

FINDING SAFE HARBOR

Though she's gained fame as an author and photographer, Ruth Gruber MA'31 found her greatest fulfillment advocating on behalf of the residents of America's only World War II refugee camp.

By John Allen



RUTH GRUBER (4)

Neither war nor weeks aboard the crowded troop ship U.S.S. *Henry Gibbins* could dampen the refugees' enthusiasm at their first sight of the Statue of Liberty. They would pass New York City by and disembark in Hoboken, New Jersey, before heading to Fort Ontario.

Photos from the book: *Haven* by Ruth Gruber. Copyright © 2000 by Ruth Gruber. Published by arrangement with Three Rivers Press, a Division of Random House, Inc.

Where you go, I will go ... your people shall be my people.

BOOK OF RUTH 1:16

In the language of biblical symbolism, Ruth is a daughter's name, not a mother's. Her eponymous book shows Ruth as the good child, so devoted to her mother-in-law, Naomi, that she would give up her homeland. When Ruth's husband dies, she follows Naomi to Bethlehem, in search of refuge from the poverty they face in Ruth's native Moab.

To be symbolically correct, a Ruth should be an unfortunate, a wanderer, a refugee. Motherhood, stability, and nurturing don't belong to her — they belong to Naomi. That's how the world would be, if life paid attention to its allusions.

But life, it seems, skipped the class on symbolism. With the sort of casual disregard for literary propriety that vexes English majors, one of the best real-life refugee stories of the last century cast a Ruth in the role of a Naomi.

Ruth Gruber MA'31 is an author, photographer, and journalist, but "the most important assignment of my life," she says, came in 1944, when she became a virtual adoptive mother for the 982 residents of Fort Ontario, near Oswego, a small city in upstate New York. There, at the only refugee camp set up in the U.S. during World War II, she helped a collection of impoverished Holocaust survivors adjust to life in America.

"The camp was one of the best-kept secrets of the war," says Gruber, but the secret's out now — in February 2001, CBS aired a miniseries called *Haven*, based on Gruber's memoir of the same name, which describes her time among the refugees. Television gave Gruber the face of Natasha Richardson and celebrated both her work and the camp's success. According to the program's tagline, "Her courage saved a thousand lives. A girl from Brooklyn defied the Nazis, challenged the U.S. government ... and changed the world."

The story unfolds¹ in the summer of 1944, when, after having largely ignored the plight of refugees until then, President Franklin Roosevelt declared that the U.S. should bring a thousand of them across the ocean from war-ravaged Italy. The decision was partly humanitarian, partly public relations, and partly pragmatic. "The army was getting ready to make a push northward from Rome," says Gruber, "and officers were afraid that refugees would get in the way of the tanks and jeeps heading to the front lines."

Roosevelt's refugees would fall under the administrative control of the Department of the Interior, and that's where Gruber joins the tale. She was a special assistant to that department's secretary, Harold Ickes, who appointed her as his emissary. "My mission was to help prepare the refugees for life in America, inside the camp," she says. "But I gave myself the mission of collecting their life histories, their case histories. We needed to have a better idea of where they'd come from, of their culture and what they'd been through, if we were to help them properly."

Gruber soon discovered that life in a camp had an ominous sound to many of the refugees. She joined them in Naples, just before they crossed the Atlantic, and as she collected their histories, she learned the full details of the terrors they'd faced. She met Manya Hartmayer, who had been imprisoned in the concentration camp at Gurs, in southern France, and who'd crossed the Alps on foot and hidden in a convent until the American army came. And she met Samuel and Breindel Silberman, who'd fought in the Belgian underground and had been forced to

¹ Here's a summation for those of you who missed the miniseries. And there's no shame in admitting you did — part of it aired on Valentine's Day. Maybe you had a date.



Gruber aboard the *Henry Gibbins*: bringing the refugees to Fort Ontario was, she says, "the most important assignment of my life."

leave their children behind enemy lines. And there was Mathilda Nitsch, a Czech who had run an underground railroad station helping Jews to escape. Captured by the Italian secret police, she'd been tortured, locked in a cellar for ten days without heat, then shipped off to the concentration camp at Ferramonte. Each refugee had a horror story, and Gruber recorded them all for Ickes and, eventually, the American public.

Gruber's charges had come from eighteen different nations, and during the voyage, she gave them a basic course in American life. She introduced some of them to the ship's other passengers, a thousand American soldiers wounded in the bloody battles at Casino and Anzio. And she began teaching them English phrases, working in a mix of the mundane and the bizarre — the refugees needed to learn not only simple pleasantries, but also to maintain military secrecy. "Walking around the ship," she says, "I could hear people reciting to each other in all accents the litany of their first words of English: 'How do you feel? I feel fine. The name of this ship is a secret. We come from the North Pole.'"

Gruber came to feel a parent's responsibility for the refugees' welfare. She cried with them when one of their number died; she cheered with them at their first sight of the Statue of Liberty; and she traveled with them to Oswego,

where they would live behind barbed wire for a year and a half. When the war ended and Congress threatened to deport them, she lobbied on their behalf, challenging rigid U.S. immigration policies and eventually helping to convince President Harry Truman that the refugees should be allowed to stay. In January 1946, they were offered visas, and most of them became citizens.

“Even today, I still travel all over the country to meet with them,” says Gruber, who’s now ninety. “And we have the best reunions. They still call me Mother Ruth.”

Gruber says she’s delighted with the CBS’s treatment. Natasha Richardson adds an element of glamour to defying Nazis and challenging the U.S. government, but the story hardly needs glamour to grab a person’s interest. If the events described in *Haven* didn’t change the world — and there are plenty of signs to suggest the world is still pretty rough on refugees (see sidebar, “The *Tampa*”) — they certainly changed Gruber. In the pages of her memoir, she describes her journey with the refugees as a defining moment: “From this voyage on, I knew, my life would be inextricably locked with Jews. I felt myself trembling in the Atlantic night, trembling not from the wind but from the revelation.” Before then, Gruber was a minor official in the Department of the Interior; afterward, she became a forceful advocate for Jewish refugees (see sidebar, “*Exodus 1947*”).

