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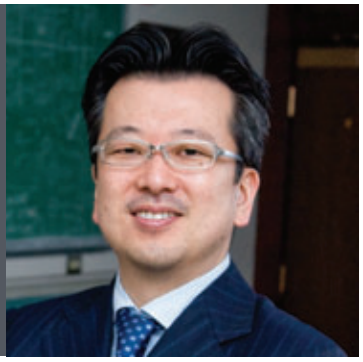
Earth Astronauts

COLLEGE OF ARTS AND SCIENCES
CASE WESTERN RESERVE UNIVERSITY

MUSIC, MEMORY AND METAPHOR

AN ENTREPRENEURIAL SPIRIT

A PASSION FOR STORYTELLING



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On the cover:
On an expedition with CWRU geologist Ralph Harvey, leader of the Antarctic Search for Meteorites (ANSMET), Gordon "Oz" Osinski, University of Western Ontario, examines an unnamed ice tongue in the Miller Range of the Transantarctic Mountains, December 2005.

Photo credit: Ralph Harvey/ANSMET

Points of Pride

DANIEL MILNER

Cyrus C. Taylor

I WILL SOON BE COMPLETING MY FIFTH YEAR as dean of the College of Arts and Sciences. When I wrote my first message for *art/sci*, in the fall of 2006, I had just finished greeting our newest students as they arrived on campus. I mentioned how delighted I was by their energy and enthusiasm, and how privileged I felt as I welcomed them to this "extraordinary place." It doesn't seem possible that members of that entering class are now alumni of Case Western Reserve University. The time has passed more quickly than I could have imagined.

As I reflect on the last five years, I take enormous pride in the college and all that we have accomplished together. And I hope that all of you feel the same way.

Let me begin with our fabulous students. Case Western Reserve attracts many of the nation's most talented and dedicated undergraduates, and thanks to the opportunities they find here, they flourish and achieve recognition in every field of endeavor. This spring, for example, **Stephen Fleming '11**, a double major in physics and biochemistry, was awarded a Churchill Scholarship that will enable him to continue his studies next fall at the University of Cambridge. Stephen, who has conducted biomedical research with faculty mentors **Peter Thomas** (mathematics and biology) and **Xuan Gao** (physics), is one of only 14 Churchill Scholars selected in 2011.

One of the great privileges of my years as dean has been getting to know our alumni. I admire them for the remarkable contributions they make to the larger society, and I am deeply grateful for their active support of the college.

Our faculty, to whom our students and alumni owe so much, are advancing knowledge in every realm of the arts and sciences—and conducting research on every continent! I want to commend them for their leadership in developing the college's strategic plan, and for their commitment to collaboration across disciplines, which the plan envisions as a source of our continuing preeminence in education and research.

This issue of *art/sci* illustrates many of the college's forms of excellence. In these pages, you will read about two undergraduates whose research bridges the domains of cognitive science and music. You will meet an alumnus who has achieved distinction by promoting economic development in Northeast Ohio, applying scientific knowledge for the benefit of humanity and upholding ethical principles in the business world. You will follow a geologist to the icefields of Antarctica and learn how a journalism professor fosters civic engagement through storytelling. In addition, you will see faculty members from two disciplines coming together to create a pioneering new department. As I was saying, this is an extraordinary place.

Cyrus C. Taylor
Dean and Albert A. Michelson Professor in Physics

Music, Memory and Metaphor

Two undergraduate researchers in cognitive science explore aspects of musical experience

by Meredith Holmes

COGNITIVE SCIENTISTS ARE INTERESTED in all of the activities and achievements that distinguish human beings from other species. They seek to understand how the human brain creates—and, in turn, is shaped by—languages and cultures, advanced tools and technologies, and social institutions. For this reason, the field of cognitive science is allied with many other disciplines, including neuroscience and biology, the social sciences, and the arts and humanities.

Since its founding in 2005, the college's Department of Cognitive Science has attracted many outstanding students who are equally involved in science and the performing arts. This year, for instance, two undergraduates with double majors in "cogsci" and music have designed studies examining how human beings respond to and think about their musical experiences.

Kaitlin Seibert '12 and **Caitlin Dawson '11** have both worked with cognitive science professor **Per Aage Brandt**. In his view, their musical knowledge and their histories as performers give them "an optimal background for doing research in the field of what we can call cognitive musicology."

DANIEL MILNER

Senior Caitlin Dawson (left), professor Per Aage Brandt and junior Kaitlin Seibert are all musicians as well as cognitive science researchers.

A Dual Approach

Seibert, a pre-med student, began playing trumpet, piano and guitar while she was still in high school. Her fascination with music and the brain also developed early, as a result of her participation in instrumental groups.

During performances, Seibert recalls, she felt an uncanny connection with the other musicians—people of all ages and skill levels. Even when she played in impromptu ensembles with complete strangers, her pleasure in the music and her bonding with other musicians were undiminished. "There is something special about music that connects everyone," she says. "I wanted to know where that feeling comes from, biochemically. There has to be a scientific explanation for it."

Seibert recognizes that not everyone shares her curiosity. "A lot of people believe that if you study the science of orchestral music, it detracts from the experience," she says. "It's like that with the neuroscience of anything—some people are afraid of learning more." But she balances her desire to understand the cognitive aspects of music with an appreciation of its fundamental mystery.

During her first three years at CWRU, Seibert volunteered at The Music Settlement in University Circle and at Rainbow Babies & Children's Hospital. As a result, she became intrigued by how music affects a broad range of people. When she played the piano for children at Rainbow, for instance, some of them became very excited about making music, experimenting on the keyboard for hours, sometimes to the point of exhaustion.

Eventually, Seibert took a seminar with Brandt on music and cognition. In turn, he introduced her to Michael De Georgia, professor of neurology at the Case Western Reserve University School of Medicine. Brandt and De Georgia co-direct the Center for Music & Medicine, which treats the medical problems of musicians, explores healing through music and the arts, and conducts research on the neurological foundations of music.

Working with Brandt, De Georgia and neurology resident Neha Dangayach, Seibert began developing a pilot study that is now awaiting IRB (Institutional Review Board) approval. Seibert researched background material and helped draft

MIKE SANDS

Kaitlin Seibert (right) has collaborated with Michael De Georgia (center) and Neha Dangayach to design a study of music and memory in stroke patients. De Georgia is director of the Reinberger Neuroscience Intensive Care Unit at University Hospitals Case Medical Center and co-director of the Center for Music & Medicine. Dangayach is a neurology resident.

the protocol. Says De Georgia, "Kaitlin is very organized, methodical and detail-oriented. Most important, she is passionate about both music and cognitive science. Her enthusiasm has helped propel the project forward."

The study focuses on the hormone oxytocin, popularly known as "the bonding hormone." Oxytocin is produced when people touch each other, when mothers nurse their infants and when people sing together. It is associated with a sense of connection and feelings of trust. In previous studies, when oxytocin was administered to research subjects, it increased their ability to recognize human faces. Now, Seibert and her colleagues plan to test the hypothesis that oxytocin can help stroke patients recognize a piece of music.

The patients chosen for the study will have a disorder called amusia—an inability to remember or recognize music or to distinguish differences in pitch. People may be born with amusia or, as in the case of stroke patients, acquire it as a result of brain damage.

At the outset, the patients will each be asked to name a piece of music with which they are very familiar. During the actual experiment, the researchers will play a recording of the piece each patient mentioned. Then they will administer oxytocin, in the form of a nasal spray, and play the piece again. The researchers hope that oxytocin will trigger a musical recognition.

Why do they think the hormone might have this effect? According to Seibert, the social bonding she experienced while performing music is also associated with *listening* to music. It is easy to forget this nowadays, when so many people listen to songs through earphones—a private experience that seems to cut them off from the rest of the world. But for most of our history as a species, listening to music has been a communal experience. In the language of cognitive science, then, music is a "social cue," just as a human face is. And since oxytocin primes the brain to respond to human faces, perhaps it activates the brain to respond to music, too.

Seibert has other ideas that she would like to test in future studies. For example, she suspects that while social bonding enhances our experience of music, the converse may also be true: Music may trigger the release of oxytocin and activate social attention and recognition. As yet, no one has examined the possibility that such a mechanism exists. Seibert could become the first cognitive scientist to pursue it.

Speaking of Music

For her part, Dawson has always loved doing research. "In elementary school, when everybody else was doing a book report, I was the kid doing an experiment and making sure I had an independent and a dependent variable," she says. "I find it exhilarating to discover things." Dawson started out as a biology major, in hopes of learning how the mind worked. But after taking a class with Institute Professor **Mark Turner** in the cognitive science department, she switched majors. "I'd always been interested in cognitive science—I just didn't have a name for it," she says.

