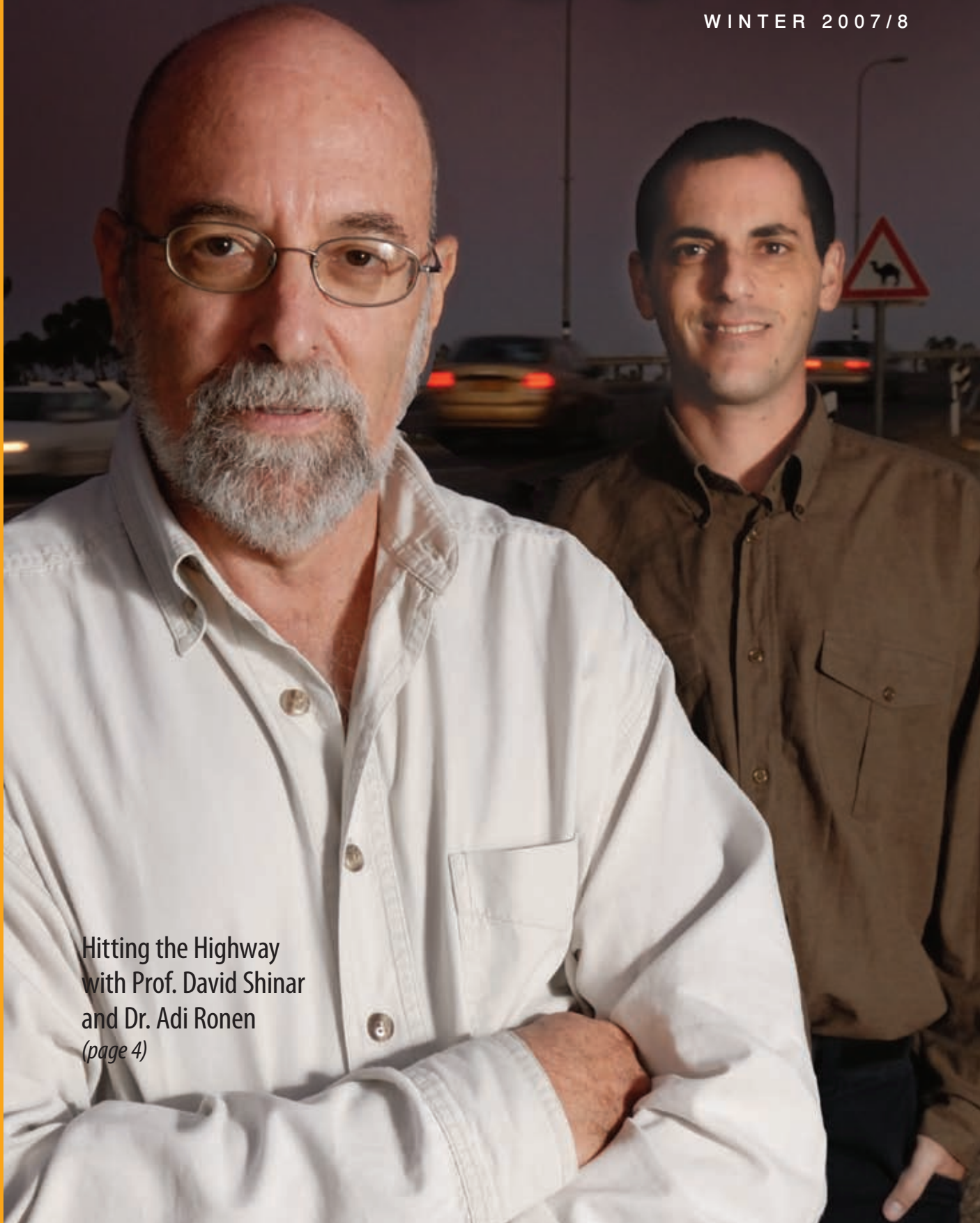


BGU now

WINTER 2007/8

אוניברסיטת בן-גוריון בנגב BEN-GURION UNIVERSITY OF THE NEGEV



Hitting the Highway
with Prof. David Shinar
and Dr. Adi Ronen
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BGU now

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From The President

Dear Friends,

This year, Ben-Gurion Day – the annual commemoration of the passing of Israel's first prime minister – fell between two significant dates: the 90th Anniversary of the Balfour Declaration and the 60th Anniversary of the historic decision on November 29, 1947 to call for the partition of Palestine. The observance of these milestones gave me ample occasion to reflect upon the genuine miracle that led to the creation of the State of Israel.



There were so many insurmountable obstacles that could have resulted in a different outcome. But David Ben-Gurion – leader and statesman, visionary and prophet – nevertheless changed the course of history. Through his passion for his cause and through his ability to motivate and involve others, he made the crucial difference.

Today, our obstacles are different, but no less daunting. The future of education in general and higher education in particular has taken the forefront in a debate over the country's future. If Israel is to maintain its competitive edge as a world-leader in research and innovation, we must marshal our resources to develop its brain power. We do not have gold or oil, but we do have what a well-known New York Times columnist coined as "wells of knowledge" that we cannot let run dry. Our strength is our passion and ingenuity, our commitment to excellence and social justice.

These are the very traits that are exemplified here at Ben-Gurion University of the Negev. Our outstanding faculty members and researchers are internationally-recognized for their work in cutting-edge fields such as information technologies, bio- and nanotechnologies and environmental issues that range from water management to solar energy as related to sustainable development of arid lands. Our innovative programs in multi-cultural healthcare, social work, education, Hebrew literature and management have been emulated around the world. We received a record number of competitive grants this year in many emerging, interdisciplinary fields. We have created new partnerships with industry and academic institutions around the world. Our students have made headlines in national newspapers for their work in the community. Together, we are working to transform the Negev – and through our unique international programs and collaborations – the world.

The University marked Ben-Gurion Day with six exceptional events that included important political personalities from Israel and France and an array of guests from around the world and served to highlight a year of impressive growth and accomplishment. These events only reinforce my belief that this is the year of the Negev with its capital Beer-Sheva and that BGU is the catalyst for the positive fulfillment of Israel's future.

Over the past year, I have traveled the world to meet with the University's friends and supporters without whose involvement we could not grow or develop. I encourage you to join us for the 38th Annual Board of Governors Meeting, May 25-28, 2008 as we mark Israel's 60th anniversary. It promises to be a very special event.

A handwritten signature in blue ink that reads "R. Carmi". The signature is fluid and cursive.

Prof. Rivka Carmi

A Consuming Passion

Dr. Hila Riemer

It's not often you hear a Ph.D. in Business Administration advocating decision-making based on passion instead of reason, but Dr. Hila Riemer is one. Not all decisions, of course, and not all the time. But still, the Beer-Sheva-born, BGU-educated lecturer in the Department of Management says that decisions based on reason aren't necessarily better than those based on affective matters such as emotions and feelings.

In pursuing a number of research projects dealing with the interaction of affect and cognition in consumer behavior, Riemer says, "My passion is to understand how feelings and emotions influence consumer behavior. It's the impulses of the heart that fascinate me, not those of the mind."

Riemer's specialty is especially interesting because her educational background is in the hard sciences. With an undergraduate degree in chemical engineering and a Masters degree in industrial engineering and management, she didn't switch to the more emotive side of consumer behavior until she studied for her Ph.D. in marketing, a degree she earned just two years ago from the University of Illinois at Urbana-Champaign. Today, the focus of her research is consumer behavior and market research methodology.

"My main goal is to understand human behavior," she says. "When people are going to buy or acquire any kind of product, whether it's a car, a banana or a computer printer, how do

their mood, their feelings and emotions, govern their decision? Previous psychological research showed that feelings – arousal, fear, stress, happiness, to name just a few – profoundly affect consumer decisions. We are going beyond those studies: what I'm interested in knowing is why. I want to understand the process, the psychological mechanisms that govern these effects, whether they are automatic or unconscious, and whether they can be controlled."

Delving into the human psyche in an effort to quantify the extent to which emotion influences decisions is obviously complex and difficult to generalize. But some of Riemer's studies have produced fascinating – and counterintuitive – results. "For one of the studies, we assembled a group of students on two different days. One was Memorial Day, which is a very sad day here in Israel, and the other was on Student

When consumers try to resist their feelings, they actually end up with emotions playing a larger role than they would otherwise

Day, which is a very happy time. For one section of students, we specifically directed their attention to their feelings – before the testing, we reminded them that it was Memorial Day or Student Day. For the others, we made no reference to the day at all. Our objective was to see if there would be a difference if we drew their attention to the source of their feelings, or not. The question was, could they control their feelings and make psychological corrections for their evaluative judgments?"

Generally speaking, they could – but in an unexpected way. "We know from other studies that when you're happy, you're more likely to give a product a more positive evaluation. If you're sad, you're more likely to find fault with it. But for the students whom we reminded about the sadness or happiness of the day, their tendency was to overcorrect. Those whose feelings were pointed out to them overcorrected, so they ended up being more positive or negative.

"It's safe to generalize and say that if

you draw attention to your feelings – if you say to yourself, 'I'm really miserable today, so I can't let that affect me' – then you're actually more likely to be influenced by the emotion, but in the opposite direction. If you're sad and miserable, you are likely to rate products higher than you would have if you hadn't considered your emotions at all. Sometimes, the best thing is not to think about something too much," she explains.

Other factors also play a role. If the product is something you really need, your motivation will be different than if it's something that's a casual or non-essential purchase. The type of decision-making process is another factor, as is your level of knowledge. "If it's a car, and you've been reading and studying

car ads for years," Riemer continues, "your decision-making process will be very different than if this is the first time you are actually learning about cars with an intention to buy one. Emotions will affect differently in each of these situations.

"Emotions – matters of the heart – play a large role in directing a consumer's judgment and decision-making process. In choosing a car, it's not only factors like mileage, engineering standards, warranty and price that dictate the decision. Feelings and emotion also play an important role, even if the consumer isn't aware of it or if they don't intentionally consider it."

But that's not a problem, Riemer says. "Decisions based on emotions or feelings aren't necessarily bad. Decisions that are based on 'rational reasoning' aren't necessarily any better. In fact, some of the results of our research imply that when consumers try to resist their feelings, they actually end up with emotions playing a larger role than they would otherwise. So yes, sometimes it's better to just let yourself go – go with your heart."

Riemer relies on her own advice. "I'm the kind of person who consciously tries to listen to my heart when I'm making decisions," she says. "My decision to come to BGU is a good example of that. After receiving my Ph.D., I spent an additional year working in Illinois. I am well aware that I could have made much more money if I'd stayed in the United States, not to mention any number of other advantages. In spite of that, though, my husband and I decided to follow our hearts and come to BGU. We're both from the Negev, we love the Negev, and we wanted to live and work here for reasons that weren't necessarily rational. We made our decision based on what was in our hearts, on what we love. Sometimes it's a great idea to do that." ■



By including physiological reactions as well as driving measures, we're able to monitor the stress debt

Hitting the Highway

Dr. Adi Ronen | Prof. David Shinar

Highway traffic accidents are a major epidemic of the third millennium. In the Western world they are the leading cause of death for people between the ages of 5 and 35. Worldwide, they are the second-ranked cause of death for that age group, with a total of 1.2 million people killed each year. But traffic accidents are different than the weather. Something can be done about them.

At the moment, BGU is one of the few active academic research centers that focus on highway safety issues. For many years, it offered only a single academic course in road safety, allowing students to study the topic either as an aspect of engineering or as applied to human factors. With a very strong research team, a new program expands this field of training to a full-fledged graduate track. Within the next few years, graduates of BGU will be among the first in the world to have specialized post-graduate training in highway safety. New funding for faculty and scholarships from *Or Yarok* (Green Light), Israel's largest NGO in the area of traffic safety, will enable the University to offer post-graduate degrees in industrial engineering and management with a specialized track in traffic safety.

"We are way ahead of everyone else in creating experts," says the man who started it all, Prof. David Shinar. Currently the George Shrut Professor of Human Performance Management in the Department of Industrial Engineering and Management, Shinar has been named by the Ministry of Transportation as Chief Scientist of the National Road Safety Authority. He recently published a book titled *Traffic Safety and Human Behavior* (Elsevier, 2007) that provides a critical evaluation of the newest research findings in an effort to comprehend the complexity of traffic safety and the central role that drivers, motorcyclists and pedestrians play in it.

"We're beginning by offering two

separate tracks of highway safety: one focusing on behavioral factors and one focusing on engineering factors," he says. "Because instruction is in Hebrew, most of the Masters candidates will be Israeli. But since Israeli graduate students speak English as well as other languages, they will be perfectly qualified to apply their education and expertise wherever they're needed."

Shinar, who was born in Jerusalem but spent his teenage years in the United States, returned to Israel to serve in the Israel Defense Forces and to study for his undergraduate degree in psychology at the Hebrew University of Jerusalem. After that, he went on to receive his Masters and doctoral degrees from Ohio State University. "For my Ph.D., I combined psychology with industrial and systems engineering," he says. "One of my first major research projects was measuring eye movements in curve negotiation, studying how drivers visually scan curves before they negotiate them. I was fascinated by all aspects of the subject – how the highway is engineered, how the design and location of road signs affects drivers, how drivers are influenced by other drivers or impaired by conditions such as alcohol and fatigue. So after doing research on driver behavior and accident causation at Indiana University for several years, I came back to Israel to head BGU's new Center for Research in Ergonomics and Safety. In the beginning, we had very little money, so we designed projects that could be based on observations and questionnaires – cheap ways of doing research. But BGU was an ideal place to initiate new research projects because of the high level of academic collegiality and cooperation."

In fact, that kind of interdepartmental reliance and cooperation is one of ▶

the hallmarks of the unique highway safety program. “For our program on highway safety we draw on the expertise of our faculty in such disparate fields as industrial engineering, transportation engineering, psychology, physiology and statistics. Most of our highway safety research projects are headed jointly by two or more faculty members, so when we research a project, we are able to consider it from several different aspects. We also work closely with experts from the Soroka University Medical Center, so we have far more scope and flexibility than a more traditional structure would permit.”

“All of us are in constant communication with each other,” Shinar notes. “This intellectual cross-breeding is one of our biggest strengths.”

The original program Shinar created in the late 1970s grew rapidly, often using outside research contracts to gain expertise and experience. Funds came from all segments of society, some from private industries, including General Motors and insurance companies. NGOs and foundations with an inter-

thoroughfares. But other studies – those focusing on driver fatigue, or the effects of alcohol and marijuana, or the use of cell phones – can be too dangerous to do on the real road. So a driving lab, to accurately simulate driving conditions, is essential,” notes Shinar.

The driving simulation laboratory that is now entering its third generation is a state-of-the-art fixed-base research driving simulator, with several unique features. “There are a few driving simulators at various institutions in Israel,” says Dr. Adi Ronen, one of the Department’s younger faculty members. “But that doesn’t tell you much, because the real question is, what kind of a simulator? Most consist of one or more computer screens, with the driver using a steering wheel. But at BGU, our simulator is based in a real car, so when the subject enters, it feels like his or her own automobile, with the car’s speedometer, steering wheel, dashboard and all the foot pedals. Our simulator testing allows us to collect an amazing amount of precise data.”

Ronen grew up in Pardess-Hanna

Being involved with other passengers – talking, communicating – is the biggest distraction a driver can face

est in traffic safety were frequent clients, as was the European Commission. The Israeli government itself – the Ministries of Transportation, Health and Labor – also availed themselves of BGU’s expertise. So by the time the graduate program was created, the professional reputation and facilities were in place.

One of the key elements of traffic safety research is a road test simulator. “Some kinds of research can be done on the public highway, with subjects driving real cars. Things like testing to see how well drivers judge the space between their car and the vehicle ahead was one big study we did on public

and received his Bachelors, Masters and doctoral degrees from BGU. Trained as a physiologist, he brought an additional dimension to the program when he joined the staff four years ago. “When Adi came on board, we enhanced our research capability, because we were able to perform studies on physiological aspects of road safety,” Shinar says. “Adi’s Ph.D. project involved studying the effects of alcohol on drivers, so with his credentials and abilities, our capabilities expanded. That’s the beauty of this program – every new person brings in credentials the rest of us don’t have, so our research outreach is constantly growing.”

“Now we’re able to monitor all three aspects of driving behavior –

performance, subjective impressions and physiological reactions. It’s complex and interesting,” Ronen says. “In some tests, you might see that simple driver performance remains the same, so you’d think the variable didn’t make a difference. But by including physiological reactions as well as driving measures, we are able to monitor the stress debt – that is, the driver might perform just fine at the moment, but because of the stress or tension, he or she cannot maintain it for longer periods. The physiological cost involved in maintaining performance is a very valuable piece of information to have.”

Ronen has pioneered ways of measuring stress. “We had to develop our own algorithms,” he says. “For example, when we measure heart rate, we aren’t looking at just the average heart rate, but rather at heart rate variability. Two people might have same heart rate, but one person’s heart rate varies a good deal. That’s a significant factor in measuring stress.”

One of the program’s most timely projects involved the use of cell phones while driving. “The study focused on the effects of practice and it showed that if you do enough driving while talking on the phone, you actually get better at managing the two,” Shinar says. “There’s a learning curve, and you can improve your driving performance while talking. You’re still better off not talking on the phone, of course, but practice does help. We and others also showed that there is essentially no difference between using a hand-held phone and a hands-free unit. It’s the talking that’s the distraction – the involvement in communicating with someone else. It’s not the type or location of the phone unit itself.”

What’s the biggest distraction for a driver? Other passengers. “It isn’t perceived that way,” Shinar says, “but being involved with other passengers – talking, communicating – is the biggest distraction a driver can face. To some degree, that’s counterintuitive. People have argued that having another set

of eyes is beneficial, and that someone in the car won’t bug you just at the moment you’re doing something critical, compared to someone on a cell phone, who is oblivious to your driving conditions. But still, having other people in

round information system. So if in the past you would use the cell phone to tell someone, ‘I’ll meet you at the pizzeria,’ now you’ll use it to Google the pizzeria, get the address and phone number, find the best route and then call to make

are, but guides you to your destination. But that doesn’t always make it simpler – the tendency is to make these devices more and more complicated. Companies vie with each other for developing systems that provide more and more

If you do enough driving while talking on the phone, you actually get better at managing the two



the car has proven to be the biggest distraction to the driver.

“But there’s no final answer, because technology continues to evolve,” Shinar notes. “The cell phone is a good example. It used to be that a phone had one function: to allow you to make a call. Now a cell phone is everything – it’s a hand-held computer, a calculator, your email connection, address book and all-

a reservation. It’s a far more complex process than it used to be and therefore much more distracting.”

“In spite of all the technological improvements, driving isn’t getting easier, it’s getting more complicated,” Shinar adds. “Navigation systems are another example. Once you used a map to plan your route ahead of time. Now you enter your destination into a computer navigation system and the computer not only tells you where you

information – but that means they also demand more driver attention, and that isn’t always good.”

For all of us who either ride or drive, greater safety and security on our roadways remains an overall goal. Shinar and Ronen assure us that BGU is picking up the challenge of educating the traffic safety experts of tomorrow. ■

Beneficial Bacteria

Dr. Osnat Gillor



Consider your average Tyrannosaurus.

Suppose you wanted to learn how the famous fierce-toothed dinosaur evolved, how it adapted to its changing environment. Where would you start?

The most obvious problem is the lack of a Tyrannosaurus to study, since they've been extinct for about 65 million years. But even if you had one on hand, there's another problem. The massive lizards – 13 meters (43 feet) long, tipping the scales at 7 metric tons (15,000 lbs) – didn't reproduce until they

became teenagers. So if you wanted to study how they evolved, adapted and changed over many generations, your own research would require dozens of generations of humans. Who has time?

That said, the evolutionary process of the Tyrannosaurus – and other extinct species – is of great interest to scientists today. If nothing else, it would be good to know why their heads were over 1.5 meters long, when the brain inside was only big enough to hold about a liter of liquid.

Meet Dr. Osnat Gillor, a research scientist at the Zuckerberg Institute for Water Research at the Jacob Blaustein Institutes for Desert Research at BGU's Sede Boqer campus, who is working on a facet of what is called "experimental evolution." She is one of a number of scientists who are ferreting out the secrets of evolutionary behavior – but doing it by studying a different species altogether. For example, instead of studying an actual Tyrannosaurus, scientists study the evolutionary process

of bacteria. Tiny, microscopic bacteria.

Why? "Because by using bacteria to study how evolution proceeded, we can drastically cut the length of time needed to observe mutations and change," says Gillor. "Because generation time is so short for some bacteria – an hour to an hour and a half – the process of mutation can be observed in a relatively short time. You know where you start. You are able to examine the mutations that occur all along the intermediate stages, and then you know where you end. Scientists can study 10,000 generations, 100,000, or even a half million, and learn all along the way. If you were working with a larger and more complicated species, that wouldn't be possible."

In Gillor's lab, the specific research involves antibiotic-producing bacteria. "Bacteria live in an environment where they are forced to compete for resources," she says. "Whatever they are attached to – whether a table, a leaf, or a tooth – bacteria have to fight for survival – beat out other bacteria for whatever they need in terms of nutrients, a carbon source, or living space. So in order to improve their chances of survival, bacteria manufacture antibiotics that are harmful to their competitors," she explains. "Not a broad-spectrum antibiotic that would kill many other bacteria, because some are beneficial, and they want those. But they produce a very specific antibiotic that's designed to kill only those bacteria that they compete with in terms of food or space.

