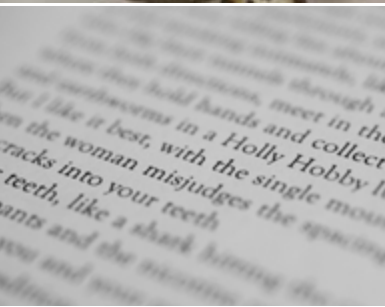
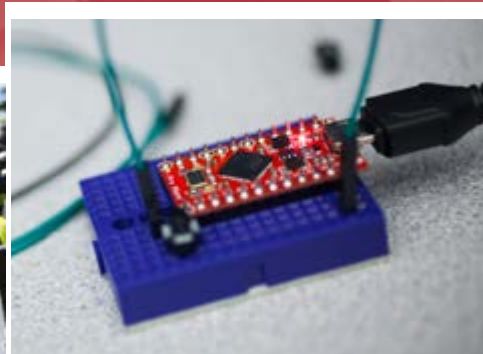
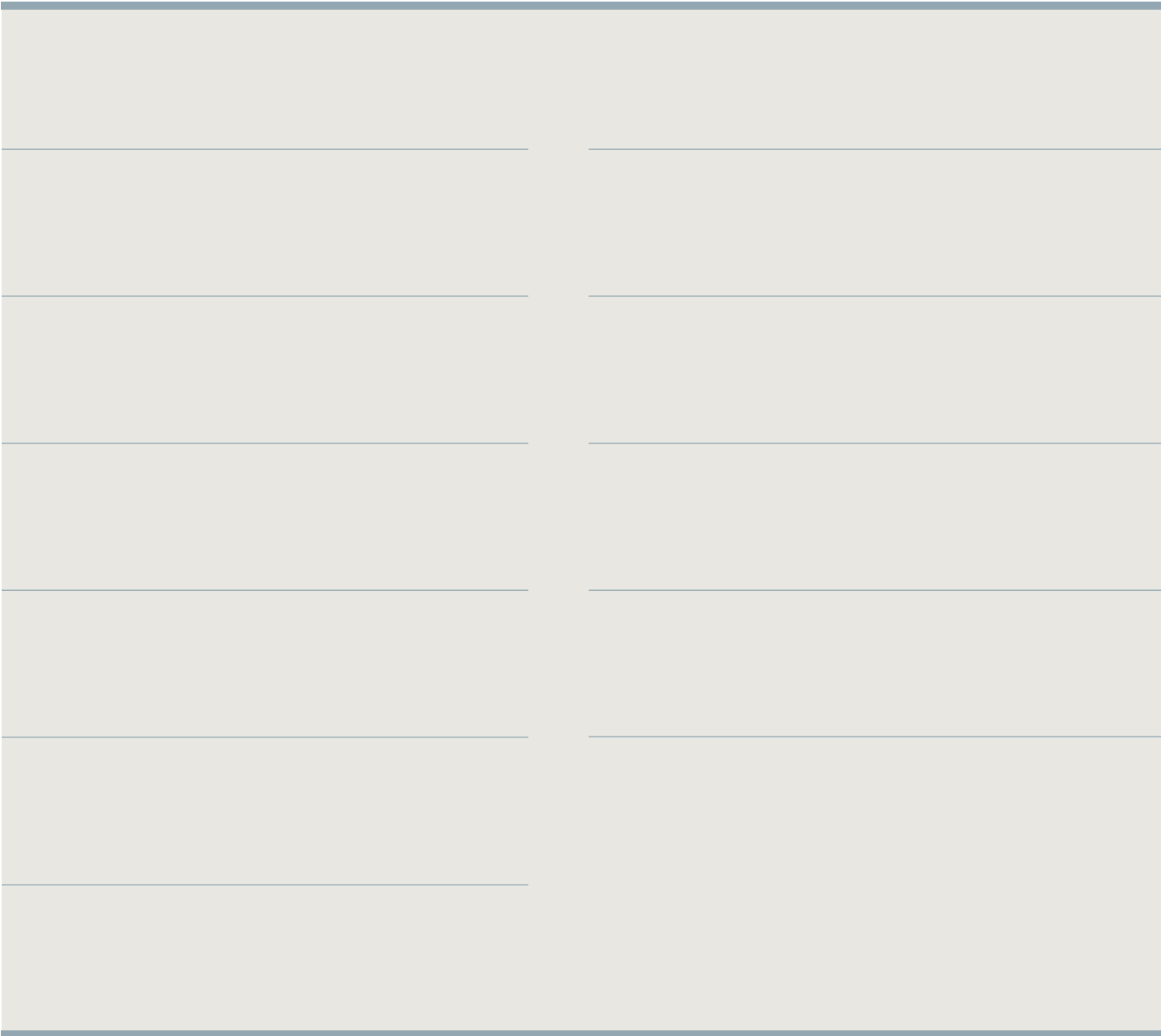