Her musical interests have also shifted during her college years. Initially, the modern oboe was her primary instrument. But when she attended a faculty recital of early music, she was drawn to the sweet, pure sound of the baroque oboe and declared her second major in early music. About the same time, she became aware of a growing field of study that integrates music and cognitive science.

The language that people use to describe art has always interested Dawson, and a variety of experiences helped determine the direction of her research. These included a linguistics course taught by cognitive science chair **Todd Oakley**, many conversations with Brandt and a music theory course she took at the Cleveland Institute of Music. "I was listening to how the musicians in the class were talking about music—*in tune, out of tune, on key, off key*," recalls Dawson. The professor, Diane Urista, encouraged her to pursue this line of inquiry. Dawson then worked with Brandt, her advisor for her senior project, on research design. "It's hard to control for all the variables," she observes. "And how do you really control for art?"

The preliminaries for her study—obtaining IRB approval and recruiting 30 student participants—took longer than Dawson anticipated. But last fall, she was ready to launch her project. In a cognitive science lab in Crawford Hall, pairs of participants sat at separate computers and listened to the third movement of Johannes Brahms's Symphony No. 3—a familiar work with a clear emotional progression. Then each pair of listeners talked for three minutes about the music. Although Dawson was present during their conversations, she remained unobtrusive. She wanted the participants to feel as comfortable and spontaneous as possible in a laboratory setting.

In another part of the experiment, participants viewed Willem de Kooning's *Police Gazette*, an abstract painting whose strong emotional content would stimulate conversation without steering it in any one direction. Then they discussed the painting for three minutes. Dawson included *Police Gazette* in her study so that she could compare conversations about music with conversations about visual art.

During this phase of her study, Dawson read many reviews by art and music critics and made a discovery. "I noticed music reviews used words like 'sharp' or 'bright' that did not involve sound," she recalls. Taking a closer look, she realized that art was almost always described in metaphors involving senses other than the one to which the art was addressed.

Dawson was surprised by this indication that metaphor might be essential to describing art. But then she thought about chocolate. How would she describe it? "Smooth," "rich," or maybe "intense," none of which are taste-related words. "We don't seem to have words to describe things

as they are, at least for aesthetic experiences," she observes. "I think this is a fascinating revelation of the human mind."

Now, as she studies videotapes of the conversations, Dawson is looking for overarching conceptual metaphors that reveal how people think about music and art. Many participants, for instance, spoke about the Brahms symphony as if it told a story, with a conflict and a resolution. This is an almost universal response, not confined to college students. "There is something about music that causes us to associate it with other things in our lives that have the same structure," Dawson says.

The research participants also personified aspects of both the painting and the music, saying, for example, "The horns are angry," or "The black stripes are attacking the yellow triangles." Dawson finds that the language describing the music is far more complex and sophisticated than the language describing the painting. "It's my goal to figure out the reason for this, and to gain some insights about why music is so special," she says. "I want to understand why humans have this strong attachment to music and this multi-modal way of expressing it."

DANIEL MILNER

Caitlin Dawson recorded her research subjects as they discussed a symphony and a painting. Now, as she listens to their conversations on her computer, she is analyzing the metaphors they used to describe these works.

Both Seibert's and Dawson's studies go to the heart of cognitive science's quest to understand the human brain and its relationship to music, language and culture. Says Brandt, "I am proud and happy to be involved in projects as fascinating as these." ■

Meredith Holmes FSM '73 is a freelance writer.

An Entrepreneurial Spirit

Physicist and businessman Hiroyuki Fujita becomes a leader in the medical imaging industry

DANIEL MILNER

Hiroyuki Fujita, president and chief executive officer of Quality Electrodynamics (QED), accepted the Outstanding Recent Alumni Award from Case Western Reserve in October 2010.

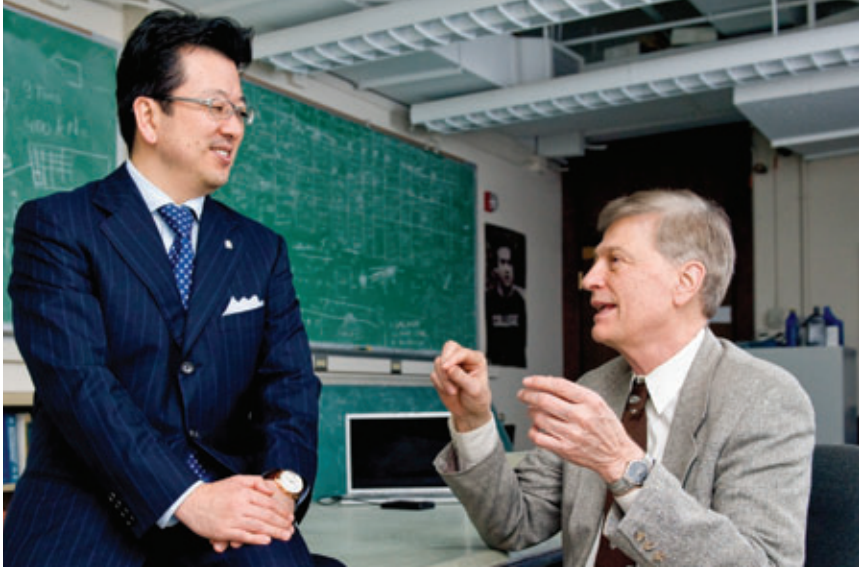
WHEN HE WAS COMPLETING HIS GRADUATE STUDIES in physics at Case Western Reserve University, **Hiroyuki Fujita, PhD '98**, had several possible futures open to him.

Working with Institute Professor **Robert W. Brown**, he had carried out basic research on the elementary particles of the universe, exploring the mysteries of quarks and gluons. Brown, who has now been a faculty member for 40 years, recognized Fujita's "terrific promise" as a theoretical physicist and would gladly have recommended him for an academic position in that field.

But their collaboration also extended to applied research. Brown is as devoted to industrial physics as he is to particle theory, and over the years, he and his students have made significant advances in medical imaging, often in partnership with local high-tech companies. Fujita helped carry this progress forward, devoting his doctoral research to improvements in MRI (magnetic resonance imaging) technology. So he could also have pursued a career as a university radiologist or an industry scientist.

As it turned out, Fujita chose business over academia. But it is equally true that business chose *him*. One of Brown's industry partners, Picker International, was so impressed with Fujita that the company offered him a job and began paying him a full-time salary while he was still writing his dissertation. "They loved Hiro," Brown recalls, "and they wanted to hire him before anyone else did."

During the next seven years, Fujita solidified his reputation in the medical imaging industry. After two years with Picker, he become director of research and development for another local company, USA Instruments, a leading producer of MRI radiofrequency (RF) coils. When that firm was taken over by General Electric, he was appointed director of engineering for GE Healthcare.



MIKE SANDS

Institute Professor Robert Brown (right) and Hiroyuki Fujita still meet occasionally in Rockefeller 109, where QED was incubated in 2005. Reflecting on his success since then, Fujita says, "Without Bob, I would not be here today."

All the while, however, Fujita never lost sight of his ultimate goal: he wanted to be an entrepreneur. By 2005, he was ready to start his own business, and Brown provided him with the opportunity.

Since then, Fujita has surpassed even his mentor's expectations. Today he is president and chief executive officer of Quality Electrodynamics (QED), which designs and manufactures advanced RF coils and related electronics for MRI scanners. His clients include two giants of the MRI industry, Toshiba Medical Systems and Siemens Healthcare. And his company has grown at a pace indicating that it may someday be a giant itself.

In 2010, for example, QED had annual revenues of $17.1 million—an increase of 2,300 percent since its first year, 2006. When Fujita opened his first facility in Mayfield Village, he had just four employees. By March 2011, he had 75 employees—and by the start of 2012, he plans to have more than 100.

His success has not gone unnoticed. Two years ago, QED was ranked #11 on *Forbes* magazine's list of America's 20 Most Promising Companies. It was the only medical device manufacturer to make the list, and the only company led by a first-time entrepreneur. Last July, Fujita was named an Ernst & Young Entrepreneur of the Year in the category "Northeast Ohio – Industrial Manufacturing." And in February of this year, Fujita traveled to Washington, D.C., to accept a National Tibbetts Award from the Small Business Administration, recognizing technological innovations that promote economic growth. After the ceremony, he and his fellow winners were honored at a White House reception.

Amidst all these distinctions, Fujita found special significance in a tribute he received last fall, when Case Western Reserve University presented him with the Outstanding Recent Alumni Award. "When I heard that announcement, I had chills up my spine," Fujita says. "Case Western Reserve has so many wonderful graduates all over the world; they are doing such great work everywhere. For me even to be considered, it's the most wonderful honor one could ask for."