"So that's what we're studying: the ecology of the evolution of the bacteria that produce the antibiotics. We're using the bacteria as models – we're interested in a wider topic, but we use the bacteria to demonstrate the process."

Gillor's work has an enormously beneficial practical application, too, in an area critical to Israel and other arid locations. "One of the big problems in desalinating water – removing unwanted dissolved salts to make the water potable – is the problem of bacteria that grow on the surface of the filtering membranes and clog them up. If we could learn to use the bacterially-produced antibiotics to kill the bacteria growing on the filters, that

would be very helpful. In addition, the antibiotics could be utilized to detect the presence of harmful bacteria in water – to prevent problems before they begin – putting us several steps ahead."

Gillor's interest in science and in environmental microbiology in particular didn't kick in until she was in the Israel Defense Forces (IDF). "I loved my work in the IDF, and decided then that I wanted to study science. But I hadn't studied science in high school, so I had

(LTER) project initiated and led by Prof. Moshe Shachak of the Mitrani Department of Desert Ecology had started years ago in collaboration with a number of participants from various universities and research institutes in Israel. Yet, Rainey had noticed that they did not include bacteria in their analysis and suggested that I and Dr. Soares, a colleague in my Department, who was hosting him, pick the project up, and we're moving ahead."



Antibiotics could be utilized to detect the presence of harmful bacteria in water – to prevent problems before they begin

to work enormously hard to catch up. After I received my Ph.D. from the Hebrew University of Jerusalem, I spent four years at Yale and the University of Massachusetts working with Prof. Margaret Reilly, exploring ways to detect and deal with waterborne pathogens. When the opportunity arose to work in the Department of Environmental Hydrology and Microbiology at the Zuckerberg Institute for Water Research, I jumped at it. There's a wonderfully supportive and visionary environment at the Institute."

Another project in Gillor's lab came about last year thanks to Fred Rainey, a visiting professor from Louisiana State University. "He saw that a Long Term Ecological Research

The objective of LETR is to collect ecological information about almost everything that impacts an ecosystem over an extended period of time. To that end, five LETR plots have been established along the rainfall gradient in Israel, in locations ranging from the far north to the south near Sede Boqer. "In each plot, many aspects are studied: weather, soil chemistry, perennial and annual plants, animals and insects, and now our group is studying the soil microorganisms. Each group examines the effects of various land-use strategies, such as grazing and clear cutting, on the organism of choice, with the aim of eventually integrating all the emerging data and establish guidelines for sustainable development of open land in Israel."

Just like Gillor's bacterial-evolution project, the LETR is a long-term proposition, with study and research that will continue indefinitely. For Gillor, who lives in Sede Boqer with her husband and three children, it's a labor of love. The opportunity to work in the inter-disciplinary, cutting-edge research environment of the Zuckerberg Institute – work that is destined to improve the quality of life in the world's desert areas – is more than welcome. ■

What is the place of social and collective memory in the history books? How do oral history and oral traditions fit into the official versions of history?

Historian Guy Beiner addresses this question in his book *Remembering the Year of the French: Irish Folk History and Social Memory* (University of Wisconsin Press), which won the 2007 Ratcliff Prize awarded for “an important contribution by an individual to the study of Folklore or Folk Life in Great Britain and Ireland.”

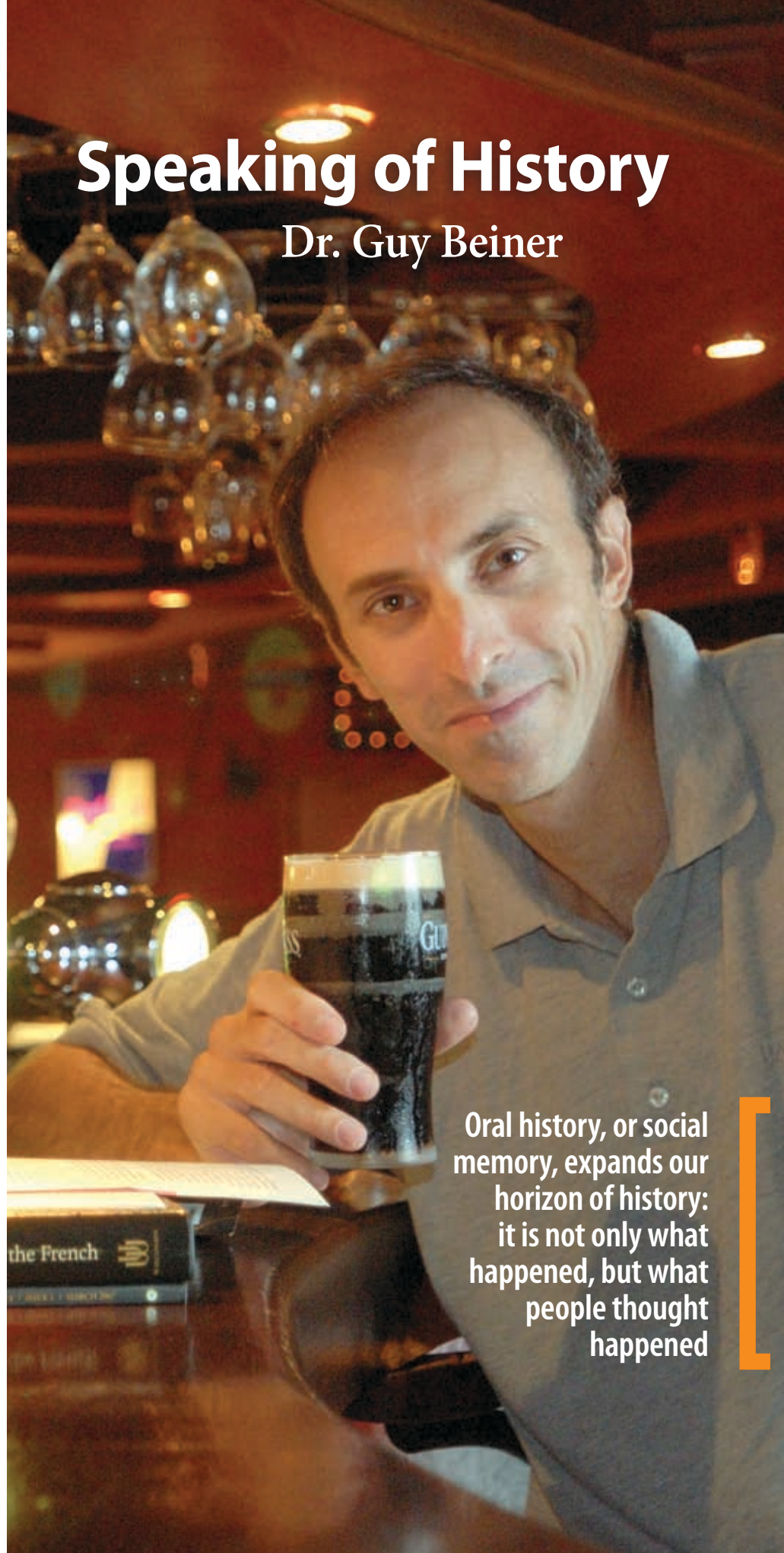
The announcement that he had won this prestigious international prize coincided with the first-ever Irish studies symposium to take place in Israel. Organized by Beiner, the conference “Ireland Beyond Stereotypes” was held on the Marcus Family Campus in June and included presentations by scholars from Ireland and Israel. At the symposium, Irish Ambassador to Israel Michael Forbes presented the Zalman Aranne Central Library with a voluminous collection of books by Irish authors and scholars, donated courtesy of the Cultural Division of the Irish Department of Foreign Affairs.

Beiner, a lecturer in the Department of General History, is the only scholar in Israel specializing in Irish studies. Beiner wrote *Remembering the Year of the French* primarily while he was in Ireland as a Government of Ireland doctoral scholar at University College Dublin and a research fellow at Trinity College in Dublin. The book deals with the failed French invasion of western Ireland in 1798 and examines the complex connections between historical events and the folkloric representations of those events.

“Some people regard oral history as ‘the dustbin of history’, insisting that it isn’t real history,” states Beiner. But, he maintains, written documents found in archives are not the only sources from which we can reconstruct the past. Oral history, or social memory, “expands our horizon of history: it is not only what

Speaking of History

Dr. Guy Beiner



Oral history, or social memory, expands our horizon of history: it is not only what happened, but what people thought happened

happened, but what people thought happened, and what people remembered afterwards and said happened. I believe that this is also part of history,” he says.

Beiner’s undergraduate studies were at Tel Aviv University where he became interested in oral histories. Ireland seemed to be the logical place to pursue this area of study. “When I finished my history degree I was particularly interested in popular culture and oral narratives and I realized that Ireland is a reservoir of folklore,” he explains.

The book examines how communities in a specific region of Ireland remembered and commemorated, until the late 20th century, a dramatic episode that took place in the late 18th century. Beiner is aware of the irony of a young Israeli historian going to Ireland and brazenly turning Irish history on its head, practically saying “what you’re doing is interesting, but let’s look at your past in a completely different way.” However, it seems that since beginning his work in Ireland, historians in other countries have begun doing similar work. “The history of memory has begun to take hold. It will be interesting to see how this is accepted,” he muses.

Beiner speaks English without a trace of an Israeli accent, and with a slight Irish brogue. “I used to be quite a chameleon in adopting different accents, like Zelig’s multiple personalities in the Woody Allen movie,” he jokes. He explains that his accent is “fairly generic,” since there are many Irish accents, depending on region and class. That non-specific accent was a help, he says, in conducting his oral history interviews. “The people I was interviewing could relate to me – they couldn’t pin me down as being local, but I wasn’t completely foreign.”

This is a distinct advantage, he says, in current field work he’s doing for a book on memory and forgetting in Northern Ireland, where he doesn’t want to be identified as belonging to one side or the other in the sectarian divide.

One of the ways Beiner managed to support his studies during his years in Ireland was working for the Israeli embassy in Dublin as the arts and culture officer. “The job allowed me to exhibit the best of Israeli art, to bring over some of Israel’s leading artists and to develop ties with Irish artists, so that I became involved with the vibrant cultural scene in Ireland.”

We should explore new ways in which social memory can complement and challenge conventional written history

Throughout his research and field work, Beiner made it clear that he is Israeli. At one point, this fact elicited a surprising response. In some communities in western Ireland where he was conducting interviews, people would make enigmatic comments like “Guy, we’ll never forget what your people did for us here,” or “Your people put bread on people’s tables here when they were starving.”

He was mystified by the reference, until he uncovered by chance the strange story – missing from historical accounts – of Jewish refugees who arrived in western Ireland from central Europe on the eve of the Holocaust.

Although Ireland had a vigorous policy not to let Jewish refugees into the country (the Irish ambassador in Berlin was pro-Nazi), somehow a group of Jewish entrepreneurs managed to escape and get special visas to set up industries in the west of Ireland. “Ireland was experiencing its own economic crisis and looking to modernize itself. The Jewish industrialists were trying to get out and save themselves, while Ireland was looking to attract investments.” The Jews managed to bring over

skilled people, together with their families, and established factories that manufactured hats and hat trimmings. It became the biggest industry in the poor, rural area of western Ireland. One factory even manufactured the famous Stetson cowboy hats. Their success was also the community’s success, since the factories provided desperately needed employment.

But soon after the war, these Jewish migrants picked up and left, going on to other countries. “They left completely. They even took their dead with them: the graves have disappeared and there is no Jewish community there,” marvels Beiner. Consequently, the Jewish contribution to the industrialization of rural Ireland is not publicly recognized. “So here you have a remarkable case in the history of memory: on the ground, people remember; but officially there’s no remembrance.”

Beiner teaches both undergraduate and graduate students and has introduced a number of innovative and unique courses in modern European history, including one on the history of terrorism – provocatively titled: “The modern state and violent outlaws: criminals, terrorists, or freedom fighters?” – and another on how the First World War is remembered, in which he makes extensive use of diverse multi-media sources, such as modern movies and archival film footage. This year, he will introduce a new course in critical appreciation of oral history – applying the subject that so absorbed him in Ireland, to contemporary Israel. “Our multi-ethnic society is a great place to interview family and friends. Without leaving Israel, students can collect oral histories from all over the world,” he states. “We should re-examine the usefulness of oral history and explore new ways in which social memory can complement and challenge conventional written history.” ■

Literally Philosophical

Dr. Anat Weisman

Dr. Anat Weisman, the first incumbent of the Rosen Family Career Development Chair in Judaic Studies, specializes in modern Hebrew poetry ranging from new, avant-garde creations to classical compositions. She has written in particular about the works of Leah Goldberg (1911-1970), a Hebrew poet of Lithuanian descent whose works are still popular today in Israel, and David Avidan (1934-1995), an avant-garde modernist Israeli poet. She views the overall quality of Hebrew poetry as “a kind of miracle”.

Although Weisman is relatively new at BGU, she says, “I was immediately won over by the uniquely warm and professional atmosphere of this very special place. Also, I find it impressive that the number of research students in the Department of Hebrew Literature has more than tripled during the last five years, attesting to the vitality of the Department at a time when most Israeli universities have downsized their Jewish studies/Hebrew literature departments.”

Weisman took a circuitous route to Hebrew literature, she says. “My initial leanings were toward philosophy, especially questions of ethics and esthetics. I was tempted to become a researcher of philosophy. I studied literature and philosophy as an undergraduate at Tel Aviv University and was part of a special Masters program that integrated literature and philosophy at the Hebrew University of Jerusalem. I received my doctorate in Hebrew literature at the Hebrew University, but I felt that my ethical and philosophical bent actually enriched my work in literature. I find interpretation of texts and reflection on this activity to be a form of quest for a truth known to be unattainable.

“We read texts written by authors very different from ourselves and who lived in other historical periods. As we attempt to understand them, we translate the texts into our own terms, our own lives, our own experiences and expectations. On the one hand, we want to understand the other, the foreign; on the other hand, we must remember that the idea of complete understanding is an illusion. It is when we confront

the inexplicable that we are given the rare opportunity to get ‘rid of ourselves’ for a moment and understand, if only slightly, what was not within our frame of expectations. And this, paradoxically, might be as close to self-knowledge as we can ever get. This is true for texts written fifty years ago, and all the more so for texts written hundreds or even thousands of years ago, such as ancient Jewish texts.

“Literature allows us to traverse space and time. Of course, we choose the texts we read according to our personal tastes: our preferences in esthetics, structural forms, themes and subjects. As we travel in literary space, we attempt to penetrate different, foreign worlds and consciously maintain the illusion that we can totally understand what we read.”

And what about Hebrew or Israeli literature? How does that fit into the general picture of understanding the “foreignness of texts”?

“Hebrew literature is a complex field that in an ideal world would demand of its researchers expertise in numerous fields – esthetic, ethical, theoretical, formal, historical – together with an intimate knowledge of the corpus of traditional Jewish religious literature and medieval Hebrew literature, as well as world literatures.

“On the one hand, modern Hebrew/Israeli literature is a triumph of continuity. It succeeded in bringing to life a language that had lain dormant for centuries, thus creating a link to the ancient past of the Bible, of the Mishna and Talmud, of rabbinic lore. But on the other hand, secular culture actively severed many of our ties with the past. Much of the Hebrew literary revival of the early twentieth century emphasized negation of the Diaspora and professed to create a ‘new Jew’, a proud Jew in his own land. This created a culture of oblivion or erasure of the history of exile, where, for instance, Biblical Hebrew is present in the culture while the Talmudic culture is perceived as exotic.”

It is no coincidence that many of the multiple perspectives and dialectic complexities evident in modern Hebrew/Israeli literature, are evident in Weisman’s life as well.

“As a child growing up in a secular family, I spent my summers alternating visits between two sets of grandparents: one set were Orthodox, ninth-generation Jews in Jerusalem, while my other, secular grandparents lived in Gadera. These grandparents were staunch secular Zionist products of the collective agricultural labor movement that sought to create the ‘new Jew’ whose ‘religion’ was the Zionist work ethic.

We must remember that the idea of complete understanding is an illusion

In short, I feel privileged to have been exposed to different Israeli backgrounds and lifestyles throughout my life.

“The Hebrew language has changed so much over this short time frame,” Weisman explains, “that the seminal works of the Hebrew literary revival are now hard for young modern Israelis to understand, or even find in bookstores, though recently there has been a change for the better. These texts contain so many allusions to ancient Jewish rabbinic literature and lore that they are beyond the understanding of young secular Israelis of today.

“I see it as encouraging that today, secular circles hold popular workshops dealing with Talmudic and Midrashic sources, though often the sources serve only as a springboard to deal with current issues. This, too, is important – after all, it is legitimate to assign our own interpretations to literary works of other generations and cultures – but it is

equally important to try to understand these texts within their own historical and cultural perspectives.”

One of the things Weisman hopes for is the creation of annotated versions of classical Hebrew literary revival works, to make these works more comprehensible to contemporary readers.

Another example of “fusion of horizons” is evident in the work of the Israeli poet David Avidan. Avidan was a Tel Aviv-born poet who began to publish poetry in the 1950s. Although he was part of the contemporary Israeli secular culture of his poetry, he also belonged to the genre of Hebrew language poetry revival which began in the nineteenth-century Eastern European Jewish world. Avidan fuses these worlds when he expresses modernist/existentialist concerns with a sentence containing clear Biblical allusions: “The angels on the ladder are not going down nor up.” (“המלאכים בסולם לא יורדים לא עולים.”)

“The alert reader immediately understands the allusion to Jacob’s ladder in the book of Genesis – a miraculous ladder in Jacob’s dream upon which angels descended from up to down, and ascended from down to up,” notes Weisman. “Even in the negating context of Avidan’s poem, the image of the ladder retains some of its original and magical power. Being aware of this biblical context is not a matter of scholarly etiquette; it enables us to hear the original dynamic image beyond the desperate metaphor of a static ladder.

“I try to integrate my research interests in the courses I teach,” explains Weisman. “These include courses on literary theory and philosophy, as well as courses centered on the work of one or several poets from the nineteenth century through today.”

One of the projects that Weisman is involved in is BGU’s *Heksherim* – Institute for Jewish and Israeli Literature and Culture. She is also a member of the editorial board of *Heksherim’s Lexicon of New Hebrew Literature* – a guide to Israeli writers. ■

Poem by Esther Raab, 1930

סבתות קדושות בירושלים,
זכותכן תגן עלי:
ריח סמדר ופרדסים פורחים
עם חלב אם השקיתי;
כפות רגלים
בידים
זהט ממששות;
פרועים
ות ודבורים
לי דובבו;
אל בים תיכון
יוד אלופי המקד
לי בהררי ירושלים
דורה.
בורה תחת התמר
קנה ונאשוח
נעה ומלסקמה.
תות קדושות בירושלים,
תכן תגן עלי.
ריח כנדיכן באפי.
ח נרות שבת תסעלתי.

Excellence Recognized

Prof. Gabi Ben-Dor, incumbent of the Dr. Morton and Toby Mower Chair in Shock-Wave Studies and Head of the Protective Technologies R & D Center, was awarded a prize from the Università degli Studi di Roma (University of Rome) for his "Outstanding Contribution to the Research of Gas Dynamics and Its Application" during the 17th International Symposium on the Interaction of Shocks. Ben-Dor, an internationally recognized expert in shock waves, is the lead author of *The Handbook of Shock Waves*, which contains a comprehensive, structured coverage of research topics related to shock-wave phenomena, including shock waves in gases, liquids, solids and space. Shock waves represent the physical phenomena, which appear to be of special practical importance in three major fields: compressible flow (aerodynamics), materials science and astrophysics. Ben-Dor was recently appointed a Fellow of the Society of Shock Wave Research of India.

Prof. Hendrik Bruins, a member of the Department of Man in the Desert at the Jacob Blaustein Institutes for Desert Research and a lecturer in the Department of Geography and Environmental Development, received the Dutch Royal Award of Officer in the Order of Orange-Nassau for his world-

wide achievements in policy-oriented studies on drought, hazard assessment and contingency planning in relation to water and food security, as well as for his innovative work concerning the ancient Near East. The decoration accompanying the award was conferred upon him by then Dutch Deputy Prime Minister and Minister of Finance Gerrit Zalm in the name of Queen Beatrix during a gala event organized by the Dutch Friends of BGU in The Hague.

Dr. Alon Friedman of the Department of Physiology in the Faculty of Health Sciences was awarded the prestigious 2007 Michael Prize for Epilepsy Research by the Michael Foundation of Germany. The prize is awarded biennially to scientists under the age of 45. Friedman, a member of the Zlotowski Center for Neurosciences, is one of the leading figures in the field of blood-brain barrier disruption dealing with the problems of the neurovascular unit, both as mechanisms of disease or disorders and as novel targets for treatment.

Prof. Yehuda Gradus, Director of the Ben-Gurion Research Institute for the Study of Israel and Zionism, Chairman of the Negev Center for Regional Development and a member of the Department of Geography and Environmental Development, was awarded

the IsraLotto (Mifal Hapayis) Michael Landau Prize for Scientists and Research for 2006 in the category of geography. Gradus is the incumbent of the Harry Levy Chair in Geography and Regional Planning and a world-renowned researcher in the field of economic geography and regional development, with an emphasis on the geographical dimensions of the relationship between the center and the periphery and the repercussions of this in society, economics and politics.