Still, the miniseries hardly gave a full picture of Gruber’s life. She was no simple “girl from Brooklyn” in 1944, and her voyage with the refugees didn’t spark her transformation so much as culminate it. Long before she became Mother Ruth, she was developing the skills and under-



Many of the refugees had been inmates of concentration camps, and some, like the men here, had no clothes other than those that had been issued to them by their German and Italian jailers.

going the experiences that would prepare her for that role. An important step in that education came — though she wouldn’t know it at the time — when she first left Brooklyn for the University of Wisconsin.

GRUBER WAS BORN, SHE SAYS, in a shtetl. However, her shtetl wasn’t a tiny village in Russia or Poland, but rather the Williamsburg section of Brooklyn, New York. “On Moore Street,” she says of her birth home, “I thought the whole world was Jewish. The butcher, the grocer, the dressmaker, the corsetière who made my mother’s corsets — everyone was Jewish.” The Brooklyn of Gruber’s birth in 1911 was growing quickly, filling with recent arrivals to America. Her own parents had both been born in Eastern Europe, her father coming to America only in 1901. Both sides of her family kept close ties to relatives they’d left behind in Europe, and all her life, foreign affairs and family affairs would mix.

Though Moore Street was predominantly Jewish, Gruber could find a

variety of cultures just beyond her door. “Brooklyn was like a little Europe then,” she says. “There was a Jewish section, a German section, an Italian section, an Irish section, and the Gypsies wandered through it all.” Moving from neighborhood to neighborhood was like passing from nation to nation, an environment that gave Gruber easy access to different languages. She grew up speaking not just English but Yiddish, and she soon learned its close cousin, German, as well. A precocious student, she graduated from high school at age fourteen, and received her bachelor’s degree from New York University at eighteen.

She fell in love with the works of Goethe and Schiller, and so she studied German language and literature. But she fell in love, also, with the idea of independence. In Brooklyn, she had a large and supportive family, with four siblings and nearby grandparents, but an army of support leaves little room for privacy. “Goethe says that children rebel against their parents and return to their grandparents,” Gruber would write in her autobiography, and her rebellion was



“against Mama and Papa, against orthodoxy, and against Brooklyn.” The hours of freedom she found as she attended university classes in Manhattan gave her a desire to strike out on her own. The University of Wisconsin gave her the opportunity she was looking for.

“The UW German department offered the La Frenz Fellowship to one New York student each year, and that year I had won it from NYU,” she says. “So I decided to hitchhike to Wisconsin. My family was so proud of the fellowship that no one uttered a word of protest.”

Once she left Brooklyn, Gruber’s education expanded as much outside of classrooms as in them. At the UW, she studied with poets like William Ellery Leonard and Louis Zukofsky, and began

Though the adult refugees had been made wary by their wartime experiences, the children adapted quickly to their new lives.

EXODUS 1947

Haven isn’t the only movie inspired by Gruber’s writing. The 1960 film *Exodus* also owes her a debt. A year and a half after the Fort Ontario saga reached its happy conclusion, Gruber was following another ship loaded with Jewish refugees, one that would take a different course altogether. As a reporter, Gruber would give the world one of the most extensive accounts of the fate of the *Exodus 1947* and its passengers.

In 1947, Palestine was under British control as the United Nations tried to divide it into two independent states, one Jewish and the other Arab. The process was far from peaceful, and a rush of post-World War II immigration didn’t make the situation any more stable. The British tried to block all new settlers, hoping to ease tensions between incoming Jews and the current Arab population. But that was no simple matter. In 1947, Europe was still dotted with DP — displaced person — camps, full of hundreds of thousands of people the war-torn continent could hardly supply or feed. Many of the DPs were Holocaust survivors who wanted nothing more than to escape the scene of their persecution and live in the promised Jewish state in Palestine.

Enter the *Exodus*. Its crew, indignant that the British were barring Jews from Palestine, took on some 4,500 passengers from among Europe’s DP camps and attempted to run the Palestine blockade. On July 17, a squadron of British destroyers sighted the *Exodus 1947*, took control of the vessel, and brought it into the harbor at Haifa.

Gruber was in Haifa at the time, working as a reporter for the *New York Herald Tribune* and covering the U.N. Special Committee on Palestine. She saw the *Exodus 1947* limp into port and watched as its passengers were unloaded. Three were dead, and hundreds were wounded. The refugees were then reloaded onto three so-called “hospital ships,” and Gruber followed these vessels as they were shunted back across the Mediterranean.

“I was the only reporter chosen by the British to represent the American press and go aboard these prison ships and speak to the people of the *Exodus*,” she says. “The British called them hospital ships, but they were prisons. The conditions were awful. In one of the vessels, the *Runnymede Park*, the refugees were kept in a hold where the temperature was 108 degrees. There were two latrines with six holes to serve over a thousand people. The refugees called it ‘our floating Auschwitz.’ ”

Ultimately, the British sent the refugees back to Germany. This treatment generated sympathy in the U.S., Europe, and even Britain for granting Israel’s independence, which came in 1948. That year, Gruber compiled her reports into a book, *Exodus 1947: The Ship that Launched a Nation*.

Ten years later, the novelist Leon Uris wrote *Exodus*, an epic romance about the founding of Israel. One of the most important scenes in the tale is a confrontation between British destroyers and a fictionalized refugee ship called the *Exodus*. The book became the best-selling novel since *Gone with the Wind*, and in 1960, Hollywood transformed it into a movie.

— J.A.

a thesis on *Faust*. She perfected her German and expanded her knowledge of literature and philosophy.

However, the Madison of the 1930s could be far from welcoming, and it presented a foreign landscape to someone who'd grown up in the shtetl of Williamsburg. She describes several members of the German department and some of the staff at *Das Deutsche Haus*, where she lived, as "suffocatingly anti-Semitic." Most of her friends were from her home state — the university, she says, was a mecca for New Yorkers — and they stuck together like expatriates, taking comfort with each other in a strange land. She spent only a year in Madison, quickly wrapping up her master's degree before moving on.