Pursuing Opportunities

Fujita was born in Osaka, Japan, and began his undergraduate studies at Waseda University in Tokyo. As a young man, he considered a career in international diplomacy, a field in which his family has traditionally excelled. But he was also interested in science and mathematics.

While in college, he applied to a study abroad program and spent two months at the University of California, San Diego. He soon realized that, compared to the Japanese educational system, the American system allowed students greater freedom to explore multiple interests, so he decided to earn a degree in the United States. His parents wanted him to return to Waseda, but he couldn't wait to pursue the opportunities he had discovered.

During his senior year at Monmouth College, from 1991 to 1992, Fujita spent a summer and a fall semester doing research in solid-state physics at Oak Ridge National Laboratory in Tennessee. The next fall, in 1992, he started graduate school at CWRU.

Fujita initially worked with **Mark Haacke**, a radiology professor at University Hospitals, who was developing software for MRI machines. Haacke had once been a postdoctoral fellow in Brown's research group, and they are still collaborators; with two other former colleagues, they have written the definitive textbook on MRI physics. When Haacke accepted a position at Washington University in St. Louis in 1993, Fujita could have gone with him. But he decided to stay at CWRU, and Brown became his advisor.

Fujita has never regretted his choice. "Without Bob, I would not be here today," he says, gesturing toward the shelves of plaques and photographs in his office at QED. "I can tell you that, of course, I respect him as a great physicist and teacher. But more important, he is such a wonderful human being. Over so many years now, he has become my father figure. In fact, I spend more time with him than I do with my own father, who is in Japan. He has invited me and my wife and my sons every Thanksgiving, every Christmas, since the very beginning, as if we are part of their family.

"Of course, as people become closer, there will be moments when you have different opinions, and you may have some conflicts," Fujita continues. "Bob often says to me, whenever we have a disagreement, 'Hiro, we are disagreeing, and we have some things to talk about. But you know, when tomorrow comes, you and I will be talking as if nothing has happened.' That's great. I have that insurance, so to speak, so I can be very honest about whatever I want to say to him."

Listening to the Body

When Fujita first came up with his concept for QED, Brown was eager to support him. At the time, Brown had received a grant from Ohio Third Frontier, which promotes economic development by funding advanced research and nurturing early-stage, high-tech companies.

"They wanted me to grow my research group and support industry as well as I could," Brown recalls. "But if instead I put all my resources into building a company, making jobs, that would be fantastic." And so, in 2005, Brown created a position for a director of imaging physics and invited Fujita back to campus to develop plans for QED.

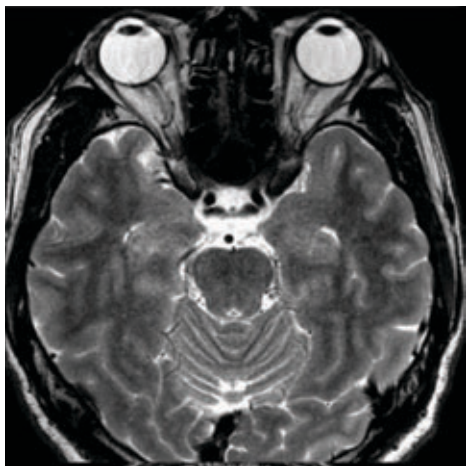
Brown's research group is based in Rockefeller 109, a 300-square-foot office with several desks and no partitions. With Fujita's return, says Brown, this group possessed an expertise in MRI technology unmatched anywhere in the world. "Not only were we able to design better coils than what we saw in industry," Brown explains. "The natural thought was, with Hiro's experience in industry, we could build them ourselves."

When non-scientists hear references to "coils," they sometimes think of springs. But actually, these coils are RF antennas. "We are making antennas that listen to the body," Fujita explains, speaking somewhat metaphorically. "We receive signals from the body, and then we transform the signals into images that doctors can see to diagnose physical conditions."

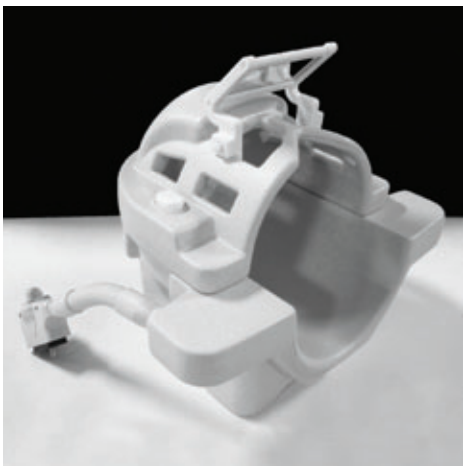
An MRI machine induces the body to produce these signals through a two-stage process. First, it applies a very strong, uniform magnetic field that affects the alignment of protons, which abound in the body's watery interior. The power of the machine's electromagnets is measured in units called Teslas; today, most MRI scanners are 1.5- or 3-Tesla devices.

In the next stage, the machine adds another, smaller magnetic field in the region of the body that doctors want to study. This is the function of the radiofrequency coils, Fujita says. They transmit a second magnetic field "in a very selected, controlled way," and then receive signals from the affected protons as they return to their original alignments.

One of QED's first innovations was to reduce the size of an electronic device that amplifies these signals once they reach the coils. With the space saved, it was possible to add more channels to increase the coils' sensitivity. Through such advances, QED has made it



COURTESY OF DRS. KAORI TOGASHI AND TOMOHISA OKADA, KYOTO UNIVERSITY GRADUATE SCHOOL OF MEDICINE, AND TOSHIBA MEDICAL SYSTEMS CORPORATION



COURTESY OF QUALITY ELECTRODYNAMICS

A 3-Tesla MRI system equipped with QED's 32-channel head array coil (right) produced the brain image on the left.

possible to produce MRI images at higher resolutions than ever before, enabling physicians to diagnose diseases earlier and more accurately than previous technologies allowed.

QED's coils also reduced scanning times. This is a benefit to hospitals, which now can use their MRI machines more efficiently. And it is also a boon to patients, who must lie perfectly still during a scan and tolerate the noisy clatter of the magnets.

COURTESY OF DR. SIEGFRIED TRATTNIG, MEDICAL UNIVERSITY OF VIENNA, AND SIEMENS HEALTHCARE

This in-vivo image of a foot was produced by a 7-Tesla MRI machine equipped with QED's 28-channel coil—an industry first.

A Risky Decision

By February 2006, Fujita was ready to turn QED into a reality. With just four employees, he rented half of a 7,000-square-foot building in Mayfield Village. The office furnishings consisted of "a few chairs, desks, almost nothing." When Fujita brought his wife and two sons to see his new business, one of his sons said, "Dad, you don't have anything here. It's empty."

Yet later that year, Fujita won major contracts from Toshiba and Siemens. The "key people" at these corporations already knew and trusted him from his years as an industry scientist. And he promised them that within 18 months, QED would be a fully functioning medical device manufacturer. Among other things, this meant obtaining regulatory approval from the U.S. and Japanese governments, developing QED's manufacturing capacity, instituting internationally recognized quality guidelines, and securing supply and procurement chains.

It was "an extremely aggressive timeline," Fujita concedes, and the stakes were enormous. As he explained in a 2009 interview with *Forbes*, a failure to keep his promise "would have severely compromised business and personal relationships that I have established over a lifetime. In retrospect, this was a very risky decision, but at the time, I knew that as long as we have clear determination and a mindset to achieve something, we can achieve anything."

In November 2007, on schedule, QED shipped its first products to Toshiba: 6-channel radiofrequency coils for imaging the wrist and hand. By 2008, the company was supplying "industry-first" 15-channel knee coils to Siemens, which featured QED products in an industry exposition in Toronto. By then, Fujita had 25 employees. He had leased the other half of his building but was already looking for a new site.

In 2009, QED moved across the street to its current, 28,500-square-foot facility. In one respect, it resembles Rockefeller 109: As Fujita points out, the employees work in an open space, "with no cubicles or offices. We want to share information and enhance communication."

Fujita has developed QED without the support of venture capitalists, banks or other private investors. "I wanted to grow the business my way, based upon my belief," he explained to *Forbes*. "Venture capitalists often go for return on investment within a short period of time, and my vision for business is not a short-term one." So instead, Fujita has secured $3.85 million in development grants from such sources as the National Institutes of Health, the Small Business Administration, Ohio Third Frontier, the Global Cardiovascular Innovation Center at Cleveland Clinic Foundation and the New Energy and Industrial Development Organization in Japan.