Prof. Yossi Kost of the Department of Chemical Engineering was elected Foreign Associate of the American National Academy of Engineering (NAE). There are only eight other members of the Academy in Israel of a total of 188 foreign associates worldwide. Election to the National Academy of Engineering is among the highest professional distinctions accorded to an engineer. Academy membership honors those who have made outstanding contributions to "engineering research, practice, or education, and to pioneering of new and developing fields of technology." In the citation issued by the NAE, Kost was recognized for "discoveries that led to ultrasonic drug release and self-regulated drug delivery systems."

Prof. Shaul Ladany, professor emeritus in the Department of Industrial Engineering and Management and former incumbent of the Solomon and Abraham Krok Chair in Entrepreneurial Management, has been awarded the Pierre de Coubertin Medal for outstanding services to the Olympic Movement. The Council of the Olympic Order reached the decision at a meeting of the International Olympic Committee in Lausanne. In the letter of notification, Ladany was cited as "an unusual person with unusual outstanding sports achievements during a span covering over four decades." One of the greatest race-walkers in history, Ladany still holds the world record in the 50-mile walk and the Israeli national record in the 50-km walk.

Prof. David Newman of the Department of Politics and Government received a prestigious British Leverhulme Trust Visiting Professorship for the 2006/07 academic year. He spent the year as Visiting Professor at the University of Bristol, in the field of Geopolitics. A political geographer, Newman has published widely on territorial dimensions of the Israel-Palestine conflict. His work has focused on issues relating to borders and settlements. The Leverhulme Trust enables universities in the United Kingdom to host an internationally distin-

guished academic from overseas in order to enhance the research skills and work of the host institution. Visiting Professors commit to deliver a series of "Leverhulme Lectures" to mark their residence in a British university.

Prof. Amos Oz from the Department of Hebrew Literature and incumbent of the S.Y. Agnon Chair in Contemporary Hebrew Literature established by the German Associates, received the prestigious Prince of Asturias Award for Literature 2007 from the Prince of Asturias Foundation in Spain. The prize was awarded by a jury headed by Spanish Royal Language Academy director Victor Garcia de la Concha. According to the minutes of the jury, Oz has "fashioned the Hebrew language into a brilliant instrument for literary art and for the truthful disclosure of the most dire and universal realities of our time, focusing especially on advocating peace amongst peoples and condemning all forms of fanaticism." Oz has written 18 books in Hebrew, as well as several hundred articles and essays. His works have been translated into more than 30 languages.

Prof. Yigal Ronen, the Dean of the Faculty of Engineering Sciences and a member of the Department of Nuclear Engineering, received an honorary doctorate degree from the St. Petersburg State Polytechnical University (SPSPU) in Russia.

Ronen, who is the incumbent of the Abraham and Bessie Zacks Chair in Nuclear Science, is President of the Israeli Academy of Nuclear Sciences, a fellow in the American Nuclear Society and a member of the Russian Academy of Engineering. He is an expert in nuclear reaction theory and is considered an authority on nuclear reactors. The SPSPU is considered to be a world leader in the field of engineering. In the citation announcing the honor, SPSPU stated that in addition to his outstanding scientific achievements, Ronen is being recognized for "his significant contribution to fostering the development of scientific connections between the SPSPU and BGU."

Prof. Zaki Shalom of the Ben-Gurion Research Institute for the Study of Israel and Zionism was one of two recipients of the Prime Minister's Prize in Memory of David Ben-Gurion. Shalom was recognized for his book, *Fire in His Bones*, which explores the activities of David Ben-Gurion following his resignation as prime minister until his passing in 1973. Shalom has been a researcher at the Institute since 1986 and has published a number of books and articles on Israel's defense policy, the Arab-Israeli conflict and the role of the Great Powers in the Middle East. His book, *David Ben-Gurion and the Arab World, 1949-1956*, was

translated and published in Arabic (Dayan Research Center at Tel Aviv University and the Ben-Gurion Research Institute, 2004).

Prof. David Shinar from the Department of Industrial Engineering and Management and incumbent of the George Shrut Chair in Human Performance Management, was appointed the new Chief Scientist of the National Road Safety Authority. The Road Safety Authority is responsible for the coordination of all government activities to increase highway traffic safety. Shinar is a member of the executive board of the International Council for Alcohol, Drugs and Traffic Safety, an honorary fellow of the Human Factors and Ergonomics Society of America and a recipient of the Society's A.R. Lauer Award for his contributions to highway traffic safety. Shinar was commended as "a man who has researched driver and pedestrian behavior and the cause of road accidents for more than 30 years. He is one of the top researchers in Israel and the world in the area of human factors in road accidents." (see page 4)

Dr. Yoav Tsori from the Department of Chemical Engineering has been awarded a Krill Prize for Excellence in Scientific Research 2007. His research focuses on the "theoretical description of ways to control structures at the sub-micron scale, in particular, how exter-

nal fields induce new types of phase-transitions in liquids, polymers and other ordered phases of soft-matter." Initiated in 2005 by the Krill family, the prizes are awarded annually in the fields of Exact Sciences, Life Sciences, Medicine, Agriculture and Engineering to young faculty members at Israeli universities who hold untenured positions. Recipients are selected by the Wolf Foundation Scholarships Committee. The selection is made on the basis of the candidate's excellence and the importance of his or her field of research.

Prof. Orly Yadid-Pecht, a member of the Unit for Electro-Optical Engineering and head of the Very Large Scale Integration Systems (VLSI) Center, has been elevated to the highest grade of membership in the Institute of Electrical and Electronics Engineers, Inc., an IEEE fellow. She was recognized for her contributions to the design and modeling of complementary metal oxide semiconductor image sensors. The IEEE Fellow is one of the most prestigious honors of the IEEE, and is bestowed upon a very limited number of senior members who have made outstanding contributions to the electrical and information technologies and sciences for the benefit of humanity and the profession. The number of IEEE Fellows elevated in a year is no more than one-tenth of a percent of the total IEEE voting membership. This year 268 new Fellows were elevated.

Designing Nerve Cells

Dr. Danny Baranes

Each human brain contains approximately 100 billion neurons – or nerve cells – like the number of stars in our galaxy. Each neuron has thousands of synaptic connections, which are communication sites through which it receives or transmits information to other neurons, making the human brain like an extremely complex and busy metropolis.

To function properly, such a metropolis needs an efficient roadmap. Indeed, brain functions involve the activation of millions of neurons connected through precise wiring patterns. Distortion of these patterns has pathological consequences as observed during a stroke, schizophrenia, or Alzheimer's and Parkinson's diseases.

Therefore, it is in the essence of our intellectual curiosity and existence to wonder how the astronomical number of communication pathways in the brain are orchestrated to produce coherent human behavior. Yet, experimentally speaking, it is virtually impossible to grasp the entire repertoire of connections.

Instead, cell biologists such as Dr. Danny Baranes of the Department of Life Sciences and the National Institute for Biotechnology in the Negev, start with a more modest system where neurons are grown on a dish in low densities. In such systems, termed cell cultures, the development of individual neurons can be visualized and captured by a camera. Baranes works on neurons from the hippocampus part of the brains of rats – that area of the brain that is responsible for memory functions and is one of the first regions to suffer damage in Alzheimer's disease.

As in the brain, hippocampal neurons in culture communicate by forming connecting wires, a cranial version of a network of roads. For years, Baranes has watched these wires spontaneously develop networks between themselves. He discovered that the spontaneous growth in the culture “roadmap” has

Corals provide an excellent platform for growing cells. Chemical treatment leaves the coral with a calcium-rich porous skeleton onto which cells can adhere and by which they are nourished

a natural order, and is not necessarily random. He has noticed that while communicating, neurons in the dish tend to converge their connecting wires to form circle-road-like structures. “It is interesting,” he notes, “that synaptic connections of the strongest communication capability cluster at a hub.

“This wiring rule reveals a novel link between the structure of a neuronal network and its function,” he explains. “We are interested in discovering additional wiring rules to enable us to design neuronal networks of specific connectivity patterns and, hopefully, of particular functions. Such an approach could be a breakthrough towards better understanding the nature of neuronal networks and improve our capability to repair damaged brain tissue following injury and diseases.”

Besides learning about wiring from the spontaneous growth of neurons in culture, Baranes has developed other means to engineer neuronal networks. “One of the ways we can affect the assembly of neurons into specific network configurations is by growing them on a variety of three-dimensional scaffolds,” he notes. “The purpose of using such scaffolds is not only to design networks, but also to investigate how to get neurons to develop into tissue that can be used to restore damaged brain tissue.” On this project he collaborates with Prof. Razi Vago of the Department of Biotechnology Engineering using, of all things,

coral from the Red Sea near Eilat.

Corals provide an excellent platform for growing cells. Chemical treatment leaves the coral with a calcium-rich porous skeleton onto which cells can adhere and by which they are nourished. “Surprisingly, neurons grow and develop durable three-dimensional tissue on these skeletons.” In his experiment, Baranes analyzed the injured brain after the transplant of coral skeletons and found that the brain tissue regenerated at the transplantation site. This achievement holds out the possibility that with certain additives, the coral skeleton could be a healing agent to correct communication breakdowns in the brain associated with strokes and diseases.

Baranes is researching another avenue of cell culture engineering in a project coordinated with five other scientists headed by Prof. Motti Deutsch of Bar-Ilan University, who created the Israel Cellome Network and who

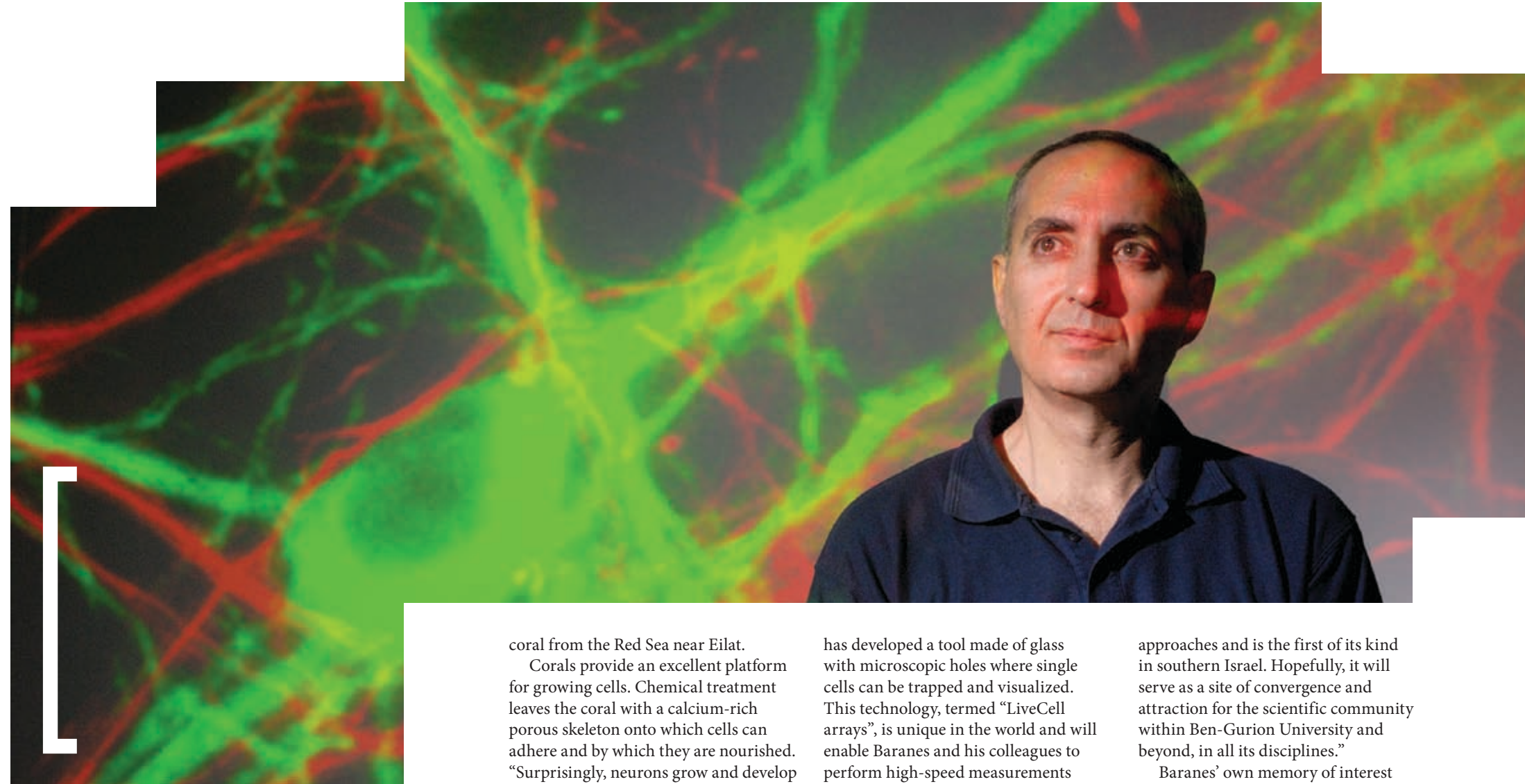
has developed a tool made of glass with microscopic holes where single cells can be trapped and visualized. This technology, termed “LiveCell arrays”, is unique in the world and will enable Baranes and his colleagues to perform high-speed measurements of the response to drugs and other extracellular agents at the level of the single neuron or the neuronal network. Availability of individual neurons and neuronal assemblies on a cell chip that enables real-time monitoring of their behavior and responsiveness to drugs and modulators will open new horizons for therapy of mental, degenerative and other types of diseases of the nervous system and can make the difference between a test and a treatment.

In addition to teaching basic principles in cell biology, Baranes has established the Interdisciplinary Unit for the Cellomics of Neural Cells and Networks at BGU. “The most important feature of this unit,” he says, “is that it utilizes the innovative LiveCell array technology and interdisciplinary

approaches and is the first of its kind in southern Israel. Hopefully, it will serve as a site of convergence and attraction for the scientific community within Ben-Gurion University and beyond, in all its disciplines.”

Baranes' own memory of interest in science goes back to his childhood in Ashdod, where he moved at the age of one-and-a-half from Argentina. His favorite bedtime books described the worlds of physics and philosophy. His five-year-old child expresses the same curiosity in the world around us: “If mom gave birth to me and grandma gave birth to mom, then how did it start? Who gave birth to the first man?”

Baranes believes that scientists bear a great deal of responsibility as they investigate life itself. However, he notes, “My biggest responsibility in life is to be a loving father and husband.” ■



Motivated Choices

Dr. Idit Katz

Dr. Idit Katz's main area of study is human motivation in learning, an area for which she could be a poster girl. As she speaks of Self Determination Theory (SDT) – the basis of her research – and of the environment's role in encouraging motivation, her eyes shine and her speech grows animated as she describes, with obvious passion, her work.

"I have always been interested in motivation. I started as an occupational therapist and worked with children who have developmental problems, for whom the subject of self-determina-



tion is very important," says Katz, a member of the Department of Education. "The environment is central to a person's accomplishments, and I wanted to learn what the environment can do, without coercion, to motivate people. My approach is the opposite of behaviorist theory.

According to the Self Determination Theory, the environment must satisfy three basic needs – autonomy: the need to feel a sense of full volition regarding one's activities and goals; competence: the need to be effective in one's interactions with the environment and to feel that one is capable of mastering challenges; and relatedness: the need to feel closely related to other people – to enable a person to act from inside,

without external coercion. This has implications not only for learning, but for well-being at large, believes Katz.

Katz completed her Bachelors degree in Occupational Therapy at the Hebrew University of Jerusalem, her Masters degree in Educational Counseling at Tel Aviv University and her Ph.D. in BGU's Department of Education. She is driven by the desire to help people act from internal, rather than external, motivation. Intrinsically motivated students study not because they have to, but from a sense that "I want to do this" because "it serves me". Those with external motivation work, for example, so their grades won't go down or to satisfy their parents. The environment, holds Katz, can be a potent force in turning external motivation to internal.

In one project, Katz probed a subject with which we are all familiar, but about which little research exists: homework. In Israel, the Ministry of Education has not established any clear policy about homework, and its amount and content differ from school to school, from teacher to teacher.

Katz examined the extent to which

their teachers less and less as a source of support. "We saw clearly that the students' reduced motivation corresponds with their changing perception of the teacher's function," says Katz. "This means that teachers can have a central role in motivation and effecting change. They have the ability to influence the motivation of students, even the most difficult ones."

In the next stage of this research, Katz plans to probe this issue from the teachers' point of view.

In another research project, Katz checked whether the need for autonomy crosses cultural boundaries. "There is general agreement about the global need for relatedness and competence, but some theorists think the need for autonomy exists only in individualist Western societies," she says.

Here, Katz entered into cross-cultural research, which was the basis for her doctorate at BGU and for subsequent research. "I found it doesn't matter where you grew up or what your socialization has been. Autonomous support is crucial to everyone in creating internal motivation," she says. "When you

It doesn't matter where you grew up or what your socialization has been. Autonomous support is crucial to everyone in creating internal motivation

teachers can impact students' motivation to do homework. She found that what begins as internal motivation for young children turns over the years to external motivation. "Students pay an emotional price for this, so much so that they may even drop out," she says.

Trying to understand the function of teachers in this decline, Katz compared the perceptions of fourth graders with those of ninth graders. She found that as they grew up, students viewed

are deprived of this, you are motivated by factors that have negative emotional and cognitive consequences." While Katz showed that expression of this need may differ from culture to culture, it is shared by all children.

To check if the need for autonomy exists in different societies, Katz took seventh graders from both Jewish and Bedouin backgrounds in southern Israel and offered them a number of choices.

She used choices, she explains, "that would allow for realization of the self, so they wouldn't be 'empty'."

According to Katz, people commonly assume that choice – as in allowing a child to choose between flute or piano lessons, or between a judo or gymnastics course – equals autonomy. "Choice, however, is just one part of giving autonomy," she states. "Letting children select between factors that have no meaning for them is a matter of picking, not choosing. For both groups, choice for the sake of choice has no value. It is constructive only when it entails opportunity for interest realization."

Katz revealed that autonomy support is vital for intrinsic motivation; the achievements of children who act out of external motivation will be inferior to those who are internally motivated.

In both her instruction and research, she takes advantage of the University's unique location and the opportunity to work with diverse populations. As part of her teaching responsibilities, she trains teachers from the Bedouin sector to be educational counselors in their own schools. She played an instrumental role in building this program three years ago. "Already," says Katz, "these counselors have had great influence in their schools. They both work with the school as a system, and help activate individuals within this system."

While Katz's genuine curiosity about her subject – and subjects – contributes to her enjoyment of teaching, she terms research her "true love."

"In my research, I work to integrate creative thinking and unite different research methods to express my subjects' deeper layers," she says. "I'm very happy at BGU, where I have the opportunity to teach different populations and accompany students through their studies and their professional maturation. I couldn't ask for anything better." Intrinsic motivation indeed. ■



In recent years, scientists have been studying biological systems or synthetic mimics in order to create applications in chemistry, biotechnology and nanotechnology. Some researchers, such as Drs. Nurit and Gonen Ashkenasy, are returning to proteins, the building-blocks of nature, for inspiration. In Nurit's words, "Nature beats us scientists hands-down when it comes to the design of structures and functions."

Dr. Nurit Ashkenasy and Dr. Gonen Ashkenasy are husband and wife and parents of three children, but they are quick to point out that they are not "a husband and wife team." Although both are deeply involved in studying artificial peptides (short proteins), they each focus on completely different aspects.

Nurit alters peptides into materials, structures and devices for nanotechnology applications. "Although the functions I desire are very different from the natural function of peptides, I use the outstanding characteristics of peptides to achieve them," she says. For example, nature does not boast electrical properties, and Nurit's dream is to combine nanometric objects (tiny objects like molecules) as done by nature, into electrical devices. One of her projects is to engineer electronic conduction onto specifically designed peptide-based nanotubes in order to create electronic wires with a diameter of one billionth of a meter.

The Chemistry Between Them

Dr. Nurit Ashkenasy | Dr. Gonen Ashkenasy

Gonen, on the other hand, characterizes his research as the chemist's approach to studying the complexity of biological systems. "First, I analyze components of the cell machinery, and then try to create them from artificial molecules." He adds, "I created a system of nine peptides, a 'soup' of molecules wired together. We were able to cause them to replicate, either with genetic-like information (similar to DNA) or external triggers such as light or heat. That was exciting." Gonen's dream is to use such systems to shed new light on the long-standing questions of the origin of life and early evolution.

On the more applicative front, the biotechnological devices that Gonen has in mind are artificial sensors, particularly the kind that detect disease markers, and receptors, especially cells that respond to drugs. For chemistry functions, Gonen is trying to create biomimetic catalysts, or synthetic compounds that can simulate the mode of action of a natural enzyme by catalyzing a chemical reaction.

So how did the Ashkenasy team first get together – personally as well as professionally? Though they were both undergraduates at the Technion – Gonen in chemistry and Nurit in physics and materials engineering – they only met when they were both working as research staff members at the Research and Development Center for Israel Chemicals (IMI). They have been together ever since, and that's also when things became complicated. "We were determined to have it all: to bring up our children as a team, while each of us would continue to pursue his/her academic and research dreams. Since we insisted on remaining together as a family," says Nurit, "that meant we would only accept positions at the same institution or institutions in close proximity to each other."