THE DEAN'S ANNUAL REPORT 2014





and collaborations across the country. More than 200 alumni from across Harvard schools attended the three gatherings, which were co-hosted by the Harvard Clubs of Beijing, Hong Kong, and Shanghai, as well as the Harvard Center Shanghai, the Harvard Alumni Association, and the Fairbank Center. Members of the Graduate Student Alumni Association Council traveled with the deans, including Don van Deventer, PhD '77, Mia de Kuijper, MPA '83, PhD '83, Dan Johnson, AM '82 '84, Jean Liu, SM '02, and Lee Zhang, AM '01.

The Graduate School's Alumni Council is also conducting a Global Outreach Survey to learn about alumni interest and engagement.

GSAS sent staff to graduate recruitment events and on university visits in Brazil, Saudi Arabia, Chile, United Kingdom, Mexico, and China. All were organized in collaboration with our international research centers, especially the regional



In January 2014, the GSAS hosted a series of conversations in Beijing, Hong Kong, and Shanghai, titled "Perspectives on Leadership and China," which featured Edgerley Family Dean of the Faculty of Arts and Sciences Michael Smith, GSAS Dean Xiao-Li Meng, and Mark Elliott, Mark Schwartz Professor of Chinese and Inner Asian History. Above, the deans and Professor Elliott joined Harvard faculty, alumni, and staff on a visit to the Great Wall. Back row (l-r): Mark Elliott, Paul Keenan, Jon Petitt, Jay Harris, Margot Gill. Front row (l-r): Timothy Brown, Peter Marsden, Michael Smith, Xiao-Li Meng, Mia de Kuijper, MPA '83, PhD '83.

offices of the David Rockefeller Center for Latin American Studies.

To enhance international outreach efforts, and with a generous sponsorship from GSAS alumnus Lee Zhang, AM '01, GSAS established a new senior position: director of international strategy and development and special assistant to

the GSAS dean. The first appointee to this new position, Hongping Tian, PhD '01, was previously a director at the Yale-China Association. She is developing long-term outreach efforts and investigating the development of several international programs, which will be explored and piloted in the coming years. ■

QUESTION & ANSWER



AVI LOEB
Frank B. Baird, Jr. Professor of Science

Q: What's on your mind these days in astrophysics?

A: It is remarkable that science today addresses questions that were previously in the realm of philosophy or religion. My research focuses on two such questions: "When did first stars form and light up the universe?"—which can also be framed as the scientific version of the story of Genesis; and, "When and where did life start to form?"—or in simpler words, "Are we alone, or is the universe teeming with life?" We currently have the technology to build telescopes and instruments that will attempt to answer these questions over the next decade. We live at an exciting time.

I recently wrote an essay containing 10 examples of blunders by astronomers who thought they knew the truth without looking at the sky and were proven wrong.

One example concerns Edward Charles Pickering, director of the Harvard College Observatory between 1877 and 1919. Pickering argued that telescopes had reached their optimal size at 1 to 2 meters (roughly the height of a person) and there was little to be gained from larger ones. Harvard is currently participating in the development of the Giant Magellan Telescope, which will be almost 20 times larger than what Pickering envisioned, and we plan to learn a great deal with it.

Another example involves Cecilia Payne-Gaposchkin, the first graduate student in astronomy at Harvard-Radcliffe who later became chair of the astronomy department. When writing her PhD thesis in 1925, she interpreted the solar spectrum

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QUESTION & ANSWER

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and concluded that the sun's atmosphere is made mostly of hydrogen. While reviewing her dissertation, the distinguished Princeton astronomer Henry Norris Russell convinced her to avoid the conclusion that the sun's composition was different from that of Earth, as it contradicted conventional wisdom at the time. We now know that hydrogen is the most abundant element in the universe.