To promote further innovations in MRI technology, Fujita is collaborating with medical centers and universities around the world, including the Cleveland Clinic, the National Institutes of Health, Kyoto University, the German Cancer Institute, the Medical University of Vienna, University Hospital of Freiburg, University of Pittsburgh Medical Center, New York University Medical Center—and Case Western Reserve. For example, CWRU is a partner in a $1 million Ohio Third Frontier grant awarded to QED last June to develop improved RF coils for knee and breast scanning in advanced, 7-Tesla MRI machines.

This scanning technology is known as Ultra High Field MRI, and Fujita displayed some of the remarkable images it produces when he gave the keynote address at last year's 125th Anniversary Symposium of the Case Alumni Association. The images were of Fujita's own left knee, revealing a cyst he knew nothing about until he became a test subject for QED's newest coil.

"For the first time in the whole world," he told the audience, "you can zoom into your cartilages and tell what diseases you may have." Ultimately, as he explained to *Forbes*, he dreams of identifying and eliminating malignant cells before a disease even begins to form.

Shaping the Culture

In 2010, Fujita spent a total of four months overseas, conferring with customers and research colleagues in Europe and Asia. He works 60 to 70 hours a week and doesn't take vacations. But he realized from the start that life as an entrepreneur would demand nothing less.

ERYN CAMPBELL

In August 2010, Fujita spoke with President Obama during an event with state officials and business leaders in Columbus, Ohio. More recently, he was a guest at a White House reception honoring winners of an innovation award from the Small Business Administration.

"Business is very dynamic—it's changing every day," he explains. "You can't say, 'This is good enough; let's stop here.' Once you start a business, you can never stop. That's my philosophy. You don't want to accept the status quo. If you achieve one thing, you have to go above and beyond to become a better company, a better individual. It's a never-ending journey."

As part of that journey, Fujita has now ventured into the field of renewable energy. His company's first offshoot, *e*QED, is developing solar energy devices called micro-inverters, which convert direct current from a solar panel into alternating current. To manage *e*QED's operations, Fujita recruited **John Patrick, PhD '83, MBA '93,** one of Brown's former classroom students, who himself has been a successful entrepreneur and executive in the MRI industry.

In fact, Brown's former students account for at least 20 percent of Fujita's employees, and Brown continues to be one of the company's most active talent scouts. He hasn't only recruited his PhD physicists and postdoctoral fellows. He has also recommended undergraduate students, several of whom Fujita hired as soon as they earned their diplomas.

When he interviews these alumni, Fujita is already confident about their technical skills. But he wants to make certain they share his ethical commitments. The opportunity to shape a corporate culture that would reflect his beliefs was one of his primary motivations for becoming an entrepreneur.

"When you look at today's companies, many of them are driven by profit," Fujita explains. "At the end of the day, they ask, 'How much did we make?' That doesn't quite resonate with me. Of course, you have to be profitable; otherwise, you will not be enabled as an organization. But there is more than that. You want to create an organization where all of the employees feel that they belong to it, and that what they do makes a positive difference in the society. Then, they are happy to challenge themselves to become better, as human beings and as experts. All of these things give meaning to life."

Fujita credits Kazuo Inamori, founder of Kyocera and KDDI in Japan and chairman of the Inamori Foundation and Japan Airlines, with inspiring his ethical beliefs. "I have always wanted to be a great entrepreneur like him," Fujita says. "He also started Kyocera from nothing, and he has struggled, I'm sure, over so many years, looking for what is the right thing to do as a human being, what is right as an organization that is part of society.

"We work with a diverse group of people," Fujita continues. "I came from Japan many years ago. When you look at our company, we have employees from Asia, Europe, and the United States. They come from different backgrounds. But as Dr. Inamori says, if you do what is right as a human being, it doesn't matter what nationality you are, what culture you are from. We can be joined in a collaborative effort to do something great. I think that's the truth."

Fujita is now an adjunct full professor in both physics and radiology at CWRU. In addition, he serves on the university's international affairs visiting committee and on the advisory board of the Inamori International Center for Ethics and Excellence, which Kazuo Inamori endowed in 2006.

In March, Fujita was featured in two national broadcasts aired by NHK, Japan's largest TV station, highlighting his success in the United States and including scenes from two public events where he met President Obama. The most recent of these events, a "Winning the Future" forum on small business hosted by the president, was held in Cleveland in February 2011.

After the broadcasts, Fujita received a congratulatory message from the Inamori Foundation, noting that when Dr. Inamori started Kyocera many years ago, he experienced many of the same challenges that Fujita is experiencing today. During Fujita's graduate school days, no one could have imagined that the two men would someday form a relationship through their shared association with Case Western Reserve University. ■

KAZUMASA UMEMURA (KYOCERA CORPORATION)

In his pursuit of "what is right for humankind," Fujita has been inspired by the example of industrialist and philanthropist Kazuo Inamori (left), who endowed CWRU's Inamori International Center for Ethics and Excellence. Both men attended the celebration of the center's founding in 2006.

Earth Astronauts

Geologist Ralph Harvey leads Antarctic expeditions in search of meteorites

by Trudy E. Bell

CARI CORRIGAN/ANSMET

Ralph Harvey kneels beside a large meteorite found on the Antarctic ice sheet in December 2003.

NASA SITE HTTP://LIMA.NASA.GOV/PDF/A3_OVERVIEW.PDF

Massive glaciers up to two miles thick form a huge dome of ice over the land in East Antarctica. Slumping under their own weight, these glaciers flow downhill and outward towards the continent's coastline (blue arrows), carrying along any meteorites that have fallen on their surface. Eventually, the meteorites accumulate along the base of coastal mountains (green dots) that block the glaciers' movement. The route of the 2010-2011 ANSMET expedition, which searched for meteorites in the Dominion Range, is indicated by orange arrows.

SUNLIGHT GLINTS OFF A BRILLIANT blue-white Antarctic glacier, and a frigid wind sends snow dust whirling. Eight yellow snowmobiles, 25 to 50 yards apart in a long line, advance in parallel at the pace of a brisk trot. Their drivers—all wearing mirrored wraparound goggles to protect their eyes from snow blindness—intently scan the ice for stones and pebbles, even ones as small as a thimble.

"Whoa, what's that?" exclaims **Ralph P. Harvey**, pointing to a fist-sized black rock lying half-buried in the ice all by itself. Halting his snowmobile and shutting off its engine, Harvey treks over to take a closer look. Smooth rounded edges, black shiny crust—sure enough, the rock is not a terrestrial stone, but a meteorite that plunged through the atmosphere from outer space.

Harvey begins jumping and waving his arms to attract his colleagues' attention. An astrogeologist in bulky parka and mittens at the bottom of the world, he is doing what he calls "the happy meteorite dance" to signal another celestial find. Since 1991, Harvey, an associate professor of geological sciences, has run the Antarctic Search for Meteorites (ANSMET), a 35-year-old project funded by the National Science Foundation. "I lead scientific parties to pick up space rocks lying on Antarctic ice sheets," Harvey explains. "It's a pretty fun Easter egg hunt—but one with immense scientific value."

A Polar Desert

Space dust, sand and gravel fall into the earth's atmosphere all the time. Doubtless you have seen it happen yourself—a sudden streak of light flashing across the night sky. Such "shooting stars" are pea-sized bits of space grit speeding into the upper atmosphere at maybe 25 miles per second, their collisions with air molecules heating them enough to vaporize their substance in a last glow of silent beauty. An estimated 40,000 tons of interplanetary debris fall into the earth's atmosphere every year. Most of the billions of particles burn up harmlessly miles overhead.

Meteorites are larger chunks that survived their fiery plunge all the way to the earth. But most of them are lost: They sink to the bottom of oceans or lakes, or are buried in sand dunes or soft soil, hidden by vegetation or eroded away by running water.

Except in Antarctica. "If you want to find dark rocks that have fallen from the sky, what better place to look than on a big white sheet 3,000 miles across?" says Harvey, referring to the vast diameter of the ice-covered Antarctic continent.

Although meteorites are scattered here and there all over Antarctica, rich lodes may be found along the base of mountain ranges facing the interior (see map on p. 13). Why?

The center of the continent, near the South Pole, is several thousand feet higher than the coastline. Glaciers a mile or two thick cover much of its surface. These walls of ice flow from the central elevations outward and downhill to the coasts, carrying along any meteorites they have collected. In the east, this flow is eventually blocked by the Transantarctic Mountains, whose rocky projections trap and anchor some of the glaciers' edges. Over millions of years, the glacial ice accumulates in bays and pockets between the mountains, and the older ice is compressed until it attains a sky-blue color.