Nurit received her Ph.D. at Tel Aviv University's Department of Electrical Engineering/Physical Electronics and did some post-doctoral work in the same

department, while Gonen received his Masters and Ph.D. at the Weizmann Institute of Science's Department of Organic Chemistry. By the time they faced the prospects of doing post-doctoral training abroad, they had two little girls – a three-year-old and a one-year-old. The challenge was to find positions for both of them – Gonen in chemistry and Nurit in electrical engineering and physics – while remaining together as a family. A mission impossible, one might say. Both Gonen and Nurit received Fulbright Fellowship Awards for post-doctoral training at the Scripps Research Institute in La Jolla, California, under Prof. Reza Ghadiri. "Although my background was not in chemistry, Ghadiri was happy to have someone from a different

positions for both Nurit and Gonen within reasonable proximity. They were both satisfied when BGU offered them two positions: Nurit as a member of the Department of Materials Engineering, and Gonen as a member of the Department of Chemistry. "Our youngest was only a few months old when we returned to Israel, so I was home for a few months helping our children get settled," says



Nature beats us scientists hands-down when it comes to the design of structures and functions

discipline and approach join his team," explains Nurit.

"Sometimes we've worked next to each other on the same lab bench," continues Gonen. "That was very convenient, because when one of us would go home to be with our small children, the other could keep an eye on things and turn off the relevant lab device when the timer rang. Yet the bottom line is that we do completely different research and have never collaborated on a scientific paper."

When it was time to return to Israel, the Ashkenasy family faced a familiar dilemma: they had to find comparable

Nurit. "Then, when I went back to work, Gonen spent more time holding down the home front to let me immerse myself in my work. By now, we run our home like a well-oiled machine and both of us know the ropes."

What are the plusses and minuses of their lifestyle?

"Our fields of research are far enough apart to give each of us space, yet close enough so that we can be knowledgeable and interested in each other's work. In short, it makes life very, very interesting." ■

A Road Less Traveled

Dr. Avital Heyman

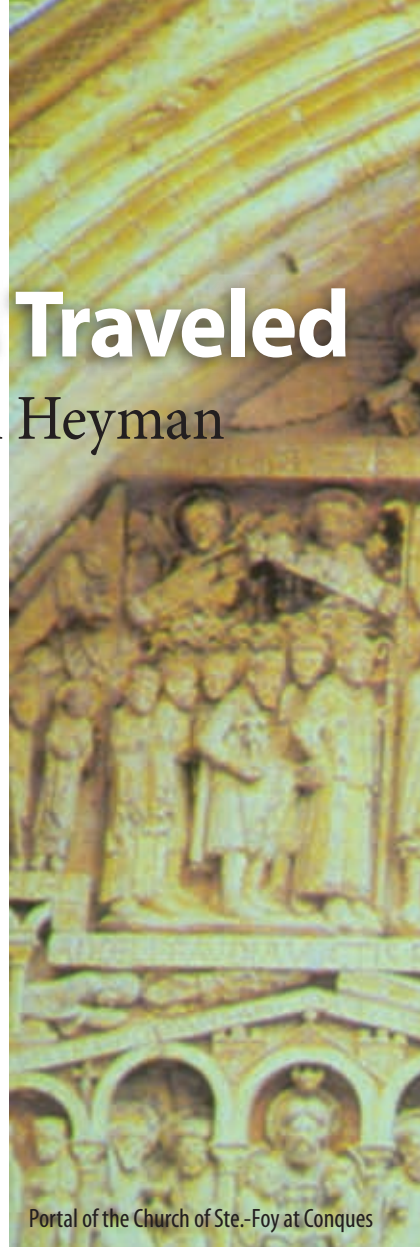
"In my travels, my target destination is not always the best part of the trip," says Dr. Avital Heyman. "It is getting there, being on the road, that's more interesting. This is something I learned from the poet Nathan Alterman, who wrote in one of his celebrated poems: 'This is not the end of the road; its end is longing.'"

As an art historian in the Department of the Arts, Heyman has traveled many roads, a number of them to obscure, remote, out-of-the-way places. One of her favorite research topics is pilgrimage roads – the routes traveled by medieval travelers making their way to the Holy Land, Rome, and Compostela in northwestern Spain. It is not the road itself, which sometimes was little more than a shepherd's path. The real subject of interest is how that roadway facilitated the transmission of ideas, cultic practices and the artistic expressions of the people who used it on their religious journeys.

Heyman's own life is something of a travel story. Heyman is a second generation Israeli on both the maternal and paternal sides of her family. On her paternal side, her grandfather Baruch Heyman was one of the most colorful and innovative characters of the early Jewish settlement in Palestine. He imported the first tractor to the region and, because of his world-wide set of contacts, later served as a conduit for channeling other technological and agricultural advances to the newly formed state.

Heyman's other grandfather was Zalman Aranne, for whom BGU's central library is named. "My grandfather, during Ben-Gurion's time, was one-third of a powerful 'troika', together with Golda Meir and Pinhas Sapir. During his years as Minister of Education and Culture in the 1950s and 1960s, Aranne reformed Israel's education system and infused it with Jewish culture and tradition."

Heyman's grandmother, Clara Aranne, was another powerful influence. "My grandmother established the Knesset Library and founded the Librarian's Union," Heyman says. "I used to go to the library and to the Knesset with her. I think I inherited my great love of books from her."



Portal of the Church of Ste.-Foy at Conques

Given her strong family ties to Jewish culture and the State of Israel, Heyman's decision to study art history makes sense. But her primary field of study – 11th and 12th Century Romanesque sculpture, Christian sculpture – seems a little unusual for a Jewish woman in Israel.

Heyman laughs. "As a girl growing up in Ness Ziona, I was always different," she explains. "What my travels have taught me is that there are many different roads one can take to arrive at the place one wants to be. For me, the way I affirm my own Jewish and Israeli identity is by studying Christian art and culture. The visual imagery, the appeal to all the senses that characterizes

There are many different roads one can take to arrive at the place one wants to be

Christian art, is very attractive to me."

Heyman's most recent book – *"That Old Pride of the Men of the Auvergne": Laity and Church in Auvergnat Romanesque Sculpture* (Pindar Press, London, 2005) – focuses on the political and social relationships between the Church and laity. "When I travel, I have a very specific itinerary which I plan myself. I rent a car, take lots of maps and head up into the mountains. I seek out all of the places and take all of the roads that other tourists rarely see. Once, I was in search of a very remote village where I knew there was a pilgrimage church. I crossed a river and stopped to ask directions. The villagers gave me directions, but kept insisting, 'You don't have to go there. We have churches right here!' And yet, I insisted otherwise.



"I traveled onwards until I finally found the place. I had to walk the last part, which was inaccessible by car. Five people lived there, in a forest, with a picturesque little Romanesque church. If nothing else, the road to get there made it completely worthwhile."

The remote French town of Le Puy-en-Velay has been a special focus of Heyman's research. "Le Puy was the starting point of one of four pilgrimage roads leading to the holy site of Compostela," she says. "It is a beautiful little town, with a unique topography resulting from ancient volcanic activity. I came across Le Puy many years ago. It is a difficult place to live – in winter, the

snow reaches the roof tops – and it is not on the way to anything. But because it was so isolated, the town maintained its traditions. The local folklore, the foods and music were all still in place. I was especially interested in one of the shepherds' paths, a route they used when grazing their herds. As I studied it, I realized that there had been a path there since very ancient times. It is known as a shepherds' road – not one of the main roads other scholars have studied, but still, a place where shepherds and pilgrims might have stopped, worshiped and built small churches and chapels. That fascinates me: Why did they go there? Why build a church in that place? What was there for them?

"It took me a whole cycle of traveling through France, Italy and Spain to

realize how Israeli I am. Just as I realized that I needed to understand Christian rites and feasts to come to terms with how Jewish I am. For example, Le Puy is one of two places in the world where a certain "Jubilée" takes place. It is celebrated every fifty years or so, only when Easter falls on the Feast of the Annunciation of the Virgin. In 2005, it was celebrated in Le Puy. I was there and was able to explain to the local bishop the Hebrew origins of the holiday."

Today, Heyman is making arrangements for a two-part international conference, "Two Holy Cities: Jerusalem and Compostela," designed to bring together an international congress of scholars who share an interest in pilgrimage roads and rites. Santiago de Compostela has, for centuries, attracted hordes of pilgrims to worship at a shrine to Saint James. Whereas the body of Saint James is venerated in Compostela, his head is kept in the Armenian St. James Cathedral in Jerusalem.

Accordingly, the conference will be held in two parts, first in Jerusalem, and a month later, in Compostela. A major aspect of the double conference is that it is supported by the Xunta de Galicia – the local government of the province – by the Franciscan Custodian of the Holy Land, and by the Archbishop of Compostela, Don Julian Barriò, who will visit the Holy Land in December 2007 to attend the conference. Alongside the Latin imprint of the conference, ecclesiastics from the three major Christian denominations of Jerusalem will take part and contribute to the understanding of cultic practices performed in holy shrines.

"I have traveled my own road," Heyman says. "It is a different path from the one my family or other scholars in my field have chosen. I go to places where other people don't go. I meet people others never meet. Always, I learn, which is the real objective." ■

Engineering Enzymes

Dr. Amir Aharoni

Although he has been at the University for a relatively short time, Dr. Amir Aharoni conducts research that has already had huge implications. A member of the National Institute for Biotechnology in the Negev (NIBN), he focuses on engineering proteins and enzymes with new properties that promise to one day help cure disease and combat pollution.

Aharoni uses a decade-old method to develop proteins and enzymes with novel functions, which has led to numerous breakthroughs in the field. Called “directed protein evolution”, this technique allows researchers to mimic Darwinian evolution in the lab. That is, scientists select the fittest variants from a population containing wide genetic diversity and select the proteins they desire. Based on this method, Aharoni has developed a variety of techniques for engineering enzymes capable of new activities.

“Directed evolution has great advantages and has proven itself over and over,” explains Aharoni. “It yields proteins that show increased stability under extreme conditions, greater solubility and enzymes with novel reactions and substrate specificities.” Unlike other methods, directed protein evolution does not demand background information – a particular benefit in cases where no prior knowledge of a protein’s structure and mechanism are available.

Aharoni’s research is aided by a highly sophisticated robot. Allowing the rapid screening of numerous protein mutants for different properties, the robot is one of only a few of its kind in the country. This fully automated liquid

handling and robotics system facilitates the high throughput research that is performed in his laboratory. “The system significantly speeds up the screening process for proteins with new functions,” says Aharoni, adding that it also allows researchers to conduct projects that are extremely labor intensive when performed manually.

Today, one of Aharoni’s major projects focuses on the use of engineered proteins to study complex biological processes mediated by protein-protein interactions. He will turn his sights on proteins that play a central role in important cellular processes such as DNA replication and protein expression. “We want to use advanced protein engineering methodologies to generate proteins with new binding properties and insert them back into their natural environment,” says Aharoni. “By doing this, we will be able to study how specific protein-protein interactions direct the biological process. This is a major challenge facing those studying complex biological systems today.”

The next step, according to Aharoni, will be to strengthen or weaken certain interactions and see how these changes affect biological processes. “Ultimately, I believe that this research will allow us to identify the crucial protein interactions that direct biological processes,” he says. “Therefore, if we apply the same methods and lines of thinking for the analysis of protein-protein interactions that direct the proliferation and survival of cancer cells, we can design drugs that will interfere with this process.” Today, most cancer therapy drugs are non-specific – they have general toxicity. By identifying essential interactions that allow cancer cells to proliferate, Aharoni

Already, many engineered proteins are used in medicine, agriculture and environmental protection

holds that scientists will be able to target and kill cancer cells with specific drugs.

“This is ground-breaking research with great potential,” he says. “Until now, few engineered proteins were used to study complex biological processes. Now they will provide new tools to study the mechanism of a broad range of biological processes.”

In another major project, Aharoni is exploring the mechanism of liver enzymes that neutralize a broad range of toxic chemicals. Ultimately, he hopes that this research will be applied to the treatment of patients with liver failure and for environmental bioremediation. “Only by studying the molecular mechanisms of liver detoxification enzymes, by getting to know the different liver enzymes and their many substrates – materials or substances on which enzymes

act – will science be able to suggest new treatment for liver disease,” he says.

In contrast to most enzymes, liver enzymes exhibit broad substrate specificity. “Liver enzymes have a flexible structure that lets them adopt different three-dimensional structures for each substrate. We want to find out what will happen if we develop the enzymes for increased activity toward specific substrates,” says Aharoni. “By generating mutant enzymes with increased substrate specificity, we can examine how the specificity of enzymes is created.”

To counter liver damage, Aharoni hopes to engineer enzymes for use as

a treatment option which is non-existent today. In a unique method that he developed during his post-doctoral research, millions of protein mutants are screened for enzymatic activity in a matter of hours. This methodology, based on “flow cytometry”, translates cellular activity into fluorescent intensity.

Looking ahead, Aharoni is confident that one day, science will be able to apply such research to the treatment of people with damaged livers by cleaning blood *ex vivo*, in a process similar to dialysis, as well as for bioremediation. Already, many engineered proteins are used in medicine, agriculture and environmental protection.

Born and raised in Haifa, Aharoni earned his B.Sc. in chemistry from the Hebrew University of Jerusalem and M.Sc. and Ph.D. in chemistry from the

Weizmann Institute of Science. He then went on to complete two years of post-doctoral study at the University of British Columbia in Vancouver. He is happy to be where he is now, both personally and professionally. He recently received the prestigious Alon Prize for research. “BGU offers a pleasant atmosphere, as well as a dynamic, vital and stimulating work environment, in which you are in constant contact with other young researchers,” he says.

When asked what first drew him to the field of protein engineering, Aharoni doesn’t hesitate: “This area represents an ideal combination – it sits on the border between basic and applied science,” he responds. “The challenge of engineering new proteins with new functions satisfies my scientific curiosity. It also enables me to conduct research that will eventually lead to something that will contribute to medicine or environmental protection.” ■

If you are thinking of investing in a company, you can take some tips from Dr. Ilanit Gavius, who teaches courses in the areas of Firm Valuation and Mergers and Acquisitions to graduate students of the Department of Business Administration at the Guilford Glazer School of Business and Management.

Investors have learned the hard way that discretion is the better part of valor when looking for an analyst who can be trusted. Revelations of massive accounting frauds involving Enron,

short-run, investors respond cautiously to expert valuations; in the long-run, however, the over-valuation appears to be followed by a lowering of the firms' value. "Expert valuations are not always impartial. They may be biased towards majority shareholders who hired them to evaluate the firm," she asserts. The study also shows that the discrepancy between the expert valuations and the "ex-post" value of the firms reflects primarily the control premium, which is the amount of money company owners,

financial statements is interesting. According to Gavius, analyst reliance on managed accounting information has decreased dramatically. However, most analysts did not change their recommendations on whether to buy, sell or hold shares in companies engaging in practices of managing earnings. On the other hand, they changed their target prices and came up with widely varying forecasts, reflecting analysts' uncertainty stemming from unreliable financial statements and management. Analyst reaction was expressed in lower target prices issued to income-increasing firms and in a lower incentive to cover these firms. In some of the cases, analysts simply stopped coverage of firms that manipulated earnings, which in itself may be a warning sign to investors. Moreover, analysts' negative reaction to firms that artificially inflate earnings often appears to be followed by an even stronger negative reaction by the market.

In the global economy, standard accounting procedures often do not provide enough information for investors. Gavius's research, conducted with Prof. Jeffrey Callen and Prof. Dan Segal of the Rotman School of Management at the University of Toronto, validates the need to recognize intangible assets in financial statements in order to better capture the value of a firm.

In the global economy, standard accounting procedures often do not provide enough information for investors

earnings downward if they think the company cannot meet the benchmark set by analysts. On the other side of the coin, management also tends to manipulate earnings figures upwards in order to convince analysts that the company is more valuable than the raw figures show or simply try "to meet or beat" analyst forecasts.

The reaction of analysts who discovered that managers have manipulated

For example, in the biotech industry, "investors realize that earnings of fast-growing, science-based firms are depressed due to large investments in intangibles, in particular R&D, which are usually expensed as incurred," Gavius relates. It appears that investors are aware of accounting deficiencies, such as the treatment of R&D as an expense rather than as investment, and are able to undo them when they make investment

Buyer Beware

Dr. Ilanit Gavius

WorldCom and other large international corporations a few years ago caused much public criticism of the "failure of analysts and auditors to warn of accounting irregularities and imminent bankruptcies," she relates. These scandals underlined the importance of financial experts being independent in order to evaluate firms according to their true economic value.

An unsophisticated investor might think that analysts have superior information or capabilities to interpret financial figures. They often do, but not always. Her analysis of financial experts explores, *inter alia*, issues of their impartiality and their ability to detect earnings management and manipulation of financial statements.

Gavius' study, conducted with Prof. Shmuel Hauser from the Department of Business Administration and Dr. Dan Elnathan from the College of Management in Rishon LeZion, shows that analysts who have been commissioned by firms to determine their value prior to a merger or an acquisition often issue cash flow forecasts and target prices that are consistently higher than the realization of these figures. As a result, in the

or prospective buyers, want in return for the ability to control the company's activities.

Gavius' research on earnings management has some good news. She examined whether analysts actually detect earnings management, and how they react to the phenomenon.

A sharp analyst knows that company directors can sometimes be deceptive. For example, Gavius explains that firms sometimes actually bias their



decisions. The study shows that biotech firms are not being punished for reporting negative earnings; notably, the more negative their earnings, the higher they are valued by the market. Investors realize that these earnings are depressed due to large investments in intangibles, in particular R&D, that are expected to provide future benefits.

In a separate study on privately held firms, conducted with University of Toronto researchers Prof. Gus De Franco, Prof. Justin Jin and Prof. Gordon D. Richardson, Gavius concluded that the worth of private companies purchased by other corporations is discounted by 21-37 percent. The research revealed that contrary to the commonly-held view that the lower value is due to poor liquidity (lack of marketability), the lower estimations are related to the lower quality of private firms' earnings. Lower earnings quality in private firms is related, *inter alia*, to their relatively primitive accounting systems, weaker internal controls and reduced regulatory oversight.

Gavius's penchant for numbers dates back to her childhood, she confides, and followed her through her undergraduate and graduate studies at the Hebrew University of Jerusalem and her two years of service in the military as an economist working on the weapons budget for the Defense Ministry.

The 37-year-old lecturer, a native of Hadera in northern Israel, was attracted to academia; joining BGU from the corporate world enabled her to continue researching the mysteries of the market for her doctoral dissertation.

"I chose Ben-Gurion University because of its high academic quality," she relates. "I heard it had a good MBA program, excellent researchers and wonderful human relations."

Events have proven her instincts to be correct. After she came to the Guilford Glazer School of Business and Management, she met a colleague. They are now married with two children. Now that's a successful merger! ■

REKAMOT Embroidery and Calligraphy in Contemporary Art in Israel

This exhibition of contemporary artists in Israel – curated by Prof. Haim Maor and the students in the Curatorship Course in the Department of Arts – displayed multiple two-way dialogues through a fascinating meeting between traditional and contemporary works, and between the contemporary works of artists from different cultures. The exhibition examined the exchange of ideas and motifs that have evolved as the personal, cultural baggage of each of the artists is expressed. The range of different voices created a rich texture whose power lies in its differences.

Together with the contemporary art works – made in a variety of techniques: drawings, photography, sculpture, ceramics, weaving, embroidery and installations – items of clothing and artisanship from the local Palestinian heritage were displayed. These included Palestinian embroidery and weaving, dresses or pieces of cloth, and Arabic and arabesque script based on the skills of Palestinian, Bedouin and Druze women. A cultural dialogue took place, in which Arab and Jewish artists conversed with their culture and with the culture of “others.”

Over the last two decades, the Arab voice has achieved increasing exposure in the art world, both in Israel and abroad. This exposure is connected to the vibrant post-modern discourse relating to the “other” as a whole and the Muslim and Palestinian “other” in particular. These works display the attitudes of the artists toward issues such as the traditional and the new; oriental and occidental; acceptance and opposition; the obvious and the hidden; cross-cultural and multicultural.



Anisa Ashkar, *Agria Mathia (The Wild Eyes)*, 2007, Color print, 125x125 cm, on loan from Art Face, Athens



Linda Bar-On, *Lakia Lionesses*, 2005, Embroidery, application and patchwork, 104x162 cm, artist's collection



Sara Nissim, *Arabesque*, 1995, Mixed media with fabrics, 190x172 cm, artist's collection



Farid Abu Shakra, *A Black Cat and Ornament*, 2002, Oil on cardboard, 60x60 cm, artist's collection

Khader Oshah, *My Mother*, 2007, Ink and oil on leather, 81x112 cm, artist's collection

It's What You Eat

Dr. Iris Shai | Dr. Danit Shahar

Dr. Danit Shahar and Dr. Iris Shai from the Faculty of Health Sciences share two passions: both believe that nutrition is the key to a healthy, long life and both are equally zealous about physical fitness, first and foremost. As Shai puts it, “the first thing you have to do is move your body.”