But Madison had given Gruber more than Goethe — it had given her a taste of the wider world. While at the UW, she had applied for another fellowship, this one from the Institute of International Education, which allowed her to study at the University of Cologne in Germany.

Whereas the UW had impressed her family, Germany terrified them. Though Hitler had not yet come to power, the Nazi party was already strong, and Gruber's decision to go to Cologne, even for a year, shocked her parents. "When I hitchhiked back to New York, my mother told me she was afraid I'd gotten pregnant," Gruber says. "When I told her I was going to Germany, she said she wished I was only pregnant." Her parents did everything they could to convince Gruber to stay in the U.S., even offering to buy her a car,² but she went anyway.

If the UW had taught her about facing prejudice in a foreign landscape,



The refugees arrive at Fort Ontario: each wears a tag labeled "U.S. Army Casual Baggage." From August 1944 until the camp disbanded in January 1946, the refugees were required to live behind a barbed wire fence, legally neither in the U.S. nor anywhere else. "It was as though they were on a planet swimming through space," says Gruber.

Germany would teach her about politics and the hard realities forced on European Jews. Gruber made contact with the local Jewish community, and shared their political discussions and fears. On the streets of Cologne, she saw fights between Nazis and Communists and read handbills accusing the "insatiable Jew" of "race-lust and fanaticism." Politicians openly advocated violence. "Thugs in brown shirts marched insolently," she says, describing one Nazi parade, "stopping pedestrians, halting traffic, screaming their curses: 'Death to the Jew-Weimar Republic!'"

At the same time, the German university system helped Gruber's academic career thrive. While she had studied German in America, she turned to modern English literature while in Germany. The head of Cologne's English language department urged Gruber to write a

² "There are two kinds of people," Gruber says. "Those who drive and those who are driven. I'm the second."

dissertation on Virginia Woolf and earn her doctorate, even though she had just one year to complete it — her fellowship money would last only twelve months, and her parents would never have paid for her to stay on in Germany after that. "In Germany at the time," she says, "the requirements for a PhD weren't the same as in the U.S. It wasn't the course work that counted, but the dissertation and the orals — and I could finish them as soon as I was ready. No one had ever done it in a year before, but the department head said I should try."

When she succeeded, Gruber became a minor sensation on both sides of the Atlantic. On her return to the U.S. in 1932, the *New York Times* lionized her as the youngest PhD in the world. "But even with that publicity," she says, "I couldn't get a job. The Depression was on, and when there were any jobs available, they went to young men, not young women."

Here the UW had one more part to play in forming Gruber's career. Along with Barnard, Cornell, and New York

University, it refused to hire the “girl Ph.D.” Instead of entering academia, she turned her attention to journalism. “I started sending out articles as a freelance writer,” she says. “And I got enough rejection slips to cover the walls of my bedroom.” But eventually her work began to sell, and she found in journalism a source of power — she could use her writing to help people see the world as she had seen it.

GRUBER WAS NOW ON THE ROAD

that led her to Naples and a ship full of refugees. All she needed was a series of happy coincidences to put her in the right places at the right times.

Her journalistic skill and academic prowess would land her another fellowship, this one sponsored by the Guggenheim Foundation, in the mid-1930s. With that money, she returned to Europe to study the differing conditions of women’s lives under democracy, fascism, and communism. There she came into contact with Jews who hoped to escape from Germany but couldn’t, as U.S. immigration policies kept them waiting, often for years. These policies would continue, even when the American government and public were well aware of the extent of Nazi persecution. “During World War II,” Gruber says, “we brought 450,000 Nazi and Fascist prisoners across the Atlantic, but fewer than a thousand refugees.”

Gruber’s articles, particularly on conditions in the Soviet Union, would gain the attention of Harold Ickes, whom she describes as the most sympathetic member of Roosevelt’s government. “Of all the cabinet members, Ickes was the most passionate in denouncing the Nazi atrocities against Jews, and the angriest that the doors of America were shut.” She jumped at the chance to work with him, and when she learned that he would have executive responsibility for Roosevelt’s refugee camp, she was finally able to act on her desire to help.

“Until then,” she says, “I’d been feeling so frustrated, so helpless. We in Washington knew a little more than the

THE TAMPA

On August 26, 2001, the Norwegian cargo ship M.V. *Tampa* responded to a distress call. An Indonesian ferry, overloaded with more than four hundred refugees, was foundering in the Indian Ocean. Aiming for Australian waters, the ferry planned to land at Christmas Island, where its passengers, mostly Afghan nationals, hoped to receive asylum. The *Tampa* changed course, plucked up the refugees, and carried them the rest of the way. The *Sydney Morning Herald* reported the rescue the next day with a dozen dry sentences, giving no sign that the *Tampa*’s predicament would become the biggest scandal in international politics for the next two weeks.

But that’s what happened.

Australia, it seems, didn’t want to see any more of what its prime minister, John Howard, referred to as “illegal immigrants.” It sent a team of commandos to take control of the *Tampa* and ensure that it did not reach port.

The world went into an uproar. Norway, Indonesia, and even Afghanistan’s Taliban complained that Australia was acting very badly, but no one offered to take the refugees in. Ultimately, Australia worked out a deal with New Zealand and the island nation of Nauru, several thousand miles to the east. Those two countries would each take a share of the refugees. This worked well for the government of Nauru, which received several million Australian dollars, in John Howard’s words, to “underwrite the whole cost” of caring for the castaways. But just about nobody else was happy with the deal, and grumbling continued.

Then came September 11, and the plight of the *Tampa*’s refugees was forgotten.

But the situation in Afghanistan hasn’t improved. There may be as many as 3 million Afghan refugees living in Pakistan and Iran, says Geno Teofilo ‘88, an information officer for the American Red Cross. Perhaps another million are “internally displaced,” wandering within Afghanistan’s borders. “Ideally, the Red Cross would like to get them all to go back home,” says Teofilo. “But they’ve got to have a safe home to go to, first.”

Since the U.N. estimates that there are currently nearly 28 million refugees around the world, it’s likely that incidents like the *Tampa* affair will only become more common.