Under these conditions, you might think that the meteorites would be buried deep in the ancient ice. But the continent's abrasive winds expose them. "Antarctica is a polar desert," Harvey explains. The wind is so drying that it scours away ice, gradually revealing any meteorites embedded there.

Blue-ice regions, then, have unusual concentrations of meteorites. "This year, we worked one tiny area at Davis Nunataks that was just three by five kilometers—about two by three miles," Harvey recalls. "In one area the size of a tennis court, we found 30 to 40 meteorites."

A Hardy Band

Each ANSMET expedition numbers from six to a dozen people, hand-picked by Harvey. The members range from university geologists to high school science teachers, all volunteering their time for a season. The only paid staff who return every year are Harvey himself, postdoctoral research associate James Karner (who serves as a second science lead at times when the expedition breaks into two field teams) and two professional mountain guides responsible for the expedition's safety: John Schutt (see sidebar, p. 17) and Shaun Norman.

Harvey calls each ANSMET expedition a "hardy band of earth astronauts." Indeed, parallels to the Apollo expeditions to the moon are striking. The Antarctic meteorite hunters venture into a harsh and dangerous land of magnificent desolation, far from emergency medical facilities. They wear protective gear (insulated parkas, boots and mittens) and haul everything they need for survival. Communication is limited—from the glacier, satellite phone and Internet access is at the 1980s rate of 2400 baud. And like the Apollo astronauts, the meteorite hunters are gathering rocks from outer space.

Since there are no direct flights from North America to Antarctica, the ANSMET volunteers must first fly from the United States to New Zealand, and then take a military plane another 2,400 miles due south to McMurdo Station, the largest of three permanent settlements on the continent. They make the trip in late November, as the Antarctic spring is warming toward summer.

Once the volunteers arrive at McMurdo, they select provisions and prepare their equipment, which includes tents able to withstand winds in excess

LINDA WELZENBACH/ANSMET

As shown in this image from the 2006-2007 ANSMET expedition, some areas of ancient blue ice have such high concentrations of meteorites that they are found only tens of feet apart. The tall antenna on one snowmobile is a Global Positioning System (GPS) receiver for recording the position of each find.

of 100 miles per hour. For people heading out into remote isolation for six weeks, in a place where the average summer temperature hovers below 0°F, "food is very important, not just for fuel, but also for warmth and morale," Harvey says. "So we take food that makes people happy—including such delicacies as steak, shrimp, and chocolate—so they can look forward to cooking themselves a nice dinner each evening in camp." This past season, one ambitious scientist, Ryan Zeigler from Washington University, took a small propane oven and roasted a whole turkey for the group on Christmas.

At McMurdo, the ANSMET volunteers also go through astronaut-like survival school: rigorous safety training in first aid and rescue techniques, including how to climb a rope out of an ice crevasse (a precaution that, thanks to alert mountain guides, has never been needed in the field). During a shakedown 24-hour campout on the ice, everyone practices pitching and striking two-person, double-walled tents and lighting and cooking over propane stoves. Everyone also "takes driver's ed," Harvey says, learning how to pilot a snowmobile towing a sledge laden with 1,000 pounds of equipment, food and fuel.

By the end of the first week in December, the expedition begins. While some search sites have been as close as 150 miles from McMurdo Station, this past season the expedition ventured more than 1,000 miles distant. The members divided into two field teams. The main team, dedicated to systematic searching, went to the Davis-Ward Icefields in the Dominion Range, at the head of the Beardmore Glacier. There, eight earth astronauts set up a snug camp: their home-sweet-home for the next month and a half. Meanwhile, a highly mobile four-person reconnaissance team, dedicated to scouting possible future sites for collecting meteorites, was flown to the LaPaz Icefields and then to the Patuxent Range Icefields.

LINDA WELZENBACH/ANSMET

ANSMET volunteers find some meteorites, fist-sized and black, among tan or reddish terrestrial rocks.

A Day on the Glacier

Since the midnight sun is up 24/7 in the Antarctic summer, the volunteers' lives are regulated entirely by their clocks, all set to McMurdo time. "There's no camp reveille, but we ask everyone to be out of their tents ready to go, mittens on, snowmobiles warmed up, by 9 a.m.," says Harvey. After their journey to the day's search site, the snowmobiles line up and "begin a traverse," slowly driving in parallel over the ice.

Whenever a field party member spots a dark dot of any size, he or she stops and gets out for a closer look. If it's a meteorite, the finder waves to attract the rest of the team. They photograph the find, determine its position with a GPS receiver, assign it a field number, pick it up with tongs and place it in a sterile Teflon bag that seals out contamination. On an average eight-hour day, a team might find two or three dozen meteorites—more than most meteorite hunters elsewhere discover in a lifetime.

Sometimes the search area is not smooth glacial ice, but instead a field of small, wind-blown terrestrial stones or even a moraine of larger terrestrial rocks. The team traverses these landscapes on foot.

LINDA WELZENBACH/ANSMET

Ralph Harvey does the "happy meteorite dance" upon finding another space rock on the Antarctic ice sheet.

In sunny and calm conditions, the team may search an entire day. But Antarctica is the windiest place on Earth, with summer wind chills down to a brutal -40°F in the continent's interior, where the meteorite hunters work. "If it's cold and nasty, we may work only two or three hours," Harvey says. Weather eliminates three or four days each week: "It's just the price we pay."

Nothing Older

The hunt for meteorites, like much of science, "is a search for the origins of things," Harvey reflects. "Meteorites date back to when our solar system formed—there is nothing older in the solar system. And they are delivered to us right here on Earth, free of charge."

The meteorites stand out from their surroundings. Whereas the terrestrial rocks may be reddish with rough edges (there is no flowing water to smooth them), meteorites have a blackened, rounded surface. "That's the fusion crust, where the outer layer of the rock was heated to melting as it plunged through the atmosphere," Harvey explains. Other clues are more subtle. For example, meteorites tend to be more fine-grained than terrestrial rocks, so they sparkle less in the sun.

"Perhaps the most important feature is just being 'different,'" Harvey says. "Field party members quickly become familiar with local rocks and learn to focus on anything out of the ordinary they may encounter—whether it's size, shape or color that catches their eye."

LINDA WELZENBACH/ANSMET

Subzero, windy blizzards nearly obscure the midnight sun several days a week on average, preventing any meteorite searches and partially burying the pyramidal two-person tents. The black rectangles on the outside of the tent are solar panels, used for recharging batteries for laptops and other devices.

"Bi-Polar" geologist receives CWRU honorary degree

"John Schutt is a superstar in planetary science," says Ralph Harvey, director of the Antarctic Search for Meteorites (ANSMET) program. Schutt (pronounced "Skutt") has served as ANSMET's field safety officer and professional mountain guide for 31 years. Case Western Reserve University is awarding him an honorary Doctor of Science degree at this year's commencement.

"John is a geologist who chose to be immersed in the outdoors instead of in academia," Harvey continues. "He has helped us find tens of thousands of meteorites, and kept hundreds of scientists safe in a dangerous environment. It's wonderful that the university is recognizing his extraordinary contributions to planetary geology."

Born in Bremerton, Washington, in 1948, Schutt started hiking and skiing by age five; by his teens, he says, "I knew I wanted to spend my life working outdoors." He got his first taste of glacial adventure science while he was a geology major at what is now Western Washington University; he spent several seasons with the Juneau Icefield Research Program in Alaska, first as a student and later as a member of the field staff.

After receiving his bachelor's degree in 1971, Schutt jumped at the chance to be research station manager for the floating Fletcher's Ice Island (also called Iceberg T-3) Research Station, funded by the U.S. Navy and run by the University of Alaska. But after his North Pole experiences, he also longed to visit the South Pole. In 1980, Schutt happened to be mountain-climbing with a friend who told him of an opening for a mountain guide and safety officer with ANSMET. Schutt has worked in Antarctica every season since.

Also, during every northern summer since 1996, this "bi-Polar" geologist has spent four to six weeks at Haughton Crater on uninhabited Devon Island in the Canadian high Arctic, as camp manager for the Haughton-Mars Project. Scientists on this project are exploring the geology of a large meteorite impact crater in a rocky desert remarkably similar to Mars.

Schutt remarks that, along with his deep appreciation for the honorary doctorate, "I feel so privileged to be able to do what I do and to work with the people I've been able to."

MELISSA LANE/ANSMET

Christmas dinner, 2010. John Schutt sautés shrimp while other members of the expedition prepare stuffing and cranberry sauce, mashed potatoes, vegetables, and brownies. The interior of the yellow tent glows golden beneath the midnight sun.