Shahar and Shai first met as colleagues almost ten years ago when they worked together at the University's S. Daniel Abraham International Center for Health and Nutrition. They worked under Director of the Center Prof. Drora Fraser to develop dietary assessment tools for the Israeli population.

In order to study the effect of diet on health and longevity, they first needed to create a database containing the foods that people eat. This is not as easy as it seems, because the components of even something as simple as yogurt vary from country to country. Israeli eating habits are different than European or American ones: Israelis eat more hummus, for example, as well as more dairy products, including dairy products from goats and sheep. Thus, together, Shai and Shahar created an Israeli database and Food Frequency Questionnaire (FFQ) that includes everything from typical Ashkenazi gefilte fish to typical Sephardi/Mizrachi spicy fish.

After this project, however, the two branched out in different directions: while Shai focuses on the influence of nutritional factors on obesity, diabetes and heart disease, Shahar has been studying geriatric nutrition.

Average levels of fat intake were lowered from 42 to 35 percent, but levels of obesity did not go down; in fact, they rose!

Shai views her post-doctoral years at Harvard as a turning point in her life. “I had a wonderful experience at Harvard's School of Public Health, working directly under the well-known Prof. Meir Stampfer.” The United States is the leader in cohort research, or the study of large groups of individuals, identified by a common characteristic, over a period of time. Shai herself was part of the famous “Nurse's Health Study” research team that followed 100,000 nurses over 30 years. “But every cohort study is limited. For example, even when you show that long-term intake of nutritional sources of vitamin E is good for your heart, that still doesn't prove that taking vitamin E supplements will be beneficial. In order to achieve real evidence-based medicine, you absolutely need to conduct clinical intervention trials,” she stresses.

“For many years, the low-fat diet was thought to be the answer to both obesity and cardio-vascular problems,” Shai continues. “And in truth, people in the Western world adopted the approach that ‘fat is bad’. Average levels of fat intake in the diet were lowered from

42 to 35 percent, but levels of obesity did not go down; in fact, they rose! It turned out that in the quest to avoid fats, many people turned to carbohydrates, especially the high-sugar types. This, in turn, contributed to obesity and other medical problems such as metabolic syndrome.”

So what to do – is there a magic diet bullet or not?

“The best way to determine the ideal diet is to conduct long-term large-scale clinical intervention trials. And that,” says Shai, “is likely to be more difficult in the United States. There, researchers have to pay people to take part in clinical trials and even then, many studies have high dropout rates – as high as 30-40 percent. We have had a lot more success conducting trials in Israel with a much lower drop-out rate.”

After Shai returned to Israel, she persuaded Harvard to collaborate in the dietary intervention randomized clinical trial (DIRECT). Over 300 employees of the Nuclear Research Center in Dimona agreed to participate and follow a set diet for a period of two years. The group is divided into three different diets: low-fat, low-carbohydrate and the Mediterranean diet, in an effort to determine whether there are safe and effective alternatives to the traditional low-fat diet. The Mediterranean diet has garnered much interest as cohort studies have indeed shown that populations who follow this diet tend to be healthier, despite the fact that they consume significant amounts of fat in the form of olive oil.

And what do the results show? Shai

Low nutritional status of the elderly correlated with physical decline and deterioration. The better the nutritional status, the fewer the days of hospitalization

smiles, “The study is still underway. We will all have to wait until results are formally published.”

Shahar also researches the effect of the Mediterranean diet, though her focus is on the elderly. “It has already been proven that the Mediterranean diet is good for diabetics and sufferers of cardiovascular disease. Now we want to see if it can have a beneficial impact on the elderly.”

“There are different variations of the diet,” Shahar explains, “but in all variations, olive oil is the source of all fat in the diet. Extra virgin olive oil contains monounsaturated fatty acids with potent antioxidants such as vitamin E and polyphenols.” The diet includes large amounts of fruits, vegetables,

legumes and whole wheat. Mediterranean eaters consume very little beef, but they eat chicken, eggs and fish and typically drink a cup of red wine a day. Shahar hopes to study the influence of the Mediterranean diet on Alzheimer's disease and see if it will lower the incidence of the disease, or even slow down deterioration.

Shahar has also studied the effect of senior citizens' dietary intake on their general health. She found, for example, that among elderly people who were hospitalized in the Soroka University Medical Center, those with nutritional deficiency spent twice the number of days in the hospital as compared to those with normal nutrition. ▶



Dr. Iris Shai (left); Dr. Danit Shahar (right)

It is ironic that Shahar studies geriatric nutritional deficiency (malnutrition of the elderly) while her colleague devotes much of her career to researching obesity as a number-one health problem among younger members of the population. So what is the cause of nutritional deficiency and malnutrition among the elderly? Is elderly malnutrition due to food insecurity – that is, not enough money to buy food – or other reasons?

“The answer is not clear-cut,” admits Shahar. In the study she conducted among the elderly in Lod, a city with a low socioeconomic status, food insecurity was, unfortunately, an issue. “But we have revealed problems of low compliance even when we sent licensed dietitians to the homes of the elderly and distributed free vitamins and food supplements,” she explains. There seems to be a problem of lack of appetite among older people, though Shahar points out that “Tasty food can be prepared for the elderly to overcome the problem. Even people without an appetite can enjoy munching on nuts or eating nutritious vegetable soup.”

Shahar also spent time in the United States; she earned her Ph.D. in the University of Pittsburgh’s Graduate School of Public Health. There, she performed her first study of geriatric nutritional deficiency, similar to her later study in Lod. The participants in the Pittsburgh study were of a higher socio-economic level than those in Lod, but the results were similar: in both places, she found that low nutritional status of the elderly correlated with physical decline and deterioration. The better the nutritional status, the fewer the days of hospitalization. “There was one salient difference between the American and Israeli populations,” notes Shahar: “In Israel, far fewer elderly people live alone and most have children who are more involved in their lives and their medical care. Typically, children live closer and are much more connected

to their aged parents in Israel than in the United States.”

Shahar and Shai still work together in one sphere: they update the Israeli food database with real recipes. But their recipes have a special added value that can’t be duplicated in the home. “We have a special computer program that is able to determine how many vitamins are retained in vegetables after cooking,” explains Shai. “It also tells us how much fat is absorbed while frying, how much moisture has evaporated and what percentage of folic acid is left in broccoli after being cooked.”

Many of us have heard that current research has proved that even alcohol can be healthy – up to two glasses a day for men, one glass for women (more than that becomes dangerous). But this has not been proved yet in clinical intervention trials. Shai has performed a three-month pilot study that suggests that a daily glass of wine might even be beneficial to diabetics. “Of course, a long-term study is needed to confirm our results: that one 150-ml. glass of wine with supper actually lowers the fasting plasma glucose of diabetics the following morning.”

What are the visions of these two prominent nutritional researchers?

Shai says, “I love the combination of teaching and research. I enjoy performing research and then explaining about my work and conveying my excitement to my students. I love teaching – the classroom is my stage. And I’m proud to be an Israeli researcher.” One of Shai’s visions is to open an international center for dietary intervention trials, similar to the DIRECT program but on a much wider scale.

Shahar says, “My mission is to study not just the impact of nutrition on longevity, as most studies of the elderly have done, but its impact on quality of life, including cognition and functional abilities. After all, quality of life is crucial.” ■

Plastic bottle recycling bins can now be found throughout the campus



An Education Outside the Classroom

Thousands of students at Ben-Gurion University of the Negev are involved in a myriad of community outreach programs – from the Community Action Unit to the Perach mentoring program, to more personal initiatives. The following stories highlight the range of projects students have adopted

Making A Difference

"In Israel, 'Green Course', a national environmental organization, has just celebrated its 10th anniversary," says Alona Lansky, 24, the organization's BGU coordinator for the upcoming year. "Twenty-six college campuses in Israel host Green Course chapters of student volunteers, and ours here is one of the largest. Last year, we had 30 active members, working in all aspects of environmental advocacy."

For Lansky, a second year student majoring in chemistry, working for the environment has become a passion – albeit a new one. "I didn't get involved until a few months ago," she says. Born in Russia, Lansky grew up in Jerusalem. "A friend in Jerusalem had joined, and told me how much they were accomplishing, and how much fun they were having, so I decided to join here. Shortly after, they gave me an assignment – to organize a demonstration in Tel Aviv two weeks later. I wanted to do something and there was my chance, so I said yes. Those two weeks were absolutely horrendous. I had no experience and I was so stressed and so anxious, at times I thought I couldn't do it. But I kept on, and in the end, when everything came off just right, I realized I'd had an incredible amount of fun, and I felt so good about what we'd done. I wanted to do the same thing again and again. So when I was asked to accept the position of coordinator, I said yes to that, too.

"Green Course is contagious – you start working at something you believe in and

you see all the people who want to help. It's exciting to think what you could accomplish and, little by little, you begin to believe you can change things – you become inspired. This year, Green Course has about 8000 students on campuses all over Israel. We work right alongside other environmental organizations – and together, we're making a difference," she explains.

Each collegiate chapter has its own program and objectives, based on whatever local issues are important, Lansky says. "At BGU, we have four main areas of activism. We're concerned about Ramat Hovav, which is Israel's national site for the treatment and disposal of hazardous wastes, located in the southern Negev. Second, we're proponents of all kinds of recycling; third, we're active in educating the public – from school children to senior citizens – on environmental issues; and finally, we work on fair trade issues, advocating equitable treatment and pay for workers in Israel, and also for companies that supply products to Israeli firms."

Clearly, no issue is too small or too big to attract the attention of the student activists. "Fair trade, for example, is a complicated issue that's really more of a social concern than an environmental one. But we believe that social and environmental problems are linked. If you have discrimination between different sectors of society, social problems result – their education will be worse, they'll have lower income, more health problems. Until you solve the social problem, people won't care about environmental issues. If they can't feed their children, they won't put

any effort into recycling, or stopping pollution, or any other environmental programs. So with fair trade, we operate as a social action advocacy team as well."

But on the local campus, it's the recycling programs most people know about. "Some of the recycling projects we're working on sound small, but they really aren't. For example, there are two student copy centers, one in the Aranne Central Library and the other in the Zlotowski Student Center. That's where most students go to copy or print papers and assignments. But none of the copy machines are able to print on both sides of the paper! Look at the huge waste – how much paper is being wasted every day? We've raised this issue before, but have been advised that the money to retrofit the copy machines isn't available. This will be a project for this year, again."

Newspaper recycling is another issue. "During the school year, newspaper companies distribute free copies of their papers at the front gate. But those papers are discarded everywhere – there's no newspaper recycling on the campus yet, so we're working on that. It takes an unbelievable amount of bureaucratic coordination to find a recycling company who will provide the bins and then service them several times a week."

Efforts to recycle batteries and plastic bottles have had some success. "We now have battery recycling boxes in several places," Lansky notes, "but the real issue this year is to encourage people to buy and use rechargeable batteries. It's so much cheaper – plus it's better for the environment. ►

Student trainers walk their seeing-eye dogs on campus



Eyal and Miriam Lavi celebrate their wedding with friends

Plastic water bottles will be on the agenda again. Now we can recycle the small plastic bottles, but not the larger ones. So that's a task for this year too."

At BGU, the students who volunteer for Green Course come from all areas of study, and tend to be in their last two years of academic work, Alona says. "The general rule is, in the first year, all you do is study. In the second, you start to look around. In the third, you volunteer, and then you're gone. I'm the exception, because I started in my first year. Most of our members – about half men, half women – are a little older."

Is there a particular philosophy among members? "Not really," she says. "If you ask around, almost everyone will tell you they agree that we're over-using our natural resources: we're burning too much oil and wasting too much water. But most people think there isn't anything any one person can do about it – that it's gone too far to help."

"The people who join Green Course are the ones who believe we can change things, that we can undo the damage and steer the nation onto a better path. We're the ones who believe it's not too late."

Canine Companions

This year, fifteen students enjoy some very unique privileges on campus: they don't take any written exams, they never participate in any class discussions, they never turn in any papers. The truth is, they're encouraged to sleep through classes, and if one or

the other snores a bit, no one really minds.

So far, among Israel's universities, only BGU hosts these special students. All fifteen are here for specialized training that will equip them to lead a life of service. Each one is assigned a big sister-big brother mentor on campus. Assuming they pass a host of tests, these students will become guide dogs for one of Israel's estimated 23,000 blind. They'll spend their lives as life-long companions, guiding a blind person to a richer, fuller life.

Before 1986, when Israel's Guide Dog Center – www.israelguidedog.org – came into existence, vision-impaired Israelis were seriously disadvantaged if they didn't speak English, as all the guide dogs in the country were trained in the United States. Noach Braun, a former paratrooper who had worked with dogs in the IDF, identified the deficiency and on his own began training guide dogs in Hebrew. By 1994, he'd founded the Center, a non-profit corporation, and moved into a spacious training facility near Tel Aviv. Every year, the Center graduates 50-60 specially-bred guide dogs after a total of 18 months of training. For most of the vision-impaired recipients, having a full-time canine companion to do the one thing they cannot do for themselves – see – represents a dream come true.

The dogs are born and bred at the Center, but for the first year of their lives, they need to be socialized, Braun says. "The dogs need to experience real life, live in a real home, go all the places and do all the things a blind person would normally do.

So we looked for foster families – puppy training supervisors – who would bring the puppies into their home, love them, raise them and expose them to all aspects of daily life. We found that BGU students were the perfect parents and willing to take on this task."

Second-year student Gal Sthothaner spends her school hours studying bioinformatics, but the rest of her time as foster mother of Hera, a German Shepherd she's had since the puppy was two months old. "My apartment mate, Tal, got me started two years ago," she says. "He'd had dogs as a child and then raised one of the dogs that became one of the Center's breeder dogs. Last year, he took one of her puppies and we raised her together. We loved it so much we wanted another, so this year we're raising Hera."

For students, having a guide dog puppy is ideal, Sthothaner says. "Owning a dog is expensive, and since most students don't know what their living situation will be in a year or two, it's hard to commit to a dog of our own. But since the Center supplies everything – the puppy, food, veterinary care – it's perfect. The puppies go with us everywhere – to classes, to restaurants, to visit friends, on buses. We have a cat, too, which is good, because guide dogs have to get used to cats. The cat and Hera love each other – Hera picks her up and carries her around the house. When we took her to my parents' house, she looked all over for the cat."

Inbar Lehazi, a third-year student in

education and philosophy, and Alon Messer, working on his Masters degree in philosophy and economics, both grew up in Jerusalem, and are raising their second dog. "Last year we had Tempo," Lehazi says. "It's such a good cause, and so much fun, too. The Center is like a family – they really care for their dogs, and that's important. It would break my heart if Tempo didn't have a loving home."

This year's dog is Yan, Messer says. "Yan is a seven-month-old Golden Retriever. He loves to dig holes and bark at his toys – which is fine – but there are lots of things he's not permitted to do. We train him to stay off the couch and bed, not to beg at the table, and to respond to basic commands. We work a lot on his walking – guide dogs walk only on the left side, and he mustn't strain at the leash. The dogs receive more serious training when they're a year old. Mostly, we just love them and condition them to live in the real world."

Everyone dreads the day the dogs leave to go on for more training at the Center. "It's really hard to let go of the puppies," Lehazi says. "It's incredibly sad. I could never do it if it wasn't for a cause I really believed in. A guide dog can change a blind person's life – that makes it worth it. I know how important Yan will be to someone."

"The dogs know it, too," Messer adds. "They're proud, you can see it. They wear a blue jacket identifying them as guide dogs in training. They know they're doing important work. Everyone wins in this program – the dogs, the blind, those of us who raise

them, and BGU, that makes the whole thing possible."

A Helping Hand

Eyal Lavi, a Haifa-born, kibbutz-raised BGU graduate student in biology, spends so much time volunteering at the House of Wheels – *Beit Hagalgalm* – that it's become his second home.

Lavi was one of 15 students to receive a Lubner Student Prize for Community Service, made possible through the generosity of Bertram Lubner of South Africa. Each of the students takes part in community service beyond the framework of any of the University programs and never expected to receive any recognition. They responded to requests that all students report voluntary work in the community and were surprised to learn that the responses then determined the prize winners.

Twenty-eight-year-old Lavi grew up with parents who appreciated the value of helping others. "For me, volunteering is just a normal part of life. It has enriched my life in more ways than I can count," he says.

Volunteering even brought him his wife, Miriam. "I was on a bus, traveling north," Lavi recalls. "I happened to sit next to a young woman who was on her way to volunteer at a House of Wheels summer camp. She talked about her volunteer work and how much it meant to her. On that trip, I decided to volunteer with the House of Wheels myself – and I also fell in love."

As soon as he moved to Beer-Sheva

for his undergraduate studies, Lavi began volunteering. "I came to study at BGU," he says, "but volunteering was important to me, too. I didn't want to just study, I wanted to be a part of the whole community."

Established by the late Miriam Schwartz in 1980, the non-profit House of Wheels is devoted to the development and integration of physically handicapped children into society. "The residents of House of Wheels have become a part of our family," Lavi says. "Some are in wheelchairs, others aren't. Many have conditions that make doing everyday things difficult, so we help. Some we take out to Scouts, or to other activities. We began working with some of them when they were in their teens, and now they're in their 20s, so they are really part of our family."

Both Eyal and Miriam, who is now in her sixth year of studies at the Joyce and Irving Goldman Medical School, also worked to bring the Good Neighbor Association to the Negev. "The Good Neighbor group was already established in Jerusalem, but Miriam and I established a non-profit branch that operates here, in the South," Lavi says. "Good Neighbors works with middle or high school children and senior citizens. Both age groups have special needs. For the teens, one of our main projects is tutoring – these are children who can't pay for extra help. So we arrange for a free tutor in whatever subject they need. We also arrange some special programs and take them out for social activities," he explains.

There's no question that volunteering ►



(left)
Yael Kutchinsky
receives a Lubner Prize
from BGU President
Prof. Rivka Carmi



(right)
Students help the
refugees from Darfur

takes up a significant amount of Lavi's time. "People always ask how I find the time," he says. "But if something is important, you find the time. The truth is, I really enjoy what I do. The people have become part of our lives, and helping them in any way I can is a pleasure. We have a lot of fun."

"We're just about to have our first child," Lavi says. "We want our children to understand that helping others is a part of life. Reaching out, helping, whenever you can, is something you do for your community."

Lavi notes that he is particularly honored to receive the Lubner Prize. "Receiving the prize means a lot to us," he says. "We were happy to receive the money, but having the House of Wheels and the Good Neighbor Association recognized was important, too."

Success in Different Forms

For Lubner Prize winner Yael Kutchinsky, a BGU graduate student in developmental psychology, spending over two years as a volunteer at the Kaplan Medical Center in Rehovot influenced her choice of careers.

"Kaplan was near my parent's home in Asseret," she says. "I volunteered there, helping very sick children keep up with their schoolwork. Many had cancer and weren't able to attend school.

"I realized I loved working with children, so I decided to make that my profession, too," Kutchinsky says. "My undergraduate degree from BGU is in behavioral sciences."

Even before she started working at

Kaplan, Kutchinsky was a seasoned volunteer. "The Scouts movement gets full credit," she notes, adding that she was in the Scouts while growing up in Arad. "I started as a member, then became a counselor. Scouts emphasize volunteering – we would visit hospitals and raise money for our projects."

Kotchinsky's military service was even more intense than working with very sick children, she says. "I served in a helicopter operations center. We were required to have two helicopters staffed and ready to go 24 hours a day. Soldiers would be in trouble and need help or evacuation. Managing that kind of military operation was extremely intense, and I was only 18 at the time."

Now 25, Kutchinsky volunteers at the *Chidah* Kindergarten for Autistic Children. "Once a week I work a full day with 12 children, all of whom struggle with communications issues. Some are able to carry on a basic conversation, while others live in their own world and can't communicate at all.

"Only one of my children can actually read, so for the most part we focus on activities, but it's very professional. Everything we do has a purpose, even choosing breakfast – the children have to point to a picture to choose their foods. Everything is designed to make them interact with others and the world around them."

In working with autistic children, success comes in different forms. "It's not as though these children will be cured, or will end up just like regular kids. But by the end of the year, they've progressed so much you hardly

recognize them."

Kotchinsky tells of one little boy she calls Michael: "He was a very difficult child, with very extreme autism. He didn't communicate at all or interact with anyone else. So to help him, we first had to reach him. We saw that the only thing he really loved doing was bouncing a great big ball, so we began by not allowing him to play with the ball until he asked for it, in sign language.

"It was painful for us all, at the beginning, to see his frustration," Kutchinsky recalls. "But we knew we had to be firm, to make him want that ball so much he'd learn to reach out. Finally he did – one day he pointed to the ball and tapped his chest, which is sign language for 'I want.' It was amazing – he asked for something! After that, Michael progressed very rapidly – soon he was asking for food, for his jacket, for whatever he wanted. It was an enormous step forward for him – and so rewarding for all of us who loved him."

The Angel of Beer-Sheva

When Elisheva Milikowsky, a third-year student in BGU's Charlotte B. and Jack J. Spitzer Department of Social Work, first decided to seek out one of the Sudanese refugees who was living in Kibbutz Sede Boqer, she had no idea the meeting would change her life.