Astronomy teaches us humility. Earth is the place where kings and emperors received an ego boost after conquering a piece of land. Are you kidding me? There are more planets in the observable universe than grains of sand in all the beaches on Earth. An emperor proud of conquering anything on Earth resembles an ant proud of hugging a grain of sand in a huge beach. Arrogance based on events occurring on Earth is ridiculous in the big scheme of things.

But if you think about it, you realize there's a simple reason for this lack of modesty: people tend to look down to Earth, rather than up. When I step out to the porch of my house every night, I look at the stars of the Milky Way galaxy and think of them as lights in a giant spaceship sailing through space. I wonder, "Are there passengers around the other lights of this spaceship?" And when I go back inside and tell my wife about my thoughts, she says, "If ETs exist and they ever land in our backyard to pick you up, please remember to leave the car keys with me and ask them not to ruin the lawn as their spaceship lifts off."

Most of the time, we humans are preoccupied with our local environment. Many of our frustrations arise because we live on the two-dimensional surface of Earth. To alleviate our anxiety, we simply need to open our minds to the third dimension of space available to us. Looking up at the night sky changes our perspective. Out there lies a vast volume of space hosting planets like Earth around hundreds of billions of stars like the sun merely in our own Milky Way

galaxy—which is one of billions of galaxies in the visible universe. The fact that we live for only a few billionths of the age of the universe underlines how transient and insignificant our pleasures and concerns are. Having a cosmic perspective teaches us modesty at a fundamental level.

Q: Your research has been covered by national news outlets such as *Time* and *Discover*. Why do you think your work captures the public imagination?

A: I was born in a small village near Tel Aviv, Israel. My parents had a farm, and I used to collect eggs every afternoon after school. I tend to think in simple terms. I call it "common sense astrophysics." My colleagues are fascinated with more sophisticated math or very advanced nuances in our understanding. Reporters have a hard time connecting to very advanced nuances, so they talk to me. They report about my work because it makes sense to them. I am often surprised that other people haven't come up with my ideas a long time ago, since they are relatively straightforward. But I am also glad to see that what I say makes sense to others.

Q: You recently co-chaired a faculty review of the science graduate programs. Why was it important to examine how we train our graduate students and how we should enhance their experience?

A: It has been a while since our science graduate program was reviewed. The principle that guided our committee's deliberations was that funding should reflect the evolving academic priorities of the FAS. Exciting science often blossoms these days at the interface between traditional disciplines; as a result, many students are being advised by faculty outside their home departments. We tried to come up with a funding scheme that takes interdisciplinary research into account and also rewards scientists who raise outside funds to support their students. The well-being of our graduate students is our key concern. It is more important to maintain a high quality experience of study and research for them

than to maximize their number. We must also stay competitive with peer academic institutions by raising donor funds for our graduate programs.

Q: How do you involve graduate students in your work, and how does their research influence the field of astrophysics?

A: Over the past two decades of my stay at Harvard, I've typically had between five and eight graduate students a year. Half originate from the physics department and the other half from astronomy. I am particularly proud of my first graduate student, Daniel Eisenstein, who is now a tenured professor in Harvard's Department of Astronomy and is currently [fall 2014] receiving the prestigious Shaw Prize in Hong Kong. Five of my six graduate students this year are female, and I am also very proud of that.

I usually give each of my students a project on a completely independent theme, so that they become the world expert in that field and establish an innovative path that is independent of large collaborations.

Q: As chair of the Department of Astronomy, you're an advocate of initiatives to help graduate students communicate clearly about science. Why is this important?

A: Scientific research has a strong impact on society, and the public deserves to know what we are doing with the funds allocated to us. Communicating our results is as important as deriving these results for securing a healthy dialogue with the public. The graduate students in astronomy pioneered a website called *Astrobiters* that explains to non-experts the latest cutting-edge developments in astrophysics. They also organized a conference series on science communication (called *ComSciCon*) that brings a select group of interested students to the Boston area annually. We are grateful to GSAS, the FAS, and the Office of the Provost for their encouragement and continuous support of these important initiatives.