MELISSA LANE/ANSMET

Serena Aunon (left), NASA Johnson Space Center, holds one of the largest meteorites found by the reconnaissance team this past season. In the background, John Schutt is determining the position of the meteorite site with his GPS.

Before the ANSMET program began in 1976, the world's collection of meteorites numbered perhaps 1,800 to 2,000—a rather limited sample of the entire solar system. But in the past 35 years, ANSMET has returned nearly 20,000 meteorites from Antarctica, greatly expanding the range of materials known from outside the Earth. The 2010–2011 expedition alone returned 1,235 specimens.

Almost all (99.5 percent) of meteorites come from the asteroid belt between Mars and Jupiter. One of ANSMET's major contributions has been to return many samples of a class of meteorites which chemical analysis suggests originated on 4 Vesta, the second-largest asteroid in the belt, with a diameter of 350 miles. A collision a billion years ago left an enormous crater on 4 Vesta's southern hemisphere, spewing some of its rocky material out in all directions; some chunks eventually fell toward the Earth and onto the Antarctic ice sheet. A few dozen other ANSMET meteorites have been identified as chunks of the moon and Mars. The Martian chunks, which include traces of trapped atmospheric gases, are the only samples scientists have of the red planet.

Other meteorites returned by ANSMET contain tiny grains of exceptionally hard and durable minerals such as silicon carbide and diamond. These grains existed before our sun began to shine, and thus are at least 4.6 billion years old.

"These grains were born in regions around previous generations of stars very different from the sun—red giant stars and carbon-rich stars—and were floating in space," Harvey explains. "Think of that: Some Antarctic meteorites actually contain bits of interstellar materials older than our solar system."

Antarctic meteorites are one of the best resources available to planetary geologists trying to get an idea of the range of materials in space. "Meteorite science today is where biology and zoology were in Darwin's time," Harvey declares. "We're still at a stage where we are assembling a catalogue and seeing how specimens are related—and where major discoveries are still being made simply by finding another specimen."

So on tough days about the fourth week on the ice, if Harvey starts to grow weary of the harsh weather and long for a shower or home, he gazes across the wind-swept Antarctic glacier holding its cosmic treasure and reminds himself, "Likely no human being is going to see this landscape again after we leave." That thought, says Harvey, "truly changes my perspective on things." ■

Science journalist Trudy E. Bell is a Presidential Fellow, leading the SAGES seminar "Truth and Consequences: Science, Media, and Public Policy."

A Merging of Strengths

Psychology and communication sciences join forces in a new department

by Mark Gottlieb

MIKE SANDS

Psychology professor Lee Thompson (left) and communication sciences professor Barbara Lewis have collaborated for years on research examining whether abilities associated with reading are inherited. Now, they are colleagues in the new Department of Psychological Sciences.

IN THE COLLEGE OF ARTS AND SCIENCES, faculty members from different departments often come together to conduct research or to teach interdisciplinary classes. But this year, the faculty in psychology and communication sciences took a further step. They decided that the best way to promote collaboration, expand into new research areas and enrich their course offerings was to merge their two departments into a single entity. As a result, the college is now home to a new Department of Psychological Sciences.

"We felt that we would be able to develop exciting, distinctive opportunities for students and faculty in both areas if we combined forces," explains **Lee Thompson**, professor of psychology and chair of the new department. "I think of it as a merging of strengths."

At the Intersection

All of the programs once housed in psychology and communication sciences will be continued by the new department. These include COSI's undergraduate minor in health communications and its master's program in speech-language pathology. At the same time, many

"The merger means that we can have fresh eyes looking at problems in ways different from those in which we are trained."

— T. J. McCallum

DANIEL MILNER

From left: Assistant professor Jennell Vick (communication sciences) and associate professor T. J. McCallum (psychology) both have labs at Cleveland Hearing & Speech Center, which also houses clinical space for the new Department of Psychological Sciences.

of the department's offerings will be enhanced. For example, COSI's doctoral program will now include shared courses with graduate programs in clinical and experimental psychology.

"Students in the newly merged department will experience expanded clinical experiences and research opportunities," says **Barbara Lewis**, professor of communication sciences and adjunct professor of pediatrics at the CWRU School of Medicine. "By eliminating duplicated classes, we will also be able to offer new, specialized seminars, and we can develop courses that will be co-taught by faculty with expertise in each area."

Even before the merger, some students pursued double majors in psychology and communication sciences. One such student, **Alison Pavlik '10**, completed her bachelor's degree last May and has stayed for an additional year to earn an MA in speech-language pathology.

In the new department, Thompson expects more psychology majors to follow Pavlik's example. The master's program is attractive to students who want to work in the health professions but are not interested in going to medical school. And whether they go on to careers as speech-language therapists or as researchers, their psychology background will be immensely valuable.

"One of the puzzles of speech and language problems is that they often co-occur with behavioral and learning problems," Thompson explains. "Trying to detect where one ends and the other begins is our current challenge. This work is very much at the intersection of developmental psychology and communication sciences."

Collaboration by Design

Research collaborations between faculty members in the two disciplines are nothing new. Thompson and Lewis, for example, have studied twins to determine the extent to which skills associated with early literacy are inherited. But until now, such collaborations have occurred more by chance than by design.

The merger will change that. The department is launching a colloquium

series in which faculty members from psychology and communication sciences will present their work and get to know one another. Collectively, the faculty will target research opportunities in areas of common interest.

The previous divide between psychology and communication sciences was symbolized by the separate sites of the two departments. Psychology was housed entirely in the Mather Memorial Building on the CWRU campus, while communication sciences is located in the Cleveland Hearing & Speech Center (CHSC), where faculty members and students engage in research and clinical activities with center staff and clients.

Itself the product of a merger—the old Cleveland Hearing Center joined the Speech Center of what was then Western Reserve University in 1945—CHSC is now home not only to COSI offices and laboratories, but also to several psychology labs. In addition, the training clinic for the graduate program in clinical psychology has moved from Mather Memorial to expanded, professional quarters at CHSC.

"Now, the two departments share not only a name but also a physical space. The proximity makes collaboration even more likely," says COSI assistant professor **Jennell Vick,** who studies the effects of traumatic brain injury and conditions such as cerebral palsy on speech production in children. Vick earned a master's degree from Case Western Reserve before going on to complete her doctorate at the University of Washington. The merger was one of the reasons she decided to return to CWRU as a faculty member.

The new department puts COSI faculty in a stronger position to pursue grant opportunities, Vick says. Major funders, including the National Science Foundation and the National Institutes of Health, place a high premium on interdisciplinary research—and the new department is, by definition, interdisciplinary.

Faculty members also emphasize the advances in knowledge that they can achieve through collaboration. "The merger means that we can have fresh eyes looking at problems in ways different from those in which we are trained," says **T. J. McCallum**, associate professor of psychology. "It's a case of combining my input of 'A-B-C' with their input of 'X-Y-Z' to develop a new level of basic knowledge and experience with which to address a given problem."

CERVIN ROBINSON

COURTESY OF CLEVELAND HEARING & SPEECH CENTER

Mather Memorial (left), one of the college's landmark buildings, has long been home to the psychology department. Now, some of its faculty members have joined their new colleagues in communication sciences at Cleveland Hearing & Speech Center, a few blocks east of campus on Euclid Avenue.

MIKE SANDS

Alison Pavlik, a master's student in speech-language pathology, has provided language therapy to David Dellinger, age 7, during a field placement at Cleveland Hearing & Speech Center's South Euclid office this spring. Pavlik, who earned her bachelor's degree in psychology and communication sciences at CWRU, uses a board with train magnets as a reward at the end of each session and as a tool to help David form grammatically correct questions.

McCallum operates a lab called "The Brain Emporium," where he and his students research the efficacy of computerized cognitive-enhancement programs for older adults. While the psychology faculty has a strong reputation in areas related to children and youth, McCallum is helping propel its expansion into issues of aging and illness. Some of his research, for example, focuses on "cognitive slippage"—attention and memory loss associated with strokes or cancer therapy.

Recently, McCallum moved his lab to CHSC. Now, communication sciences students interested in aphasia can observe visitors to the Brain Emporium as part of their clinical experience. In addition, the lab is now available to participants in CHSC's "Speak Easy" program, a conversation group for stroke patients and other people with neurologically based communication disorders.

Although brand-new, the Department of Psychological Sciences is already generating interest beyond Case Western Reserve.

"In the short time since the merger, we have attracted more applicants to our graduate programs and a stronger pool of applicants for faculty positions," says Lewis. "And the response from other universities with communication sciences programs has been extraordinarily positive, with several of my colleagues remarking that they would like to see something similar happen at their schools."

And what is the next step in the department's evolution?