"A group of social work students were looking for a modest project that would help make the world a better place," the

25-year-old Milikowsky says. "We'd heard about the refugees staying at Sede Boqer and knew a little about the horror that was taking place in their native Darfur. We wanted to meet them and hear the stories for ourselves. So we went, spent time with a few of the refugees, and listened. One of the things we learned was that over 150 Sudanese refugees were being held in Israeli jails! For me, that sounded horrible – they'd come to Israel, seeking asylum, and were put in jail? So our group decided to see if we could help. We wanted to change the government policy. At the time, it didn't seem like a big deal – there were only 150. It seemed like something we could do."

Little did they know. For Elisheva Milikowsky, the child of immigrants from the United States, helping the refugees turned into a very big deal indeed.

For Israel, and for Beer-Sheva in particular, the Sudanese refugees constitute a growing concern. Trying to escape the murderous Janjaweed – mounted Muslim militants – millions of Sudanese fled to surrounding African countries, Chad and Egypt among them. Once there, they found that life was almost as difficult and dangerous as it had been in Sudan. About two years ago, a few decided to flee again, this time making their way into Israel. Today, almost 2,000 Sudanese refugees have crossed into Israel, arriving as hungry, thirsty, non-Hebrew speaking refugees, owning nothing but the clothing they wear. The Israeli government has no official policy regarding them, and offers

no funding for their care. To the extent any aid has been provided, it has come through private volunteer efforts around the country.

In Beer-Sheva, the crisis – and the need – is especially acute. "I became directly involved when they started dropping the refugees on the streets of Beer-Sheva," Milikowsky says. "The IDF takes the refugees into custody at the Egyptian border, but since it has no ability to house or care for them, they'd bring them into Beer-Sheva, the nearest city, and just drop them off. Through the refugee underground network, some acquired my phone number, so they'd call me directly. They'd heard I'd helped others, and asked if I could help them, too."

Acting together with a cadre of volunteers but no official support, Milikowsky does help – so much so that among the refugees she's known as "The Angel of Beer-Sheva". Almost every night her phone rings with calls from refugees, some while still in Egypt. Every night she works to accommodate new groups of helpless, frightened, hungry refugees who have no idea what the future holds.

"Water and food come first," she says. "Then we find somewhere for them to sleep. In the beginning, BGU students took many into their apartments. But as the groups became larger, we had to find bigger places, offices or halls."

Then more permanent accommodations are sought. Kibbutzim have taken in many, either as guests, or as workers allowed to work for room and board. The hotel industry

absorbs many others, both in Eilat and Tel Aviv. Still others find work cleaning houses, washing dishes in restaurants or doing building maintenance.

"We don't know what will happen to them, ultimately," Milikowsky says. "They could still be sent back to Egypt, which is frightening, because we have no idea what Egypt does to them. Returning them to Sudan is almost surely a death sentence. What most want is official UN refugee status and a way to get somewhere else – few expect to stay in Israel permanently. Many just want a safe place to stay while they wait for things to improve in Sudan. They want to go home. Our job is to find them a safe place to live and work until something changes."

Milikowsky – who has hardly had a good night's sleep since April – says some of her friends think she's crazy. "I've neglected everything else in my life," she says. "My studies, my friends, my family. There's only one way I can explain. I show them an American film clip about the Holocaust. The film shows horrific pictures of the Holocaust, and then you hear the siren. A voice says, 'We were dying and the world didn't care. We said, 'never again'. Then they show pictures of Darfur, and the voice asks 'What will you tell your grandchildren?'"

"I want to tell my grandchildren that I did the maximum I could to help." ■

Can We Talk?

Dr. Yael Kaynan



"I am not typical," begins an introductory post on Dr. Yael Kaynan's blog, "Aliyah! Step by Step: Making a Life in Israel." She then explains, "I am not your typical aliyah candidate: I'm very secular, I did not grow up in a Zionist household, and I have almost no family living in Israel."

To say that Kaynan isn't typical is a bit of an understatement. The 30-year old lecturer – whose professional publications appear under the name "Katelyn Y.A. McKenna," her name before making aliyah two years ago – lists a host of publications that exceed those of many scholars twice her age.

Although her Bachelors degree is in theater and Jewish studies, her Masters degree is in journalism and her Ph.D. is in communications, professionally, she is considered a psychologist. She has been interviewed and featured in major publications, including *The New York Times*, *Newsweek*, *Elle* and *Psychology Today*. From Australia, Canada, the United Kingdom and across the United States, she is a sought-after radio and television interviewee. She receives countless invitations to speak at symposia and conventions. On the Internet, her blog and postings are read all over the world regularly by those who wouldn't think of missing a day. She co-authored the new *Oxford Handbook of Internet*

Psychology, the definitive reference work on Internet behavior, and still has time to care for not only her own cats, but also a number of Tel Aviv strays.

Officially, Yael Kaynan's title is Senior Lecturer in the Department of Communications Studies. She is a researcher in the Burda Center for Innovative Communications and beyond that, she is perhaps one of the world's foremost authorities on the psychology of the Internet. "My research interests are relationship cognition, the self and social identity, particularly in terms of their applicability to Internet interactions," she says.

Roughly speaking, this means that Kaynan studies how people meet, interact, socialize and relate to each other within the anonymity of cyberspace. How do Internet users – sitting alone at their computer terminals – relate to other users they meet via the Internet? How do relationships develop among people who have never seen each other? Without being able to use physical appearance and mannerisms as a guide, what factors aid Internet users in assessing compatibility with someone else, or in gauging someone's integrity?

One of Kaynan's interests lies in analyzing the motivations, conduct and habits of people who seek mates on such forums as JDate or MySpace. Similarly, those who blog – post personal diaries and essays on the Internet – or who congregate in chat rooms and newsgroups, attract her scrutiny.

Internet relationships begin on a different basis than do conventional relationships, which start with an actual meeting, she maintains. "When we meet someone face to face, physical appearance is one of the most influential factors in attraction. But on the Internet, when we have no idea what the person looks like, how they act, or how old they are, things change. There, the words we use and the way we use them are the primary means by which others come to know us. It's what we write or say that allows them to form an impression of what kind of a person we are.

"In person, conversational topics begin at the superficial level and then gradually become more intimate," she notes. "But on-line, conversations sometimes leap-frog over the 'getting to know you' ice-breakers and become meaty discussions relatively quickly. With people who blog, it's not uncommon for a new acquaintance to send an e-mail that says, 'Hi, I've been following your life for quite some time now and I just want to say...' Can you imagine what would happen if a stranger on the street said that, or a person in a café?"

Kaynan herself became interested in the topic when, as a college student, she began playing an Internet role-playing game. Her character in the game was completely anonymous, as was her gender, but she interacted with the same group of people for months, getting to know them through their game strategies and the mannerisms of their characters. Later, she went to a convention of the game players, where she met many of the people she'd been communicating with for so long. She was fascinated with how people actually were, in real life, as compared to their on-line personas.

Recently, Kaynan extended her Internet research to an international format, establishing the first on-line test of a psychological theory known as Contact Hypothesis. "We know that knowledge, on its own, won't make people give up their prejudices and stereotypes about each other," she says. "People will only accept new pieces of information that affirm what they already believe. The way to break down barriers of prejudice is to allow people to get to know the 'other', so that stereotypes fall of their own accord."

What better place to test that theory than the Middle East?

Accordingly, Kaynan set up the "Good Neighbors" blog. "It's a communal effort designed to increase dialogue and understanding among all neighboring countries in the Middle East," she says. "We have Jordanians, Lebanese, Israelis, Palestinians, Egyptians, Sudanese, Iranians and Syrians interacting on a cross-border level. By allowing individuals in all these countries to get to know the

My research interests are relationship cognition, the self and social identity, particularly in terms of their applicability to Internet interactions



'other' on a personal level, we hope that greater tolerance will come about."

On a recent day, topics on the Good Neighbors blog – www.gnblog.com – ranged from "What is going on in Gaza?" to a personal account of a Lebanese blogger who was just a few feet away from a bomb explosion. Other topics – the wisdom of Israel-Syria negotiations, the boycott of Israeli academics – all drew articulate, opinionated commentary from individuals in many different countries. Hardly anyone completely agreed with anyone else, but there was serious communication going on – people relating to one another as friends.

The same threads run through both the Good Neighbors Blog and the studies of personal relationships formed via the Internet: how people meet and connect, how they relate to one another, how they form opinions about others even though they have never met.

In the world of cyberspace, it takes a very untypical Yael Kaynan to seek out the answers. ■



The Secrets Within

Dr. Ilan Shelef | Dr. Mony Benifla

Brain research is a big deal at BGU as a focus of research and study.

In the “Brain Imaging Lab”, a unique collaboration of scientists and researchers from several different fields – neurologists, radiologists and neurosurgeons from the Soroka University Medical Center; scientists from the Zlotowski Center for Neurosciences; and doctoral students with expertise in behavioral sciences – delves into the secrets of the brain: how it works, what causes it to malfunction, and how to fix it when something goes wrong.

Epilepsy, a relatively common seizure disorder, is one of the foremost areas of research in the Brain Imaging Lab. At any given moment, 0.7 to 1 percent of the world’s population suffers from some form of epilepsy. Worldwide, that’s 50 million people. In Israel, some 50,000 to 70,000 are afflicted. For 70 percent of the victims of epilepsy, no one has any idea what has caused their condition.

“In about 30 percent of the cases of epilepsy, we can identify the cause – a tumor, post-traumatic brain injury, a vascular anomaly or cerebral infarct,” says Dr. Mony Benifla from the Faculty of Health Sciences, who is both a pediatric neurosurgeon at the Soroka University Medical Center and a key physician in the Brain Imaging Lab. “But we have no idea why the others repeatedly suffer seizures. A seizure is literally a ‘brain storm’ – an unexpected electrical discharge in the brain. In order for it to be diagnosed as epilepsy, it has to happen more than once.”

About 70 percent of all epilepsy victims can control the disorder with medication, says Benifla. “With drug treatment, they can be seizure-free and live normal lives. But for the others, no drug is entirely effective, so they cannot live normally. Imagine a 10th grader who, just once a month, suffers a generalized seizure in the classroom. He cannot live as his classmates do – society simply won’t allow him to.”

Say “seizure”, and the “generalized tonic-clonic” (what used to be called “grand mal”) comes to mind: the person loses consciousness and falls to the floor. “The generalized seizure involves the whole brain,” explains Benifla. “But there are other kinds of seizures too, like the ‘absence’, when the person just ‘disappears’ for ten or twenty seconds and stares vacantly into space. There are also partial seizures – an arm repeatedly jerks, or the eyes roll up.”

The prime focus of the Brain Imaging Lab is to concentrate on those epilepsy victims whose seizures cannot be controlled with medication. “Through our collaborative focus, involving many different specialists, we offer those patients something unique: a highly refined, multidisciplinary diagnosis and assessment of what treatment options might be best. Because of our combined expertise, we are able to consider all aspects of the situation and design a treatment program best suited to that particular patient.”

Several treatment options exist for those hard-to-solve cases. “Trying a different drug regimen will help another five percent,” Benifla adds. “Even a specialized diet might help. We don’t know precisely why, but eliminating all carbohydrates offers relief to some. That said, it is almost impossible for anyone to stick to that diet, especially children. But by eliminating carbohydrates, about 40 percent of the people see some improvement.”

Unique diagnostic techniques are another hallmark of the Brain Imaging Lab. “The patient begins with a neurologist, undergoing various tests including a video electroencephalogram. For that, patients spend four days in the hospital where we monitor their brain constantly, while videotaping them the entire time. The benefit is that we are able to correlate what we see in a patient’s movements with what we see happening in the electrical activity of the brain. We are able to make a far more accurate determination of which specific part of the brain is involved. Our behavioral

specialist also performs a neuropsychological assessment to see if cognitive and behavioral changes can be linked to a specific part of the brain. After this whole battery of tests and assessments, we all meet to discuss the best treatment options for this particular patient.”

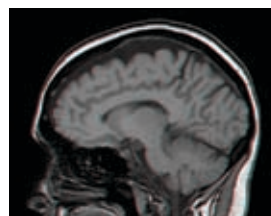
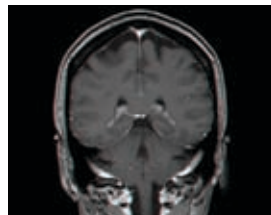
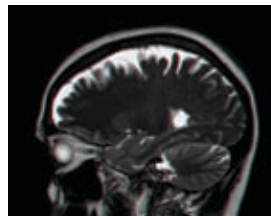
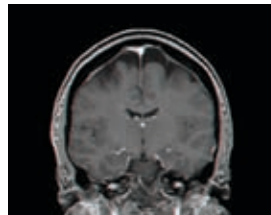
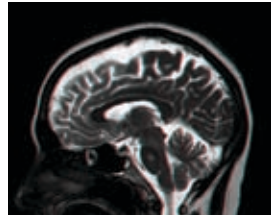
As a neurosurgeon, Benifla’s expertise becomes critical at this stage. “After all the tests, it may appear that the trouble comes from a lesion in the brain, something that could be removed. For 70-80 percent of those patients, resecting the lesion is successful in stopping the seizures. Another option is ‘invasive monitoring’, in which the brain is exposed, and instead of the 19 electrodes used in a standard EEG, we implant

For 70 percent of the victims of epilepsy, no one has any idea what has caused their disability

as many as 120 electrodes directly on the brain. That gives us a very accurate view of what is going on inside. Another 70 percent of the remaining patients are helped in this way. Other surgical options exist, many of which might decrease the symptoms but won’t eliminate them entirely. A person who suffered 20 seizures a week might now have only one. Ultimately, there are some cases in which we just don’t have the ability or knowledge to completely resolve the problem. Those are the cases that challenge us most.”

For Benifla, it was the opportunity for patient contact that prompted him to specialize in pediatric neurosurgery. “I like the interaction with children,” he says. “I enjoy being able to work with the patient. I get ▶

Because of our combined expertise, we are able to consider all aspects of the situation and design a treatment program best suited to that particular patient



to know them. I understand them. I see what their life is like. It's working with the patient to make life better."

The University has been Benifla's home since he finished his military service. "I received my medical degree at BGU, did my internship here, and then my residency. I trained for two years at the Hospital for Sick Children in Toronto before returning to BGU. One of the big attractions for me was the opportunity to work with Dr. Alon Friedman, who is respected all over the world for his expertise in issues relating to epilepsy."

As neurosurgery is to Benifla, radiology is to Dr. Ilan Shelef, another Brain Imaging Lab specialist. Military service figures in Shelef's life as well. For him, an injury during his reserve duty dictated his career choice.

"I was trained as a Naval officer and served six years before enrolling in medical school at BGU. My favorite subject was neuroanatomy, so I decided to specialize in neurosurgery. But during reserve duty, I was wounded. Because of my injuries, I was no longer able to be a neurosurgeon – so I opted for neuroradiology instead. I finished my residency here and was just beginning practice when the Soroka Medical Center acquired its MRI 'magnet', a key diagnostic tool. I opened the MRI unit here, got everything working as it should, and then went to Toronto to do a fellowship in radiology. The ability to engage in both research and clinical

work drew me back to the Faculty. For me, balancing my work as the Director of the Neuroradiology Unit together with clinical work was what I wanted. I enjoy both research and seeing patients."

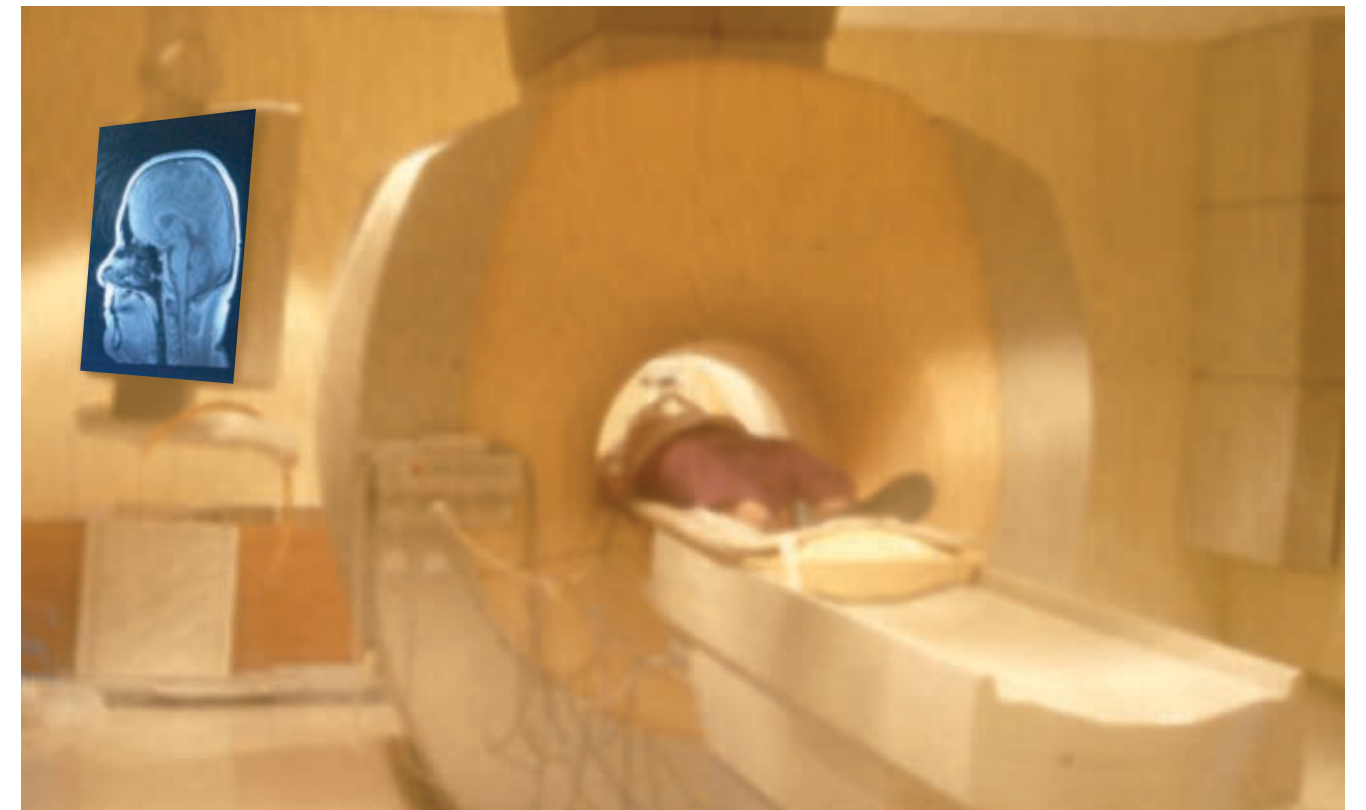
Two primary areas of research and investigation occupy Shelef's time: the "Blood Brain Barrier" and research on the brain's venous system.

"The Blood Brain Barrier – BBB – is a membrane that protects the brain from chemicals in the blood," Shelef says. "If there is a disruption in the BBB, a change in the blood flow to the brain can result. Our main interest in these BBB disruptions are those that occur in epilepsy – epilepsy can induce BBB disruption, and conversely, a BBB disruption can cause epilepsy."

Shelef collaborates with Friedman in a key research project designed to investigate precisely how a disruption in the BBB can result in a seizure. "The protocol is to inject a contrast agent into blood vessels and then measure the rate at which it moves into the brain. In a healthy brain, it is almost impossible to detect the contrast material because the BBB has not been breached. But in a diseased brain, we see significant disruption," Shelef explains.

"The pathophysiology of seizures is unclear. Monitoring the disruption in the BBB may enable a more effective treatment for the patient. It is especially important if a tumor is involved, because then we can monitor treatment and see how much chemotherapy is reaching the tumor. These are tools that make a tremendous difference in the effectiveness of the treatment."

The other segment of Shelef's research is directed to the venous system of the brain. "Every organ has two sets of vessels: a system of arteries that carry blood to the organ, and a venous system that carries it away. Previously, most scientific brain research related to the arterial system – there are more diseases related to the arterial system, and arterial diseases were thought to be more acute. But recently, we have



We are seeing changes in the Blood Brain Barrier in response to both physical and mental trauma. The potential benefits to expanding this research are almost unlimited

become aware that the venous system is also critical to brain function. Our study relates to the significance of the change in the caliber of the vessels themselves. It's especially important in cases of 'pseudo-tumors' – constrictions in the venous system that block blood flow and mimic tumors."