— J.A.

rest of the country about what was going on under the Nazis, yet we were doing so little to help. So I went to Ickes, and I said, ‘These refugees are going to be terrified, traumatized. Someone has to fly over there and hold their hands.’ He said, ‘Right. I’ll send you.’”

With those few words, Ickes would turn Gruber into Mother Ruth, the stuff of a TV miniseries.³ As the Fort Ontario story has gained more publicity in recent years, she’s worked to remind people that it has implications for the current world. “After a schoolteacher showed the miniseries in her class, I received letters from

her students,” Gruber says. “One child was a Cambodian refugee, and he wrote, ‘This is my story; *Haven* is my story. How did you know my story?’ But then, what refugees face is a universal problem. It’s a problem of humanity.”

Since Fort Ontario was disbanded, Gruber has written more than a dozen books. She continues to speak to audiences around the country, and her photos appear in nearly twenty books, museum exhibits, and documentaries. “I fight injustice with words and images,” she says. “My typewriter and my camera are my tools.” 📷

³ Now also a musical play. The stage version of *Haven* premiered in Los Angeles in 2001.

John Allen, associate editor of *On Wisconsin* Magazine, recently conquered his cheese phobia.



WORKING BEYOND EUREKA!

You may have heard of Carl Gulbrandsen as the man who holds the key to stem cells. But his often-unappreciated organization has a long history of helping researchers get their discoveries into the real world.

By Michael Penn MA'97

Paulanne Chelf recalls that once, during a meeting in late 1994, the researcher warned her what was coming. The man, then not yet forty years old, came to the offices of the Wisconsin Alumni Research Foundation, where Chelf works as an intellectual-property manager, to discuss patenting some new techniques he'd invented in his laboratory. He was tall and walked with a slight stoop, and he was relentlessly quiet, talking only reluctantly, as if he enjoyed nothing more than not talking.

It was at the end of the meeting that James Thomson looked at Chelf and said, matter-of-factly, “You know, this is going to be really big someday.”

At the time, Chelf didn’t think much about the prediction. Thomson was still three years away from his historic work isolating human embryonic stem cells. In 1994, when Chelf was assigned to handle his patent case, he had accomplished the feat only in monkeys. And while she had worked for the foundation, known around campus as WARF, for only two months, Chelf had met with enough investigators to know that they sometimes got caught up in the optimism of their professions.

“Everybody thinks that their invention is the greatest thing that ever happened,” she says. “It was one of dozens of disclosures I was working on at the time.”

If Chelf has learned to temper the enthusiasm of UW-Madison inventors, however, she has also learned to bank on their abilities — a formula that has rarely failed her employer, which has been patenting and licensing UW research for more than seventy-five years. In his early discussions with WARF, Thomson was unequivocal in his belief that the techniques he’d used to isolate stem cells in rhesus monkeys and marmosets would also work in humans, potentially unlocking a treasure chest of new medical therapies. Based as much on his confidence as his results, WARF, as Thomson’s designee to own and control his intellectual property, filed an application to patent the cultivation techniques for all primates, including humans.

By December 1998 — just three weeks after Thomson announced his lab’s success with human stem cells — WARF had in its possession an exceedingly significant piece of paper. U.S. patent number 5,843,780 makes WARF one of the most important players in the future of stem cell science, giving it control over who uses Thomson’s technology and for what purposes. Combined with a second patent (number 6,208,806) that was issued following Thomson’s work with human cells, WARF has one of the

most envied file cabinets in science. One *London Times* article said that those documents together form “one of the most potentially lucrative pieces of intellectual property in biomedicine.”

“WARF . . . is arguably the single most important reason why the University of Wisconsin emerged as one of the nation’s great research universities in the second half of the twentieth century.”

While owning valuable paperwork is nothing new for WARF — which currently holds about 1,700 active patents on UW-Madison research — getting noticed for it is. Since its founding by nine UW alumni in 1925, the nonprofit foundation has operated mostly below the radar, fulfilling its mission of protecting and commercializing the fruits of UW research with little fanfare. Before stem cell coverage landed WARF’s name in the world press, many people confused it with the Wisconsin Alumni Association or the UW Foundation. (In fact, both of these organizations still occasionally get calls asking about their stem cell patent.) Now, a few national media have taken to calling WARF, somewhat ignominiously, the “800-pound gorilla” of stem cells.

The label is ironic, considering that stem cells are far from a ripe banana in the intellectual-property jungle. If there is a gorilla in the mist, it’s WARF’s formidable endowment, built from a long list of past patenting successes. Income from that fund is dedicated to enhancing UW-Madison research, and over the years, it has paid out more than \$620 million. While WARF money makes up only about 5 percent of the university’s total research budget, administrators regard it as the gear that drives the bigger wheels.

“We consider it our margin of excellence,” says Martin Cadwallader, interim dean of the Graduate School. John Jenkins MA’73, PhD’78 and David Cronon MA’49, PhD’53, authors of the official history of UW-Madison, go even further, writing, “WARF . . . is arguably the single most important reason why the University of Wisconsin emerged as one of the nation’s great research universities in the second half of the twentieth century.”

WARF’S OFFICES OCCUPY

the thirteenth floor of a high-rise building near the UW Hospital and Clinics, a location that affords a panorama of the campus WARF helped to build. The list of campus facilities constructed, renovated, or assisted by WARF is as extensive as the view, beginning with the Elvehjem Museum of Art on the far eastern fringe of campus, and sweeping all the way to the Waisman Center on the west.

The floor is usually abuzz. Faculty are often there, meeting with intellectual-property managers. Those managers meet with attorneys and licensing managers. The licensing managers meet with industry representatives. Moving inventions from the lab to the marketplace involves handshakes and conference rooms, and the air around WARF is tinged with imminent deal-making.

WARF’s work begins at the moment after “Eureka!” As Chelf says, “When you break out the champagne in your laboratory — that’s a good time to call us.” Most of the researchers WARF sees have federal funding, and are required to disclose their inventions. Investigators who use federal money report their work to a campus office called University-Industry Relations, which routes the disclosures to WARF’s intellectual-property managers. In about six cases out of ten, WARF decides that there is sufficient reason to go after patent rights, and it commences the long, often tumultuous, road to acquiring U.S. and foreign patents. Patents are almost never approved when they’re first filed, and the negotiations can take years to resolve.