"We are in the middle of a faculty search right now, looking for a person who can bridge both psychology and communication sciences in teaching and research," says Thompson. "We have had a huge number of applications, and many of the applicants said the same thing: 'I wasn't on the job market, but I want to be in this new department.' So I think it's safe to say that we're on the right track." ■

Mark Gottlieb is a freelance writer.

A Passion for Storytelling

Pulitzer Prize winner Jim Sheeler brings his craft and commitment to CWRU's English department

ELLEN JASKOL

Jim Sheeler, the Shirley Wormser Professor in Journalism and Media Writing, sends his students into the community, where they write about people whose stories have never been told.

IN EARLY JANUARY, WHEN SOME OF HIS JOURNALISM students were about to conduct their first interviews of the semester, **Jim Sheeler** sent them off with a flurry of practical advice. Take careful notes, he cautioned them, in case your digital recorder stops working. Invite people to talk about their experiences in detail: *Can you paint a picture of that for me?* When they fall silent, give them time to think. When they say something interesting, express your appreciation. "This isn't *60 Minutes*," he reminded the class. "You're not trying to put them up against the wall."

Sheeler and the students were meeting off campus, as they would for most of the term. They had taken a university van to Eliza Bryant Village, a complex of senior housing units and medical facilities in Cleveland's Hough neighborhood. Hundreds of elderly people receive services at Eliza Bryant—everything from routine check-ups to rehabilitation therapy to skilled nursing care. Now Sheeler had arranged for his students to talk with some of the residents. He wanted them to learn about people they would never have met otherwise, in a place where everyone was full of stories.

Sheeler had told the students that it might take three or four interviews before the residents opened up to them. But **Emily Hoffman '11** and **Molly Drake '12** didn't have to wait that long. Later that day, they were sitting at a table in a multipurpose room with Andrew Bailey, who had lived in an Eliza Bryant apartment for the past few years; his wife, Ethel, was a patient in the nursing home. Mr. Bailey was soft-spoken but not at all reticent. The recorder resting on the table, and the tiny microphone clipped to his sweatshirt, didn't seem to make him self-conscious.

He told the students where he grew up, how he met his wife, what he did for a living before his retirement. When he described his last job, operating a gas station and restaurant at the corner of Chester Avenue and 79th Street, the students

set aside their prepared questions and asked where he'd learned to cook. His answers were always to the point, but he added details that gave insight into his character. Both he and his wife had been married once before, and together they had raised all nine of the children from their previous unions. In their house, Mr. Bailey said, there was never any talk of stepchildren or stepparents; they were just a family. And when he referred to a son who had served in the military or a daughter who worked at University Hospitals, it was clear that there was no such talk now.

Twenty minutes into the interview, Mr. Bailey invited Sheeler and the students to see his apartment. (Not everyone, he pointed out, could bring in visitors on the spur of the moment and have them find everything in order.) Surrounded by familiar objects, he was more forthcoming than ever. He showed his guests his 103-year-old bedroom set—an inheritance from his wife's great aunt and uncle, who had once been slaves. He brought out a sealed pack of Pall Mall cigarettes with "1999" written in black marker on the cellophane—a memento from the year he quit smoking. He took a manila envelope from the top of his dresser and pulled out a certificate for burial insurance—an investment he'd made when an unexpected windfall came his way. At that time, he had also indulged in some reckless spending, and now he was glad he had never won the lottery. It would have changed him, Mr. Bailey said; he would have forsaken "the original God" and worshipped his riches instead.

On the ride back to campus, Sheeler asked the students what struck them most about the interview. Drake had noticed how Mr. Bailey kept turning the conversation back to his wife. "She is a beautiful person," he'd said, and he would have liked for them to meet her, but she had Alzheimer's now and no longer spoke. Hoffman noted that Mr. Bailey's favorite word was "satisfied," as in, "I am satisfied with the care at Eliza Bryant." ("Good ear," Sheeler told her.) Both students remembered hearing him say that he had counted the footsteps from his apartment to his wife's bedside. By his calculation, he covered a mile a day walking back and forth, since he went to see her every hour or so.

The students planned to write their profiles of Mr. Bailey after several more weeks of interviews. By then, they might know more about him than they did about some of their relatives. But as Sheeler had explained to the class earlier that day, their job as reporters wasn't to present every single fact about someone's life. Rather, it was to "distill that life into a story."

DANIEL MILNER

Emily Hoffman, one of Sheeler's journalism students, wrote a profile of Andrew Bailey, who met with her for interviews and provided commentary on the decades-old photographs in a family album.

New Worlds of Writing

Writing such stories has long been Sheeler's specialty. During the mid-1990s, he made his reputation by leaving the front-page news to others and composing richly detailed obituaries about people whose names had never been in the paper. In 2006, he won the Pulitzer Prize in feature writing for "Final Salute," a 12,000-word story about the relationships that a casualty notification officer had forged with the families of Marines killed in the Iraq war.

Last fall, Sheeler joined the Department of English as the Shirley Wormser Professor in Journalism and Media Writing. The professorship was created and endowed in 1998 by **Shirley Wormser Shapero FSM '40**, who foresaw that the 21st century would be characterized by "new worlds of writing." Her gift was a way of ensuring that students in the college would be prepared to enter those worlds.

Sheeler is very much at home with today's new media and integrates them into his courses. When he taught introductory journalism last term, his students analyzed blogs as well as newspapers and magazines. They learned how reporters use Twitter updates to cover breaking news. They also created audio slide shows for the Internet, with photographs they had taken themselves and excerpts from interviews they had recorded.

As English department chair **Mary Grimm** points out, Sheeler combines a "multimedia outlook" with "the values of a traditional journalist." Both in his own work and in his classes, digital tools are always deployed in the service of solid reporting.

"Jim is very passionate about journalism, teaching and writing," says associate professor **Thrity Umrigar**, an acclaimed novelist who began her career as a newspaper reporter. "He exudes a kind of joyfulness when he's talking about interviewing his subjects and making their stories come alive on the page. I think he will really motivate students with his passion for storytelling."

She also believes that students will learn essential lessons simply by reading his work. "Jim's writing is so elegant and precise," she explains. "He never seems to overwrite or go for the melodramatic. There's a compressed, controlled quality that is just lovely. I would ask my students to really pay attention to his technique—the telling anecdote that encapsulates the theme, the unforgettable image, the quote that takes your breath away."

> "There's no substitute for meeting people in person and spending the time it takes to immerse myself in the story."
>
> — Jim Sheeler

Recognizing Lives

When he was still a student himself, Sheeler planned to be a broadcast journalist. He completed internships at CNN in Atlanta and at various television and radio stations before deciding he would be more comfortable at a newspaper. "In the end, I think that broadcast experience helped me develop into a better print reporter, because I was trained to think in terms of scenes and pictures," he remarked in a 2008 interview. "Also, lugging the camera around on my shoulder taught me not to rely on the telephone. I still feel that there's no substitute for meeting people in person and spending the time it takes to immerse myself in the story, no matter the medium."

In 1992, Sheeler landed his first job at *The Daily Camera* in Boulder, Colorado, where he covered everything from business news to rock concerts. Four years later, he helped found a community paper, the *Boulder Planet,* where one of his duties was to type in the obituaries that local funeral homes faxed to the newsroom. As he worked on the copy, certain details leapt out at him; for instance, he still remembers reading about a woman who had a career as a "butcher and florist." Naturally, he wanted to learn more. "There were some amazing stories that we had missed," Sheeler says. "But we still had one last chance to recognize those lives."

He began to choose one person each week as the subject of a feature-length obituary. Gradually, a few recurrent themes became central to his work. For instance, Sheeler loved to write about people who represented a vanishing era in Colorado history—an era of family farms and mining operations and small towns in the middle of nowhere. Yet all of his subjects emerged as distinct individuals. A master gardener whose neighbors still grew poppies from seeds he had carried home from a trip to Alaska. An amateur printer who published her own poetry until she was in her mid-80s, on a letterpress her father had taught her to operate in 1929. A magician whose favorite trick, involving a silk handkerchief and a clock, was to make time disappear.

Sheeler usually spent an entire day talking with his subjects' relatives, friends and co-workers. Like any reporter, he sometimes felt awkward approaching a bereaved family. And yet, he says, "Once the family realized that I really wanted to know the story of the person's life, the awkwardness almost always disappeared." Before he began his interviews, Sheeler explained that he would be writing "a well-rounded story," not a eulogy. It was important, he says, "to include the good and the bad—often there are lessons to be learned from the way that someone

Sheeler observed the faces of Marines in dress uniform as they kept watch beside a casket or folded the flag that would be presented to a grieving family.