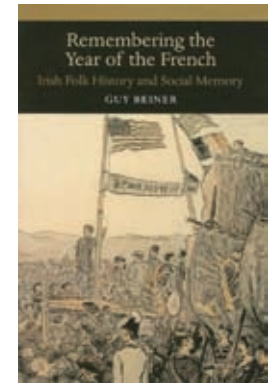
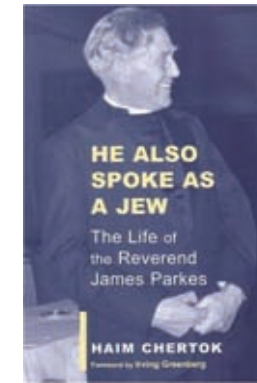
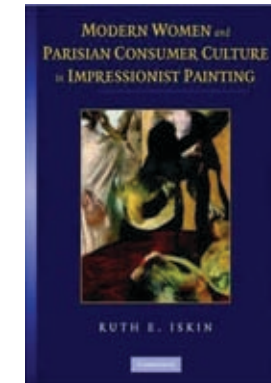
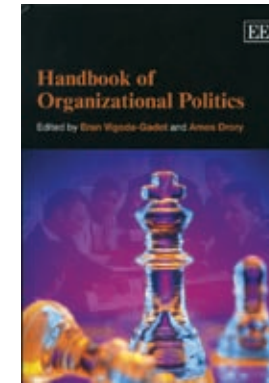
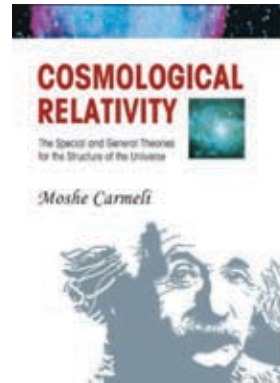
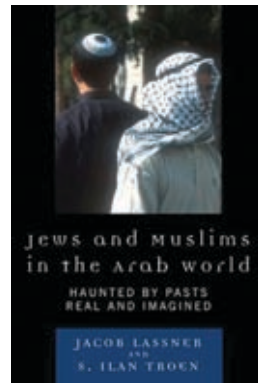
For the Brain Imaging Lab specialists, the dream is to open a multidisciplinary, fully-equipped Brain Imaging Facility. "Several years ago, Prof. Avishai Henik of the Department of Behavioral Sciences proposed exactly this kind of Center," Shelef says. "Since then, we have been working with Dr. Friedman to promote the idea. Our areas of expertise mesh: Henik's specialty is cognitive neuropsychology, and together, we perform fMRI studies. For example, if you move your finger, we can see in MRI the hemodynamic response to this activation. This is the principle that enables much more sophisticated experiments. In order to create a complete Brain Imaging Facility, our MRI 'magnet' must be

upgraded – this is an absolutely critical step, not just for advancing ongoing research, but even for maintaining the level of research we're doing now, and this is the time to think about our new 3T research-dedicated magnet."

"Our research into various aspects of the Blood Brain Barrier has vast potential, well beyond the application to epilepsy," Shelef adds. "We believe that a disruption in the BBB can cause mental problems, such as post-traumatic stress syndrome. We are seeing changes in the BBB in response to both physical and mental trauma. The potential benefits to expanding this research are almost unlimited."

Slowly but surely, the team of dedicated doctors, scientists and researchers in the BGU-Soroka Brain Imaging Lab are revealing the secrets of the brain. ■

On the Bookshelf



Jews and Muslims in the Arab World: Haunted by Pasts Real and Imagined

Jacob Lassner and S. Ilan Troen

Rowman & Littlefield Publishers Inc., 2007

S. Ilan Troen, professor emeritus of the Department of History and former incumbent of the Anne and Sam Lopin Chair in Modern History, co-authored this book with Prof. Jacob Lassner from Northwestern University. The book highlights the effects of historical memory on the Arab-Israel conflict, demonstrating that both Jews and Arabs use stories of distant pasts to create their identities and shape their politics. Whether real or imagined, the past filtered through the collective memories of both sides has had and will continue to have an enormous influence on how Jews and Arabs perceive themselves and each other. The book surveys the ways in which the past is absorbed, internalized, and then processed among Jews and Arabs. It also stresses the importance of historical imagination on the current evolving political cultures.

Illuminated Haggadot from Medieval Spain: Biblical Imagery and the Passover Holiday

Katrin Kogman-Appel

Pennsylvania State University Press, 2006

Spanish-Judeo culture, as it emerged in Spain in the mid-thirteenth century, expressed itself in Jewish narrative figurative painting. This form of artistic expression had become a central feature in a group of illuminated Passover *Haggadot* by the early fourteenth century. Dr. Katrin Kogman-Appel of the Department of Arts explores how Sephardic *Haggadot* reflect different visualizations of scripture under various conditions for different audiences. Though the specifics of the creation of these works remain a mystery, this book delves into the cultural struggles that existed during this period and shows how those conflicts influenced the artists' work. The culture surrounding the creators of the Sephardic *Haggadot* was saturated in conflict revolving around acculturation, polemics with Christianity and struggles within the Sephardic Jewish community itself. Kogman-Appel presents the Sephardic *Haggadot* as visual manifestations of a minority struggling for cultural identity both in relation to the dominant culture and within its own realm.

Cosmological Relativity: The Special and General Theories for the Structure of the Universe

Moshe Carmeli

World Scientific, 2006

The late Moshe Carmeli, professor emeritus in the Department of Physics and former incumbent of the Albert Einstein Chair in Theoretical Physics, presented a theory that combines Einstein's original theories of special and general relativity, but used the expansion of the universe as a starting point rather than the propagation of light. The traditional Hubble constant H_0 (which is not constant) is called in this book the Hubble parameter. Its value at low gravity is denoted by h , and its reciprocal is denoted by r . Thus r is the Big Bang time (some authors call it the Hubble-Carmeli constant). This is the only constant that appears in this theory, just as c is the only constant that appears in Einstein's theory. The theory presents general relativity in the space-velocity of the receding galaxies, which is later extended to include the time dimension. So far, all experimental findings are satisfied by this theory.

Handbook of Organizational Politics

Edited by Eran Vigoda-Gadot and Amos Drory

Edward Elgar Publishing, 2006

Edited by Prof. Amos Drory, a professor of organizational behavior in the Department of Business Administration and incumbent of the Ernest Scheller, Jr. Chair in Innovative Management, and Prof. Eran Vigoda-Gadot of Haifa University, the *Handbook* illustrates how organizational politics influence the use of personal or aggregate power in order to better achieve goals in the workplace. The book offers a broad perspective on the phenomena of power, influence and politics in the modern workplace, their meaning for individuals, groups and other organizational stakeholders, and their effect on organizational outcomes and performances. However, the editors maintain that politics in organizations are difficult to study as neither employees nor management are keen to divulge the political secrets and dynamics that help them to promote their own ideas and goals and to advance in the workplace. The *Handbook* presents a collection of original studies and theoretical discussions from around the world.

Social Epidemiology: Strategies for Public Health Activism

Julie G. Cwikel

Columbia University Press, 2006

Prof. Julie Cwikel of the Charlotte B. and Jack J. Spitzer Department of Social Work is a founder and director of the Center for Women's Health Studies and Promotion. She has written the first textbook that combines social science and public health for an action-oriented community promotion of health and social well-being. The book presents a comprehensive review of the historical roots of public health and social medicine. It presents the theoretical, research and programmatic tools needed to bring about effective public health change. A comprehensive model is presented as a guide for integrating qualitative data from the field and quantitative data collected through classic epidemiological research. The model is applied to topics including chronic illness, injury control, violence prevention, sexually transmitted diseases, environmental hazards, and vulnerable populations such as immigrants and trafficked women. Cwikel demonstrates how epidemiological methods can be used to conduct policymaking research and change.

Modern Women and Parisian Consumer Culture in Impressionist Painting

Ruth E. Iskin

Cambridge University Press, 2007

Dr. Ruth Iskin, a member of the Department of the Arts, demonstrates that women – as represented in Impressionist painting – are seen in active roles. She maintains that women are portrayed in a way that reflects the complex relationship between the Parisienne fashion and national identity. Incorporating a wide range of nineteenth-century literary and visual sources, Iskin situates Impressionist painting in the culture of consumption and suggests new ways of understanding the art and culture of nineteenth-century Paris. She examines impressionist representations of commodity displays and of signs of consumer culture such as advertising and shopfronts in views of Paris, focusing on how women – as consumers, producers or sellers in locations such as the millinery boutique, theater, opera, café-concert and market – are presented.

He Also Spoke as a Jew: The Life of the Reverend James Parkes

Haim Chertok

Vallentine-Mitchell Publishers, 2006

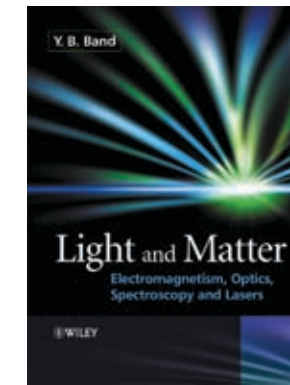
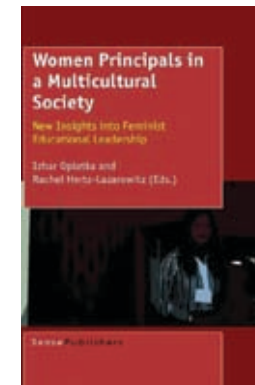
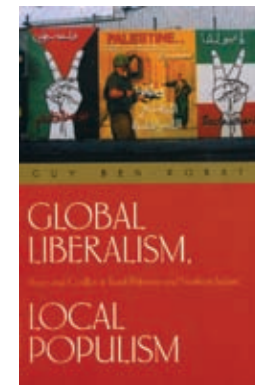
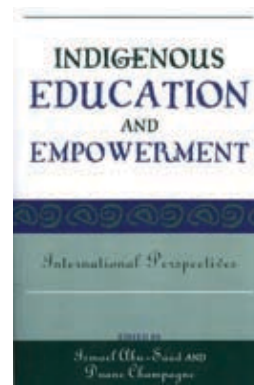
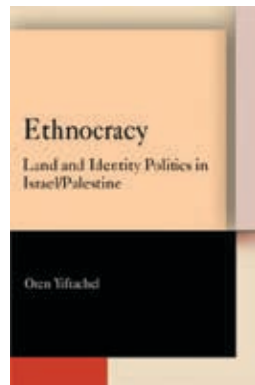
Haim Chertok, a lecturer in the Department of English as a Foreign Language, has written this biography of Reverend James Parkes, known as a close friend of the Jewish people and foremost Christian spokesman against anti-Semitism. Chertok delves deeply into the psychological problems Parkes faced when orphaned of his mother at the age of fourteen, and when left alone with his father after both his brother and sister were lost in the First World War. He follows Parkes through his difficult Army service in which he faced the horror of trench-warfare and traces his gradual identification with the much maligned isolated Jewish people, and the flowering of his research on Christian anti-Semitism. Chertok shows how Parkes comes to identify with the Jewish people totally. He tells of how at least part of the Jewish world came to honor Parkes, who understood more deeply even than many Jews the deep historical and religious connection of the Jewish people to the land of Israel.

Remembering the Year of the French

Guy Beiner

University of Wisconsin Press, 2007

In his award-winning book, Dr. Guy Beiner from the Department of General History moves between the study of historical events – the failed French invasion of the West of Ireland in 1798 – and folkloric representations of those events. Delving into the folk history found in Ireland's rich oral traditions, Beiner reveals alternate visions of the Irish past and brings into focus the vernacular histories, folk commemorative practices and negotiations of memory that have gone largely unnoticed by historians. He analyzes hundreds of hitherto unstudied historical, literary and ethnographic sources. Though the focus is on 1798, his work is also a comprehensive study of Irish folk history and grass-roots social memory in Ireland. Investigating how communities in the West of Ireland remembered this episode well into the mid-twentieth century, this is a "history from below" that presents the perspectives of those who were previously ignored or discounted. (see page 10)



Ethnocracy: Land and Identity Politics in Israel/Palestine

Oren Yiftachel

University of Pennsylvania Press, 2006

Prof. Oren Yiftachel of the Department of Geography and Environmental Development presents a new critical theory and comparative framework to account for the political geography of ethnocratic societies. For Yiftachel, the notion of ethnocracy suggests a political regime that facilitates the expansion and control of a dominant ethnicity in contested lands. Yiftachel argues that the primary manifestation of ethnocracy in Israel/Palestine has been a concerted state strategy of "Judaization" and that ethnic relations, both between Jews and Palestinians, and among ethno-classes within each nation, have been shaped by the diverse aspects of the Judaization project and by resistance to that dynamic. He analyzes ethnically mixed cities and the impact of Jewish immigration and settlement on collective identities. He also examines the consequences of settlement, land development and planning policies. The book introduces new agendas such as binationalism and multiculturalism.

Indigenous Education and Empowerment: International Perspectives

Edited by Ismael Abu-Saad and Duane Champagne

AltaMira Press, 2006

Edited by Prof. Ismael Abu-Saad of the Department of Education, together with Prof. Duane Champagne, Director of the Native Nations Law and Policy Center at the University of California, Los Angeles, this volume explores the impact of indigenous empowerment through education. Abu-Saad, the founding Director and current Research Unit Director of the Robert H. Arnow Center for Bedouin Studies and Development, shows how indigenous peoples have often been confronted with educational systems that ignore their cultural and historical perspectives. Largely unsuccessful projects of assimilation have been the predominant outcome of indigenous communities' encounters with state schools, as many indigenous students do not aspire to conform to mainstream cultural norms. This creates a new foundation for implementing specialized indigenous/minority education worldwide, promoting cultural preservation and social integration.

Global Liberalism, Local Populism

Guy Ben-Porat

Syracuse University Press, 2006

Dr. Guy Ben-Porat, a member of the Department of Public Policy and Administration, compares Northern Ireland to the Middle East, explaining why the peace process has been more successful in the former. He explores the peace processes through the lens of globalization by examining the centrality of the global setting against the dynamics of local conflict. In recent years the conflicts in Israel/Palestine and Northern Ireland continued to oscillate between momentum for peaceful resolution and regression into new cycles of violence or political deadlock. Because globalization affects localized social structures, institutions and political divisions, as well as international relationships between states and societies, it offers a unique perspective from which to examine the commonalities and differences between two regions laden with conflict. Ben-Porat believes that a critical examination of the interface between economic interests and policy makers is central to an understanding of the complex relationship between globalization and peace.

Focused Operations Management for Health Services Organizations

Boaz Ronen, Joseph S. Pliskin and Shimeon Pass

Jossey-Bass, 2006

Prof. Joseph Pliskin, the Sidney Liswood Professor of Health Management in the Department of Industrial Engineering and Management and the Department of Health Systems Management, has co-authored this book with Prof. Boaz Ronen of the Faculty of Management at Tel Aviv University and Shimeon Pass. This book closes the gap between knowledge of operations management in other industries and that of the health care profession. It offers managers and staff practical knowledge and tools to accomplish much more with existing resources. The text provides the means to significantly improve organizational operations as well as enhance quality and customer satisfaction without increasing the use of physical, human and financial resources. The authors present proven methods, including the theory of constraints that can yield fast improvements in systems such as operating rooms and emergency departments.

Women Principals in a Multicultural Society: New Insights into Feminist Educational Leadership

Edited by Izhar Oplatka and Rachel Hertz-Lazarowitz

Sense Publishers, 2006

Edited by Dr. Izhar Oplatka from the Department of Education and Prof. Rachel Hertz-Lazarowitz from Haifa University, this book addresses the usually unheard voices of women principals in ethnic and religious minority groups who live in a modern country but whose place is marginalized. The contributors analyze the issues of gender, school leadership and multicultural experiences as expressed in accounts of school principals from diverse ethnic and religious groups. Jewish and Muslim authors, all citizens of Israel, display the life and career accounts of female principals from the Arab, Bedouin, kibbutzim, liberal and Ultra-Orthodox Jewish groups. They are accompanied by authors from Canada, Hong Kong and England who suggest multicultural and post-structuralist feminist views of female leadership in the multicultural society.

King Herod: A Persecuted Persecutor: A Case Study in Psychohistory and Psychobiography

Aryeh Kasher and Eliezer Witztum

Walter de Gruyter, 2006

Prof. Eliezer Witztum, a member of the University's Department of Psychiatry and the Soroka University Medical Center, has collaborated with Prof. Aryeh Kasher from the Department of History at Tel Aviv University to write this analysis of the Roman King Herod. The authors seek to unravel the contradictory mystery of the man and his deeds and offer a pioneering study on the intriguing personality of Herod, using the insights of psychology. The enigma of King Herod as a cruel bloodthirsty tyrant on one hand, and a great builder on the other, is discussed in a systematic modern historical and psychological study. Herod's mental state reached an acute level, consistent with the DSM-IV diagnosis for "Paranoid Personality Disorder". The authors maintain that Herod grew up with an ambiguous identity and suffered from feelings of inferiority. Haunted by persecutory delusions, he executed almost anyone suspected of treason, including his wife and three sons.

The Book in the Jewish World, 1700-1900

Zeev Gries

Littman Library of Jewish Civilization, 2007

Prof. Zeev Gries of the Goldstein-Goren Department of Jewish Thought argues that although the history of books in the Jewish world has long been regarded as the province of librarians and bibliophiles, it is in fact the history of the Jewish intellect. Gries takes the reader on a voyage into the new world that was opened up to the enlightened Jewish reader of the eighteenth and nineteenth centuries, when the first glimmerings of emancipation and secular education were providing large numbers of Jews their first exposure to science, literature and art, and opening their minds to new ideas. Gries provides an overview of what books were being published and distributed, and who was reading them. He discusses the Emancipation movement (the *Haskalah*) and the resulting tensions between increasingly secular Jews and the more traditional leaders, as well as how the resurrection of Hebrew as a secular literary language contributed to the awakening of Jewish nationalism.

Light and Matter: Electromagnetism, Optics, Spectroscopy and Lasers

Yehuda B. Band

John Wiley, Sons Inc., 2006

Prof. Yehuda Band of the Department of Chemistry and incumbent of the Milton (Mickey) and Frimette Snow Chair in Nanotechnology provides a comprehensive introduction to the interaction of light and matter and the resulting outcomes. Covering theory, practical consequences and applications, the text bridges the gap between electromagnetism, optics, spectroscopy and lasers. The book introduces the reader to the nature of light, explains key procedures that occur as light travels through matter, and delves into the effects and applications, exploring spectroscopy, lasers, nonlinear optics, fiber optics, quantum optics and light scattering. Extensive examples ensure clarity of meaning, while the structure allows sections to be studied independently of one another.



Playing the Numbers

Dr. Guy Cohen

The basic construct of music is math – rhythm and pitch are expressed in terms of numbers

Guy Cohen is a winner. A lecturer in the Department of Electrical and Computer Engineering, he won the Friedman Prize for Mathematical Research in 2003 and last year was designated as one of Israel's most talented young researchers. He is also the recipient of a prestigious Pratt Fellowship, recently established at BGU by the Pratt Foundation of Australia.

For BGU, Guy Cohen's success is especially sweet – Cohen is a home town hero, the traditional "kid from the 'hood who did good." Born in 1971, he grew up in Beer-Sheva and received all his degrees – Bachelors, Masters and Ph.D. – from Ben-Gurion University of the Negev.

Even as a young child, Cohen was fascinated by how things worked. "I liked to take things apart. When I was a little older, I put them back together, too, but at first, I just disassembled everything. By eighth grade, I knew I wanted to study electronics. Part of the attraction was that my older brother was studying mechanical engineering and I wanted to be like him. I changed schools so I could attend a high school in one of the less-advantaged areas of the city, but which had an excellent program in sciences. Up until then, I hadn't focused on mathematics – but once I started, I learned very fast. On my own, I went through all my brother's and sisters' textbooks. By tenth grade, I was done with high school math."

Cohen's high school counselor took a special interest in him. "My counselor happened to be the wife of Prof. Paul Fuhrmann, one of the University's outstanding professors of mathematics. It was thanks to them that I made an early connection with BGU. It was arranged for me to take several math courses at the University, which were excellent – the problem was that I lost interest in all my other courses back at high school. I saw no benefit in studying history or grammar, and I'm afraid I caused some problems. But I finished high school and was conscripted into the Israel Defense Forces."

The military, too, advanced Cohen's career. "I was assigned to an anti-aircraft unit. I became a lecturer and discovered that I loved teaching. I also learned a lot about electronics and control systems, all subjects that fascinated me. My military service was great, but I knew that I needed to go back to BGU. By this time, I was very focused – I didn't take the traditional year off after completing my service, but instead, I skipped the first semester at BGU and began with the second. It was difficult – very condensed and intense. I did very well in the subjects I liked, but some of my courses were very technical, and in those, I wasn't outstanding. What I really loved was abstract mathematics – I couldn't get enough of it. I graduated, then wanted to study mathematics for my Masters degree, but my advisor counseled me against it. At that point, I was completely undecided, so I began studying applied and industrial mathematics. It didn't take long for me to realize that this wasn't what I wanted. It was abstract math that was my passion. So I earned my Masters degree in electrical engineering, which actually worked out perfectly."

It was the University's flexibility and openness to innovation that Cohen credits with his success. "I studied engineering, but also took many courses in the Department of Mathematics. Now, an established program combines the two, but back then, I was among the first to focus on both. I had excellent counselors who allowed me to pursue my own interests, who didn't limit my curiosity and who helped me develop in both fields. For my doctoral studies I had two co-advisors, one from electrical engineering and one from mathematics. For me, that was ideal."

Cohen received his Ph.D. from BGU, *summa cum laude*, with a dissertation titled "Parameter Estimation of Random Fields," which combined his love of theoretical math with elements essential to engineering, analysis and estimation. He then left to do post-doctoral research under the supervision of Prof. Klaus Schmidt at the Erwin Schrödinger International Institute for Mathematical

Physics in Vienna. He spent an additional year doing research at the Einstein Institute of Mathematics at the Hebrew University of Jerusalem.

A passion for music was also indulged in Vienna. "Only after finishing my military service did I begin studying piano," he says. "I began on my own and then studied seriously for ten years. I'm a Bach devotee. For me, the composer's sophistication, his unique romanticism, the way ideas play out between the two hands is something I love."