"It's a process of coming to agreement with the patent office over what you're entitled to," says Chelf, a former microbiologist who, like many of WARF's employees, is more or less bilingual, speaking the lingo of research as well as patent legalese.

Patents essentially give their holders the right to operate as a government-protected monopoly for a designated period of time, usually twenty years from when a patent application is filed. It's a trade-off: you, as the inventor, have to publicly disclose what you've done and how you did it, and in return, the government gives you a window of time to control your invention. Without your active enforcement, your patent isn't worth much. It doesn't legally *include* you in business related to your work — but it gives you the right to *exclude* others. It's up to you to take advantage of the protection, either by developing your invention yourself, or cutting deals with companies that will.

Thus, even when a patent is issued, it's too early to pop the champagne corks. To move research into the public sphere, WARF turns to its deal-makers. Even before the patent is in hand, licensing managers work out agreements with companies that want to use or sell the work. Typically, a company agrees to pay royalties to WARF for the right to commercialize the invention. Last year, the foundation signed more than one hundred such agreements, which could end up returning millions in income. Some of

WARF's most lucrative patents over the years — which include vitamin D fortification techniques, magnetic resource imaging (MRI) technology, and the rat poison Warfarin — have been veritable gold mines during their active lives.

But Carl Gulbrandsen PhD'78, JD'81, WARF's managing director, says the foundation shouldn't be judged by the depth of its revenue stream alone. He says an equally important mission is to facilitate the flow of research from idea to finished product — to help it along its way to becoming a product or service that people need. WARF's stem cell patents, he says, are a good example. While many have voiced concern that the patents put WARF in a position to control the research, Gulbrandsen sees the patents as a way to assure that stem cell research *won't* be dictated by a small number of labs.

"One reason we have filed patent applications in some areas is to ensure that researchers here have freedom to operate," he says. "It takes the fun out of your research if somebody else owns it, and particularly if someone else can direct what you can do with it. If industry is going to own all the technology, and we're beholden to them to have rights to do the research, industry is going to set the agenda. If academia owns the technology, then academia can use it the way it wants to."

Say that a small biotech firm controlled the stem cell patent. That company could use its rights to muscle out

researchers by refusing them access, or, more likely, by letting them work on material only after they've agreed to hand over anything valuable that might result. James Thomson says it's not merely a hypothetical scenario, but is precisely how many businesses routinely deal with academic researchers.

Some have argued that there's nothing stopping WARF from doing the same thing. Seth Shulman, in a November 2001 issue of MIT's *Technology Review*, suggests that WARF's stem cell patents could be used to close off the science from some researchers. "That outcome, desired by no one, would be the biggest — and sorriest — lesson of the debate," he writes. But Thomson doesn't see that happening. He points out that WARF is already distributing cells to scientists with almost no impediments to using them. (WARF does forbid scientists from using stem cells in cloning experiments.)

"This is true with any important new intellectual property — somebody controls it," Thomson says. "I'm very happy that WARF is the one. I think that WARF will control it in a very responsible way. I can't think of another institution that would be more responsible."

The argument may seem paradoxical: how can the exclusionary rights afforded by patents actually assist the spread of research? But that, basically, is what the founders of WARF intended. In fact, it's possible that WARF may not have come to be if some early inventors had been more willing to take the money and run.

The STEM Cycle

When a researcher makes a breakthrough, work at the Wisconsin Alumni Research Foundation is just getting started. Here's a look at how WARF has helped stem cells move beyond the lab — the critical first steps of the long journey to come.



June 13, 1994
Biologist James Thomson informs WARF of a promising discovery in his Primate Center laboratory: the successful cultivation of stem cells in rhesus monkeys.

January 20, 1995

WARF applies to the U.S. Patent Office for rights to embryonic stem cells in all primates.

1995

Thomson begins work in a separate lab to try to cultivate human stem cells from donated embryos. Geron, a California biotech company, agrees to provide funding for Thomson's new lab.

January 18, 1996

WARF files a "continuation" with the U.S. Patent Office, updating its application to reflect Thomson's progress.

January 1998

Thomson succeeds in freezing the development of human embryonic stem cells, narrowly beating teams in California and at Johns Hopkins University. Meanwhile, WARF and the Patent Office are locked in negotiations about the stem cell patent application.

“A COUNTRY WITHOUT A GOOD patent office and good patent laws was just a crab, and couldn’t travel any ways but sideways and backways,” wrote Mark Twain, in *A Connecticut Yankee in King Arthur’s Court*. Through Hank Morgan, the Yankee of Yankees, Twain, a patent holder himself, voiced the progressive enthusiasm that the United States has long held about its patent system. With roots in the U.S. Constitution, patent laws have formidable history behind them. Created to spur innovation, while discouraging companies from hiding important discoveries, the first U.S. patent laws went on the books in 1790. Abraham Lincoln once said of patents: “The patent system added the fuel of interest to the fire of genius.”

Many university researchers in the days of Twain and Lincoln, however, saw patents as antithetical to their role as public scholars. UW-Madison professor Stephen Babcock, for one, thought it wholly inconceivable that he, or a university, might profit from work that was primarily paid for by the public. In 1890, when Babcock developed the nation’s first effective method for testing the butterfat content of milk, he dismissed any notion of patenting the process, insisting that it be shared freely with all.

Babcock’s noble gesture resulted in chaos. Eager to meet high demand among dairies for the new Babcock tests, dozens of manufacturers began developing the testing equipment. Many did haphazard work, using improperly

calibrated equipment and poor-quality materials that broke easily. Most of those “Babcock tests” failed to work, which diluted confidence in Babcock’s invention. And there was nothing Babcock or the university could do about it, because they’d given the technology away with no conditions.