TODD HEISLER

On Veterans Day 2006, at 2 in the morning, Sheeler visited the pressroom at the *Rocky Mountain News* to inspect the first copies of "Final Salute."

overcame (or didn't overcome) the struggles that each of us faces."

In 2000, the *Planet* went out of business, and Sheeler began writing obituaries for the *Denver Post.* Soon they were one of the paper's most popular features. "I never complained about having my stories in the back of the newspaper," Sheeler says, "because I knew that most of the front-page stories would be fish wrap in a few days, while the obits would be cut and pasted on refrigerators and scrapbooks and read for generations." Meanwhile, he was gaining the knowledge and experience he would need for his most difficult assignment.

Bringing the War Home

In March 2003, Marine Lance Corporal Thomas J. Slocum became the first Colorado native to die in the Iraq war. A day before the funeral, Sheeler, who was now working for the *Rocky Mountain News*, drove out to Fort Logan National Cemetery and spoke to a veteran named David Turner, who had just finished digging Slocum's grave. "He was in the same division as me—1st Marines," Turner said. "He's part of the family."

During the next year, Sheeler attended nearly a dozen military funerals. He got to know several of the groundskeepers at Fort Logan; like Turner, they were all veterans, and they all spoke of their responsibility to the dead. He observed the faces of Marines in dress uniform as they kept watch beside a casket or folded the flag that would be presented to a grieving family. He learned that some of these men carried pictures of their friends' funerals inside their caps. None of this fit with Sheeler's mental image of the Marine Corps—the impassive stare on the recruiting posters. And he realized that he was seeing things that most Americans were simply unaware of.

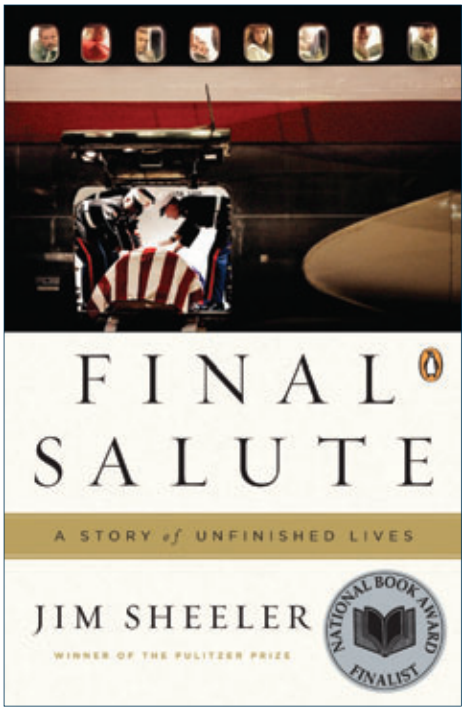
A similar feeling haunted him as he came to know the families of the war dead. In "countless living rooms," he later wrote, "I sat on the floor and played with children who would never see their fathers. I listened to widows read their husbands' last words. In a small northwestern Colorado town, I watched as a little boy the same age as my son ripped the rose boutonniere off his grandfather's lapel and placed it in the casket with his father's body." Some of these experiences made it into his obituaries. But he still hadn't found a way, he felt, to "bring the war home" to his readers.

Then, at the Fort Logan cemetery, Sheeler met Major Steve Beck, who was responsible for notifying the families of Marines killed in action. Delivering this news was only the first of his duties, Sheeler soon learned. Beck tended to the families during the arrival of the casket at the airport, the viewing of the body if a viewing took place, the funeral itself. And for months afterward, he remained involved in their lives. He sat with them as they sorted through the personal effects of their sons and husbands, helped them deal with the military bureaucracy and arranged ceremonies for the posthumous awarding of medals.

Like Sheeler, Beck believed that the country paid too little attention to the sacrifices of these families. So he allowed Sheeler and *Rocky Mountain News* photographer Todd Heisler to shadow him for a year. The journalists never witnessed the initial knock at the door; they would visit a home only after Beck had obtained the family's permission. But from that point on, they entered into the survivors' ordeal as fully as strangers could. Sheeler told the families that if they ever needed time alone, he and Heisler would disappear. But no one ever asked them to leave.

On Veterans Day, 2005, "Final Salute" appeared as a 24-page insert in the Sunday paper. The following April, Sheeler and Heisler each won a Pulitzer Prize.

Sheeler invited the families to the newsroom the day the awards were announced. A young widow named Katherine Cathey came with her parents and her four-month-old son. Recalling the night she first met the two journalists, she said that she appreciated their coming to her home and "listening to what I had to say about my husband." Then she added, "They made a lot of sacrifices, too, so that everybody would have a very clear picture of what the families had to go through."



Sheeler was initially reluctant to expand "Final Salute" into a book, but the families he had written about encouraged him. When the book was published, a bereaved mother said of Sheeler, "He has been given a magnificent gift of writing from the heart."

A Better World

After the Pulitzer, Sheeler began hearing from agents and publishers who encouraged him to expand "Final Salute" into a book. At first, he resisted. "Revisiting those stories would mean giving in, emotionally, all over again," he said in a 2008 interview. "These stories hurt, as does telling them. At the same time, I realized that the emotional weight I felt was nothing compared to the loss these families shoulder every day. I asked some of them if I should write the book, and they urged me on."

Sheeler took a leave of absence from the paper. Now, instead of going to the newsroom each morning, he worked alone at a desk in his basement. After a couple of months, he says, "I realized that I needed to step away at times." He found a position as an adjunct professor at the University of Colorado, where he taught a course in advanced reporting.

This was his first stint as a teacher. At first, he says, putting together a syllabus was "pretty intimidating. But it was also fun—and so was the class, from the very first day. I was able to go back and think about what got me into journalism in the first place, what excited me. I looked over all my old stories and the stories that inspired me, and I had the chance to share that with students who were as enthusiastic as I was back then. I fed off that energy when I needed to go back into the basement and write that book."

Final Salute was a finalist for the National Book Award in 2008. By that time, the University of Colorado had created a position for Sheeler as a scholar-in-residence. In one of his classes, students produced stories and multimedia presentations about a local retirement community. It was a precursor to the course he is leading this spring at Eliza Bryant.

As a newcomer to Cleveland, Sheeler has been learning the city partly through his students' reporting. In one assignment last fall, he asked the

Sheeler is happy to see students in any field sign up for his classes.

students to spend time in places where they would be "out of their element." Reading their stories took him out of *his* element, too.

Erin Wendell '12 found her way to a Civil War reenactment in Cleveland's Tremont neighborhood. She interviewed a mortgage banker pretending to be an army corporal in the 8th Ohio Volunteer Infantry Regiment, Company B. Initially, she felt a bit strange talking to a man in a "period wool uniform" while muskets fired in the background. But when the banker spoke of his role in "educating the public, being a voice for the guys that aren't around anymore," she came to respect his motivation. "I learned from him that reenactors aren't just playing dress up and hanging onto something that's been over for nearly 150 years," she wrote after finishing her story. "Instead, they are dedicated to studying the period and accurately portraying history so that the public may better understand what the actual soldiers experienced."

Closer to campus, **Zak Khan '14** spent an afternoon in the corridors of University Hospitals, shadowing two patient transporters. Unlike some of their colleagues, James Felder III and Renee Peterson make a point of talking with patients and their families, Khan noted. "Both say they are in the job not just to get people from here to there, but to have an impact." Reflecting on his story later, he added, "There are many people you may never even think of who are working hard to make connections and help humanity, all while remaining in the background."

MIKE SANDS

As students in Jim Sheeler's introductory journalism course, Zak Khan (left) and Erin Wendell wrote about people with life experiences very different from their own.

The students who take journalism courses in the College of Arts and Sciences are not necessarily preparing for careers in the news business. They may simply enjoy writing, or wish to gain a better understanding of our media-driven culture. Often, they recognize that improving their skills as researchers, listeners and writers will help them in other professions. For his part, Sheeler is happy to see students in any field sign up for his classes. After all, he explains, "A world with more storytellers, whether they're in journalism or not, is a better world." ■

Andrew Bailey, who generously shared his stories with Jim Sheeler's students, died unexpectedly on February 28, a few days after he had his picture taken with Emily Hoffman. It was a privilege to meet him, and we offer our condolences to his family.

Many thanks to ***William Claspy (WRC '88, GRS '93)****, humanities librarian and coordinator of library instruction at Kelvin Smith Library, who hosts the podcast series* Off the Shelf *(http://blog.case.edu/orgs/ksl/offtheshelf). His October 2010 interview with Jim Sheeler provided some of the quotations in this article. Other sources are listed in the online magazine at www.cwru.edu/artsci.*

WRAR, 1957

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