For Cohen, music is relaxing, even though his practices are as intense as his math. "I didn't begin playing until I was 21, and that creates a problem. When you begin studying so late, you don't hear what you're actually playing – what you hear is much better than what your fingers can actually play. But now I've bought a new piano, and I'm starting again. I play mostly classical music, but also a bit of jazz."

Cohen now teaches in the Department of Electrical and Computer Engineering, with his research bridging mathematics and electrical engineering. "Engineering always has a close connection to math, but I focus on issues that have a more theoretical point of view, like estimation and probability, both of which are essential in engineering. I teach "Introduction to Electrical Engineering," the most basic course. I'm enjoying it – I've always been interested in electronics, and I'm able to integrate some mathematical issues for my students, too. My style makes it a tough course. Currently I am also advising a student in the combined math and engineering program. What I did in bridging the two has now become a popular option."

For Cohen, music and math twine together, as they do for many with natural talents. The basic construct of music is math – rhythm and pitch are expressed in terms of numbers. For Dr. Guy Cohen, both represent beauty. ■



Bridging the Gap

Dr. Natan Aridan

“I am a Zionist,” proclaims Dr. Natan Aridan, a researcher from the Ben-Gurion Research Institute for the Study of Israel and Zionism and Managing Editor of *Israel Studies*, an influential academic journal. “Zionism is the national liberation movement of Jewish people – the expression of our right to a homeland in the Land of Israel. We can argue about size, but Zionism is a liberation movement just like any other.”

Aridan recalls the precise moment when he made aliyah. “October 5, 1980, at 9 pm, during BGU’s 10th Annual Board of Governors Meeting,” he recalls. “I’d been given a study grant by the Ben-Gurion University Foundation

of Britain, and I arrived, with all my suitcases, at the Board Meeting. That first week, I was fortunate enough to meet Prof. Ilan Troen, who was then Dean of the Faculty of Humanities and Social Sciences. Troen became enormously influential in my life. Today, 27 years later, Troen serves as the editor of *Israel Studies*, while I am Managing Editor.”

The London-born, Habonim Zionist youth movement loyalist even landed a prized job: “I was given a position as assistant to the Director of the Ben-Gurion Heritage Institute in Sede Boqer,” he says. “My duties were to help with research, organize papers and maintain archives, while studying for my Masters degree. At that time, the

University was just beginning to offer post-graduate degrees and I was one of the first three to receive a Masters degree in the Humanities.”

Today, Aridan continues to serve in the Institute and also teaches in the Department of Jewish History. The common thread that runs through his entire body of work is that of Diaspora relations. His book, *Britain Israel and Anglo-Jewry, 1949-1957*, was published by Routledge, UK. “My goal is to bridge the gap between the half of the Jewish people who live in Israel and the half who live elsewhere. Exploring the dilemmas of that relationship – the areas in which we concur and those

where we differ – is the focus of my work,” he emphasizes. He is currently researching the relationship between Israel’s diplomatic missions and Jewish Diaspora communities in English-speaking countries.

Israel Studies, a thrice-yearly journal, has garnered a worldwide reputation. “We are a widely-focused multidisciplinary journal, published under the auspices of BGU’s Ben-Gurion Research Institute for the Study of Israel and Zionism and Brandeis University. We have published 30 issues since we began in 1996.”

In this era of “post-Zionist” expression, *Israel Studies* fills a critical niche. “Before we came along, it was very difficult for Israel scholars to publish abroad if they weren’t decidedly ‘post Zionist’ or radically left or right wing,” Aridan says. “We provide an opportunity to publish academic research on a wide range of issues – some are critical of our government, some apologetic, but all are academic. As such, *Israel Studies* has become a teaching tool both here and abroad. Students, teachers and professors access our website – www.iupjournals.org – and download our material. We have become quite influential.”

The journal covers Israeli history, politics, society and culture from all points of view. “We’ve published special issues on Israel – Military Relations; the Americanization of Israel; Israel and the Diaspora; Israel and the Holocaust; and Geography in Space. We have also covered the history of political movements, biographies of influential people, foreign policy, religious Zionism, Israeli Arabs, legal issues and dozens of other topics,” he explains.

For Aridan, teaching is another important role. “In the Department of Jewish History, we set up a program that is unique in all of Israel. We take topics of contemporary interest – music, literature, the military, history of Zionism, Holocaust – and give teachers or people in government an opportunity

to study. In Israeli high schools, students rarely study contemporary Israeli history, so their knowledge of their own country is weak.

“In our classes, we focus on the dilemmas of nation-building: how the State came into existence; how religion and State were addressed; how immigration was handled; and – very important to me – how Israel interacted with Jewish organizations in the Diaspora. I want students to understand how complex the founding of a modern state was, after 2,000 years of exile. I want them to consider all the issues our founders had to address: Who was a Jew? What was the State’s obligation to help fellow Jews? What was Israel’s obligation to those Jews who still lived



in oppression, in other countries? It is easy to make value judgements about our government, but I want students to dig deeper, to consider what they would have done, had they been in [David] Ben-Gurion’s place.”

Students enrolled in BGU’s Overseas Program also benefit from Aridan’s teaching. “The course I teach is called, “Critical Decisions in the State of Israel.” It’s an overview on decisive issues during the formation of the State. My goal is to give those students – many of whom are not Jewish – some understanding of how the State was created, so they can better

understand how Israel, as a Middle East democracy, functions today.

“I also teach a specialized course in foreign policy to Israeli air force pilots. Because of their career choice, pilots study physics, astrophysics and math, with little attention paid to humanities or social sciences. I have them analyze actual historical issues to better equip them to understand the diplomatic process today. I like to bring original documents in. They’ve learned the history, then I show them a document, exactly what Ben-Gurion himself had. Then I tell them: ‘You see what the situation was, what choices were available. What would you have done?’ It gives them an understanding of how Israel’s foreign policy works, both then and now.”

Recently, Aridan was interviewed about the proposed boycott of Israeli academics. “I told the audience I was opposed to the boycott because it discriminated against an important group of Israelis. ‘It’s incredibly unfair to Israeli Arabs,’ I told them. ‘Many Israeli

My goal is to bridge the gap between the half of the Jewish people who live in Israel and the half who live elsewhere

Arabs study for advanced degrees in Britain. This boycott hurts them.

“No it doesn’t,” they assured me. ‘Israeli Arabs will still be welcome!

“So then it’s only Jews you’re discriminating against?” I asked. ‘Do you see what this means?’” taking pride in his logical argument that exposed the boycott as anti-Jewish.

“There are some subjects I’m passionate about,” Aridan emphasizes. “When it comes to Israel and Zionism, I speak my mind.” ■

The Fruits of her Labors

Dr. Noemi Tel-Zur



Israel may be the land of milk and honey, but thanks to Dr. Noemi Tel-Zur's agricultural research, Israel will likely become famous for its eggs, too. Dragon's Eggs, that is.

For the last several years, Tel-Zur, a scientist and researcher in the Albert Katz Department of Dryland Biotechnologies at the Jacob Blaustein Institutes

for Desert Research in Sede Boqer, and incumbent of the Mendel Wasserman Career Development Chair in Desert Studies, has been working at improving the quality of a cactus fruit that is particularly well adapted to desert agriculture. "Prof. Yossi Mizrahi, Israel's famous experimental fruit expert, brought the original plants to Israel from South America," says Tel-Zur. "There, the fruit is called *pitahaya*. It's also cultivated in Southeast Asia, where it is called Dragonfruit. So when Prof. Mizrahi brought it here, he called our new hybrids 'Dragon's Eggs'."

In any language, the fruit is exquisite

in appearance. With its bright green spikes and flaming red skin and flesh, a Dragon's Egg looks almost otherworldly, too vivid to be real. "They're excellent when ripe," Tel-Zur says. "Both the peel and the flesh are red, peppered with a great many tiny edible black seeds, rather like a kiwi fruit." Though the cacti are already being commercially grown across the Negev, research continues on how to improve the taste and quality of the fruit. "We began our research with a 'mother' plant from Panama and a 'father' plant from Colombia,

and are now working to improve the quality of the fruit," she explains.

The cacti themselves are ideal for the Negev's dryland agriculture. "The plants need only one-fifth to one-tenth of the water a traditional orchard tree needs," says Tel-Zur.

"We began with plants that produced many different kinds of fruit. Some were very beautiful – so perfect, that people used them as table decorations, but didn't eat them because they were too sour. On the other hand, some plants produced smaller, less-perfect fruit, but with a high sugar content, so they were excellent to eat. My research is designed to improve the fruit genetically, so we can consistently produce a beautiful piece of fruit that also tastes sweet and good."

It's a time-consuming process. "We start from a seed, and it takes over three years to grow and produce fruit. With each plant, we knew which was the 'mother' and the 'father', so when the 'baby' plants came along, we knew which characteristics we had and which we wanted. We're now in our second generation of 'babies', and producing some wonderful fruit – it's beautiful and tastes great, but we're not done. We're still refining it to produce perfect, sweet tasting Dragon's Eggs."

For the Argentinean-born Tel-Zur, agriculture has been a lifelong passion. "I grew up in La Plata, near Buenos Aires," she says. "My father wasn't a farmer – he owned a store. But I had friends whose parents were farmers and I loved the freedom of being out in the fields. I was a tomboy and I loved doing farm work. I began my agricultural studies at the University of La Plata, but in Argentina life was not easy for Jews, so when I was 20, I made aliyah alone. Three years later, my sister followed me here, and three years after that my parents arrived, so now we're all here in Israel."

It was because of her Israeli husband that Tel-Zur came to Ben-Gurion

University. "My husband received his Ph.D. from the Weizmann Institute of Science and began to work in Dimona, so I came to BGU for my Ph.D. I was privileged to work in Prof. Mizrahi's lab. My work here is fascinating – I just love what I do."

The Tel-Zur family, which includes a son and two daughters, lives in Omer, near Beer-Sheva, which means Tel-Zur has an hour commute to work. "It's not easy," she says. "Not everything gets done. But I concentrate on what's really important."

Tel-Zur has another research project involving a fruit the Bedouin call *dom*. "It's a small fruit that looks a little like a date," she says. "These species grow in several places in the world. In India, it's called *ber*, and in China, it's called *jujube*. The Latin name for the Israeli species is *spina-christi*, because *sidr* trees have very prickly branches, which the Christians believe were used to weave Jesus' Crown of Thorns. In Sede Boqer, we have experimental fields where we are working to produce *dom* fruit with the best qualities of all three species. It's another ideal crop for Israel because it is extremely drought and heat resistant. The fruit is eaten fresh or dried and is rich in antioxidants."

Tel-Zur is very specific about her profession: "I'm involved with agriculture, not biology. There's a difference."

Is agriculture an unusual career choice for a woman? "At the university level, many women are involved, but outside, as farmers, it's unusual," Tel-Zur explains. But she loves her work: "I love being in the greenhouse; I love working in the fields – maybe not when it's 40 degrees outside, but most of the time," she says smiling.

Tel-Zur's lab is uniquely multicultural. "I'm pleased that in my lab, we have graduate students from many different countries. We have an excellent student from Jordan who saw my website and applied to work with us. He completed his undergraduate studies in Oman and wanted to come, but had to overcome an enormous amount of

My research is designed to improve the fruit genetically, so we can consistently produce a beautiful piece of fruit that also tastes sweet



family pressure to come to Israel. He's a big asset for us. Another Masters student comes from Cuba, which is also unusual. Beyond that, we have post-docs from India and Cuba. With my lab technician hailing from Los Angeles, we're a mixed crew, which makes our work together even more meaningful."

Thanks to the work of Tel-Zur and her BGU colleagues, the world is changing. The indigenous Seri people of Sonora, Mexico, referred to their *pitahaya* by the name *ziix is ccaxl* – "the thing whose fruit is sour." Not anymore. Here, the Negev blooms with beautifully formed Dragon's Eggs, an exquisite fruit that now bursts with juicy sweetness too. ■

From Therapy to Cure

Dr. Eli Lewis

Directly upon completion of his service as a medic in the Israel Defense Forces, Dr. Eli Lewis decided to study medicine. He was particularly interested in studying at Ben-Gurion University of the Negev because it was the only public health, community-oriented program in Israel. But life has its twists and turns, and after four years of medical school, Lewis took a year off to try his hand at medical research. “I was so excited about research that I realized that I must inevitably choose between being a medical doctor or a researcher,” he explains.

“What I love about research is the originality, innovativeness, creativity. You’re an inventor, and the good thing is: you’re finding ways to cure patients!”

And what about the years spent studying medicine?

“I actually feel lucky,” Lewis says, “The excellent medical background that I gained at BGU’s Joyce and Irving Goldman Medical School fuels my thinking processes on a daily basis.”

Lewis, incumbent of the Ilse Katz Career Development Chair in Health Sciences Research, received all three degrees – undergraduate, graduate and Ph.D. – from BGU’s Faculty of Health Sciences, where he examines ways to allow better transplantation. Lewis studies pancreatic islets: “The insulin-producing cells inside these islets are what a diabetic patient lacks; today these are transplanted to human recipients.”

He did his post-doctoral fellowship at the University of Colorado under the mentorship of Prof. Charles Dinarello, where he added the field of inflammation studies to his islet rejection work.

“Diabetic individuals receive insulin to compensate for loss of islet function. That’s all fine and well, but we must remember that insulin injections can only control diabetes, they cannot cure it,” he emphasizes. “Now, more than ever, the research community feels that it’s time to find a cure

Diabetic individuals receive insulin to compensate for loss of islet function. That’s all fine and well, but we must remember that insulin injections can only control diabetes, they cannot cure it

for the disease. In fact, we’d like to raise the bar even higher: shouldn’t a diabetic patient hope for a cure that will not require life-long therapy?”

What about transplanting the entire pancreas?

“Since insulin preparations are readily available, a patient must weigh the pros and cons of a whole organ transplantation, its risks and complications, such as intense immunosuppression. That is why you typically encounter kidney-pancreas or liver-pancreas transplantations, where the patient is already on an anti-rejection protocol. So science looked for alternatives and came up with transplants of isolated islets in a short, less invasive procedure.”

The year 2000 heralded a breakthrough in the field by a team in Edmonton, Canada that compiled a new “recipe” of drugs to better suit islet transplantation. They deliberately avoided classic steroids and cyclosporin A, which are known to be islet-cell toxic. Subsequently, hundreds of diabetics have undergone islet transplantation on a global scale.

“Although a highly attractive procedure, there soon appeared to be a problem,” continues Lewis. “Most of the recipients gradually lost islet function, so that the five-year graft survival rate proved unacceptably low. Unfortunately, most of the recipients had to resume their insulin regimen.”

So what is going wrong? That was the big question that Lewis is trying to answer.

“We realized that graft rejection was not the problem; the therapy kept immune responses in check. In fact, over half the islets die within the first two days after engraftment, even before local immune cells appear. The question was: Why?”

Lewis’ research introduced strong evidence that inflammation was the culprit. “Islets are very sensitive to even the slightest inflammation. Soon after exposure to inflammatory conditions, islet cells shut down insulin responses, secrete toxic nitric oxide and die. Amazingly, he says, “we found this process to begin as early as procurement of islets from the donor!” The question, then, was: what could be done about reducing the inflammation that knocks out the islet cells so early in the game? Particularly considering the fact that the pivotal anti-inflammatory steroids are contraindicated in this setup?



The answer came from an unexpected source: a naturally occurring human protein called alpha-1-antitrypsin, henceforth “antitrypsin,” which blocks inflammation. A small percentage of the population is born with a genetic deficiency of this protein. “Over the past 20 years, these patients remained healthy by prolonged administration of antitrypsin,” Lewis emphasizes, “even though they’re given very high doses of the protein, much higher than healthy people normally manufacture.”

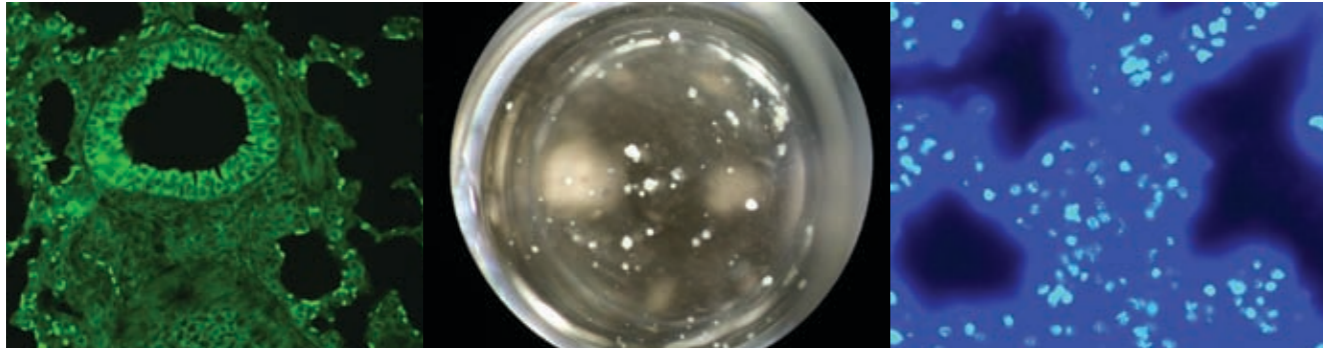
Why was that important? Because Lewis immediately saw the connection of antitrypsin to islets and inflammation. If antitrypsin could effectively

control inflammatory events in humans, perhaps it could also control the inflammation caused during human islet transplantation. And it doesn’t compromise islet cell viability, as steroids do. He and his team tested this theory on mice and on isolated human islets.

“My focus is on the human clinical grade preparation. However, mice don’t produce human antitrypsin and quickly mount an antibody response against our injected material. I did some inquiring and discovered a research team in Vancouver, headed by Prof. Andrew Churg, which created a surprisingly relevant transgenic mouse: a mouse with an artificially added gene for manufacturing human antitrypsin!” Even better,

these mice were designed to express very low levels of human antitrypsin only in their lungs, and hence circulating levels of the human protein are below detection. “Now we can go on injecting with human antitrypsin!”

Further tests revealed that in a laboratory setting, they could conduct successful transplants on mice where the islets did not die and the transplants were not rejected. Then Lewis’ team took another unusual step: they stopped the treatment after 30 days. Amazingly enough, blood sugar levels still remained normal – a groundbreaking result. “This means that the previously diabetic graft recipient is ▶



now normoglycemic and therapy-free!”

Lewis’ team then removed and examined the grafted islets, and were surprised at what they found: the islets were surrounded by a dense population of immune cells in what they nicknamed a “cuff” configuration – these immune cells did not invade the islets: “These cells are called T-regulatory cells, the ‘good’ immune cells.

“Immune tolerance is the holy grail of transplantation,” explains Lewis. “That means that, ideally, we want to reach a stage where we will be able to stop

must have all components intact in order to take place properly. I theorize that if you successfully remove the initial inflammatory response, graft recognition will be compromised. The particular address, i.e., the graft, will be spared. In our case, antitrypsin reduced inflammation and cell migration so successfully that the islet grafts were accepted without immunosuppressive drugs. It’s as if our therapy opened a window of opportunity for immune tolerance. Unlike non-specific immunosuppressive drugs, the remain-

research encouraged multiple collaborations between groups in Israel, the United States, Europe and Canada to cover all aspects of the study, from a Stanford University gene therapy group, to the evaluation of tolerance induction at Harvard University. Funding is similarly combined of local and international resources, including the Juvenile Diabetes Research Foundation and the Israeli Science Foundation.”

Where does Israel stand regarding islet research?

“Israel has no human islet program. We import human islets from abroad just to perform simple research, let alone graft them, and face as much as 85 percent transit-related islet death. My goal is to establish a human islet study center that will provide research groups in Israel with human islets for experimentation and, more importantly, allow for a human islet transplantation program to commence right here at BGU together with the Soroka University Medical Center.”

What about teaching?

“In addition to my research, I teach clinical biochemistry to medical students and to students of other medical programs: in Hebrew at the Faculty of Health Sciences, and in English to students enrolled in the Medical School for International Health in collaboration with Columbia University Medical Center. I love to teach and my lab is always populated by great, enthusiastic and motivated students from many different programs. So it’s a win-win situation all around.” ■

1 My goal is to establish a human islet study center that will allow for a human islet transplantation program to commence right here at BGU

administering the immunosuppressive drugs. So far, this has not been attained in humans. This downfall renders islet grafting almost irrelevant to a young diabetic child who will have to receive immunosuppression for the rest of his or her life. Yet this is precisely what we accomplished in our experiments: we stopped the administration of antitrypsin and still sustained its positive effects.” How does Lewis explain this?

“There are several possible mechanisms to explain this phenomenon. My primary theory is this: As we know, upon transplantation, local non-specific inflammation prevails. After that, immune recognition ensues and immune cells receive an address to attack, so to speak. This entire pathway

der of the immune system functions normally. Of course, we’re examining all other avenues as well, such as islet-cell survival, T-regulatory differentiation, graft vascularization and more.”

And what about applicability to humans?

Lewis smiles a big smile. “We recently received approval for a clinical trial in Colorado, in which antitrypsin will be administered to diabetic patients who enter the Rocky Mountain Islet Transplant Program, headed by Dr. Alex Wiseman. In this case, antitrypsin is added to the existing therapy cocktail, but I hope that soon we will be able to test antitrypsin alone.”

Traditionally, the study of T cell mediated transplantation and non-specific inflammation had little overlap. Lewis directly addresses both. “My