“The dairy industry was thrown into disarray,” wrote Clay Schoenfeld, a UW emeritus professor who studied WARF’s history. “Not until several state legislatures stepped in with standardization regulations did the Babcock test achieve its potential.” Babcock, terribly embarrassed and discouraged by the episode, reportedly said late in his career that he wished that he had patented the test, so that he could have regulated the shysters.

Three decades later, UW biochemist Harry Steenbock devised a method for enriching the vitamin D content of food, a technique that he realized could effectively wipe out the disease rickets. Steenbock, who was a young professor when Babcock’s test hit the market, worried that a similar debacle might occur with his research. “He was hearing from cigarette companies and beer manufacturers, who wanted to use the process to put vitamin D in their products,” says Hector DeLuca MS’53, PhD’55, a biochemistry professor who was Steenbock’s last graduate student. “Harry knew that there was no way that these kinds of things would benefit mankind.”

Neither, however, did Steenbock want to control patents himself or wish to see

any personal profit from the work. (In fact, he had just turned down \$900,000 to sell the invention to Quaker Oats.) Instead, he came up with a truly revolutionary idea: WARF. A campus-based patent office, he reasoned, could both control his technology and funnel proceeds

Mark Twain wrote that “a country without a good patent office and good patent laws was just a crab, and couldn’t travel any ways but sideways and backways.”

back into the laboratories responsible for producing it in the first place. With the help of George Haight, a Chicago patent attorney who was then president of the Wisconsin Alumni Association, Steenbock proposed an independently operating foundation, the first of its kind affiliated with a university. In 1925, he and eight other alumni each contributed \$100 as an endowment — funds that still appear on WARF’s ledger as “dues paid in.”

During the first ten years, WARF had returned more than \$17 million from Steenbock’s vitamin D patents, and had seen rickets virtually eliminated in the United States. And all that despite turning down the first people who came seek-

November 6, 1998

Thomson’s team publishes its findings in *Science*, creating a worldwide media buzz that causes Thomson to hole up in a Bascom Hall office to handle the influx of calls from reporters.

December 1, 1998

U.S. Patent Office issues patent number 5,843,780, covering primate stem cells. WARF prepares another patent application, based on Thomson’s new work with human cells.

December 2, 1998

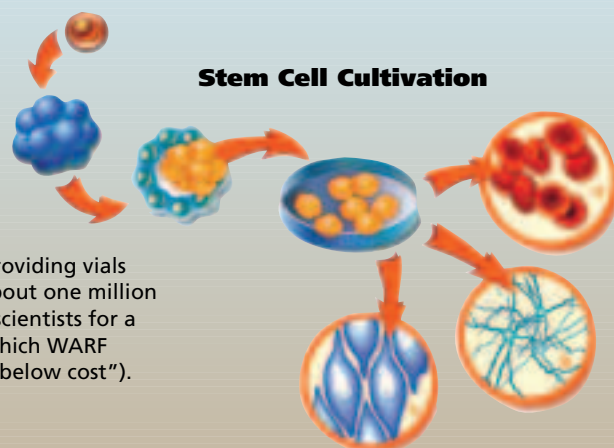
Thomson testifies before a U.S. Senate committee that the benefits of stem cell research will be more quickly reached if the government allows federal funding on the work. It’s the first of several public testimonies Thomson will make supporting the science.

1999

Debate continues about federal funding. Ethics commissions weigh the potential of stem cells against the moral issues of working with human embryos.

October 1, 1999

WARF creates WiCell, a private institute, to handle the distribution of stem cells and begins providing vials containing about one million stem cells to scientists for a \$5,000 fee (which WARF describes as “below cost”).



ing to license Steenbock's work; WARF said no thanks to a firm that wanted to make vitamin D-rich cigarettes.

Since that time, WARF has patented everything from potato variants to mechanical gizmos to advanced laboratory techniques. In 1999, WARF fielded 279 inventions — the third-most of any U.S. university agency — up from 136 in 1994. Gulbrandsen says the growth is a confluence of two factors: University researchers are producing more, and they're also discovering what Babcock and Steenbock realized — that a patent, in the right hands, can be a faculty member's best friend.

"WARF is by far the best vehicle around for bringing new technology forward," says Mark Cook, a professor of animal science who has patented inventions both through WARF and on his own. Because much of Cook's work is privately funded, he has the option to pursue patents elsewhere, but he takes technology to WARF almost exclusively now. He says he grew tired of investing the exorbitant time and effort it takes to apply for and protect patents, only to see them mismanaged and his work fail to find a market.

"Everything that I've ever done outside of WARF has never amounted to a hill of beans," he says.

"You want to be sure that your inventions are used in the right way, and one way to do that is to be very careful about whom you license your work to," adds DeLuca, one of the university's

most prolific inventors, who has held more than one thousand patents during his career. "Patenting puts the invention into the hands of the public that was responsible for developing it."

AT SEVENTY YEARS OLD,

Hector DeLuca is WARF's past, present, and future, wrapped up in one bundle of relentless energy. Many of his laboratory breakthroughs have sparked the development of new pharmaceuticals and nutritional aids, and income from his work more or less built the \$36 million wing of Biochemistry, where he operates his lab. As Gulbrandsen says, "He owns a piece of the rock."

The seemingly ageless professor recently hosted WARF officials on a tour of the new facility, which was completed in 1998. "It was like a father showing off his kids," says Andy Cohn '70, MS'74, WARF's director of public affairs. "He knew every student who walked by. He knew every cranny of that building." But DeLuca was also showing off something else — just how broad the ripple effect of patents is on campus.

During the 1930s, when the Depression virtually evaporated all federal research funding, WARF income was a life line to departments such as biochemistry. While other universities languished, the UW tapped into its WARF purse to hire away their best students and faculty. In biochemistry, DeLuca says, UW boasted nearly every top

researcher. "No other schools had any money to support them," he says.

The same pattern exists today. Because of WARF money, says interim graduate dean Cadwallader, "we can respond to opportunities that come up in ways that school or college budgets might not allow," such as the impromptu purchase of lab equipment to help land a faculty recruit or to secure a grant.

Similar fingerprints can be found throughout the campus. Although most lucrative patents have come from the sciences, WARF's income does not play favorites. Under its current formula, the inventor gets 20 percent of royalties from WARF patents, and the rest goes into an investment fund. The foundation's annual contributions to the university, now exceeding \$35 million, support faculty grants and graduate student fellowships in every division, as well as a diverse menu of building projects and other initiatives. The best part, says Cadwallader, is that the money is flexible. WARF dictates only that it be used in ways consistent with its mission to advance research.

The university often uses WARF income to speculate on young researchers with promising ideas. "You often need seed money to run pilot experiments before you can apply for big federal dollars," says Cadwallader. "If you go to them with an idea and no empirical back-up, it's a much harder sell." Several projects have followed this path to major grants, he says.

March 13, 2001

WARF receives U.S. patent number 6,200,806, covering Thomson's techniques for cultivating human embryonic stem cells.

August 9, 2001

President Bush announces limited federal funding on certain stem cell lines (including WARF's). Thomson, who doesn't own a TV, asks WARF public affairs director Andy Cohn if he can come over to watch.

August 10, 2001

WARF handles a barrage of media inquiries about what the foundation's role will be,

given Bush's decision. Thomson goes hang gliding, to clear his mind.

August 17, 2001

WARF managing director Carl Gulbrandsen makes the *New York Times* quote of the day, saying "I don't want people to see us as an 800-pound gorilla." "I was set up for that quote," Gulbrandsen laughs.

August 20, 2001

Thomson is on the cover of *Time* magazine; editors note his "astonishing" research.



September 4, 2001

Researchers in Thomson's lab announce success in guiding the development of stem cells into blood cells.

“There’s no question,” Cadwallader says. “If we didn’t have WARF, we would certainly lose more than the \$35 million that they give us.”

Among the losses in a world without WARF would likely be DeLuca himself. His maturity as a researcher came during the 1960s and early 1970s, when all inventions produced with public money normally reverted to government ownership. DeLuca says the system made it next to impossible to find private sources willing to put money into his research, since they couldn’t be assured of licensing rights to any resulting products. “No company is going to invest in research and development unless it can see that its ability to make money from that investment will be protected,” he says.

WARF forged special agreements with government agencies, allowing the foundation to own the patent and negotiate directly with companies to license DeLuca’s work. The arrangement became a model for the Bayh-Dole Act, which Congress passed in 1980. Coincidentally, it was that law that convinced many educational institutions to dive into managing patents, spurring universities across the country to seek WARF’s advice on how to set up similar organizations. “For university technology transfer generally, [the law] has been a very wonderful and valuable success for the entire country,” says Gulbrandsen. “But we were already operating as if it existed.”

Since Bayh-Dole, DeLuca has seen the landscape of technology transfer com-

pletely transformed. Where once he was among the few professors who actively engaged the patent process, today there are hundreds who bring their own entrepreneurial vision to their work. WARF’s clients now include people like Nicholas

“There’s no question,” Cadwallader says. “If we didn’t have WARF, we would certainly lose more than the \$35 million that they give us.”

Abbott, a chemical engineer who has devised a series of sensors that detect biological and chemical agents. Abbott took a business short-course to learn how to develop his technology and has now launched a start-up business. WARF helped him land patents on his work — and then license them to his own firm.

“I’d very much like to see the work translate into technology that has an impact on society,” he says. “We’ve developed this to the point that we can publish our work in about whatever journal we want. I think we all find it very satisfying to see the technology translated into products that are useful.”

To help the new generation of faculty like Abbott, WARF holds seminars and has assembled a Web site on patenting (www.warf.ws). But it’s not just newbies

who are prowling WARF’s hallways. Not to be outdone, DeLuca now has a start-up company, and he visits the thirteenth-floor offices weekly to massage details and peruse contracts with attorneys.

“I have a few products that I wholeheartedly believe should be in the hands of the public, and I want to make sure that they get there,” he says.

DeLuca, like many professors, considers patenting an alternative form of publishing. Because patents are public disclosures, they carry an element of teaching to them. “You have to enable the invention so that others can repeat it,” says Thomson. “That is the best part about patents.” And compared to the often snail-like pace of academic publishing, the patent process can look comparatively swift. Mark Cook recalls an instance when he accidentally discussed an invention with a reporter, not realizing that the patent application hadn’t been filed. (Disclosure of an invention starts the clock on U.S. patents and could invalidate patent claims entirely in some countries.)

“I called WARF and said, ‘You’ve got until the evening news to get it done.’ They got it filed by five o’clock,” Cook says. “WARF can move very quickly if it needs to.” Just never sideways and backwards, but only ahead, traveling on toward the next big thing. 📌

Michael Penn, senior editor of *On Wisconsin*, spent most of the time he worked on this story trying to think of things he could patent.

September 5, 2001

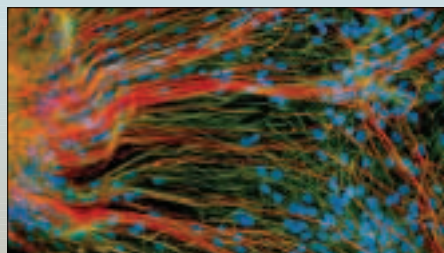
WARF officials sign an agreement with the National Institutes of Health that facilitates getting stem cells to NIH scientists.

November 30, 2001

UW researcher Su-Chun Zhang announces that his team has coaxed stem cells to develop into neural cells.

December 31, 2001

People magazine profiles Thomson in its “Most Intriguing People” issue.



January 9, 2002

WARF and Geron amend their earlier licensing deal, guaranteeing that WARF will continue to distribute stem cells to academic

researchers. Geron receives rights to potential products that may be developed from some heart, nerve, and pancreas cells.

Now

Researchers around the world are trying to unlock stem cells’ potential. Thomson notes that six years have already elapsed on WARF’s original stem cell patent. “It is likely that the real dollars may come after this patent is gone,” he says. “The important patents may be the next generation of patents.” WARF’s work goes on.

MAKING MATH Add Up



*Why do American kids,
plus long-established teaching methods,
sometimes equal struggle in math classrooms?
A UW-based project is studying that equation.*

BY JOHN LUCAS
PHOTOS BY JEFF MILLER

More than a decade later, I'll still have an occasional nightmare about my third period advanced algebra class.

It's always the same scene: I'm sitting alone, before school, in the dark, deserted "math resource area" of my suburban Chicago high school. I'm there to retake a test loaded with equations, graphs, and functions. As I stare at the jumble on the page, it slowly dawns on me that it's not even a matter of not knowing the right answers. I can't begin to comprehend whether the right answer would take the form of a number or an equation — or what type of math operation would get me to the general neighborhood of an answer.

My "didn't study for the test" nightmares don't stray far from real life.

I never really clicked in class with my algebra teacher, a stocky football coach with a long beard and a blunt teaching style. He seemed to be a nice enough guy, but to me, the lessons were deadly dull. I'm a word person, I reasoned, so why bother?

From his perspective, I probably seemed like one of his worst students. It's true that I spent a good chunk of third hour chatting with classmates, discussing sports or music. Of course, my indifference caught up with me in the end; I flunked most of my quizzes and tests. For all his faults, my teacher graciously allowed me a handful of early morning retakes — which I also proceeded to flunk — hence, my psychological scars. Much to the dismay of my parents, I ended up with a D — and an appointment to retake the class with a remedial section the next semester.

It's a simple equation that is still repeated day after day in classrooms across America: uninspired teacher, plus unmotivated student, equals math failure.

But help is on the way. Since November, a forward-looking research and development consortium based at



Recognizing that students learn in different ways is the first step toward success in math, UW researchers say.

UW-Madison's Wisconsin Center for Education Research, a department of the School of Education, has been looking at ways to improve math teaching.

The five-year, \$11.5 million project, funded largely by a grant from the National Science Foundation (NSF), is concentrating on methods for teaching math to a diverse group of students at levels at which they can find success. Organizers hope their efforts will influence the field over the next decade.

Known as DiME/CLT — for Diversity in Mathematics Education Center on Learning and Teaching — the consortium is one of the first programs to take a concerted and serious look into how differences in race, gender, and class affect the teaching and learning of mathematics.

Many underprivileged students, for example, struggle with math, often leading them to lower-track classes that won't prepare them adequately for college, says Walter Secada, a UW-Madison professor of curriculum and instruction who is directing DiME. Less clear are the best ways to solve the problem.

"In too many middle and high schools, you can tell what track of math

class you're looking at by simply noting the color of the students' skin or the quality of their clothes," he says. "And that is abominable."

Through the years, testing has shown that, as a whole, older American students are lagging behind other nations in math and science. As recently as 1998, the Third International Mathematics and Science Study (TIMSS) showed that American eighth-grade students scored well below average and twelfth-grade students performed near the bottom relative to their peers around the world.

Consistently poor results have fed into the "math wars," an ongoing controversy over "old" versus "new" math, and "hard" versus "soft" math, among others. Much of the discussion centers around whether the value of drilling and procedures (old and hard) outweighs conceptually based (new and soft) methods.

According to Secada, these wars and the labels that the media use miss the point. "We want students to know skills and to understand them; society also needs students who can apply what they know to solve problems that are becoming increasingly complex," he says.

At the same time, Secada, who is Hispanic, says there's been a growing recognition that America's culturally, socially, and linguistically diverse K–12 student population plays a major role in the nation's scores and its future economy. A significant math "achievement gap" exists between white students and students of color, and the gap relates to how teachers instruct — or fail to instruct — students of differing languages, cultures, and economic classes.

What's worse, math — and algebra in particular — is viewed as a key academic "gatekeeper" subject. Students who do poorly are more likely to be placed in lower-track courses and are less likely to go to college and be competitive in the job market.

"If a student leaves high school having been taught just checkbook math,



Chris Stafslie, above, is taking what she's learned in UW-sponsored seminars for math teachers and bringing those methods into her Madison high school classroom. "The goal is to get them involved and get them to take ownership of their math," she says of her students.

that person won't have a checkbook worth doing math in," Secada says.

"Our society's demands for math literacy are going up and up," says Secada, who visited the White House during the Clinton administration for the release of the twelfth-grade TIMSS results. "It's not the case that schools aren't improving," he says. "They are — but they are not improving fast enough to keep up with the increased demands for technical skill and mathematical knowledge."

When the NSF decided to commit millions of dollars toward rebuilding the nation's math and science leadership, Secada, along with UW-Madison colleague Thomas Carpenter PhD'71 and their colleagues at the University of California-Berkeley and the University of California-Los Angeles, seized the opportunity.

Their approach underscores the significance that diversity plays in teaching and learning math. They propose training experts who will do research, apply ideas in the classroom, and teach college students. In the process, they will dis-

"Society needs students who can apply what they know to solve problems that are becoming increasingly complex."

cover more about the reasons behind the "achievement gap" and develop ways to close it.

The idea of training a new generation of math teachers is designed to address some sobering facts:

- One-third of mathematics teachers in grades seven through twelve have neither a major nor a minor in the field, yet they teach one in four of all mathematics students.
- During the next decade, the nation's schools will have to replace more than two-thirds of current teachers due to attrition.
- More than half of university faculty in mathematics education will be eligible for retirement during the next

two years, and almost 80 percent will be eligible for retirement within the next ten years.

One major component of the DiME center's work is a plan to produce thirty new doctoral students in math education research and teaching. In the future, the group will eventually develop its own research and ideas on diversity issues, particularly relating to the teaching of algebra. Teachers already in the classroom will also receive ongoing professional development along with college students at the consortium's partner institutions.

"We want to close those achievement gaps," Secada says. "How we get there, we don't know all of the details, but we want our best and brightest minds to be a part of it. It's a challenge."

"The project will create new research, new tools, and more importantly, a generation of researchers capable of making significant strides on issues of diversity in mathematics education," says Rogers Hall, an associate professor of education at UC-Berkeley and an

associate director of the new consortium. "If we are successful, the field will be changed fundamentally by this new generation of scholars."

DiME represents just one of the substantive contributions that UW-Madison's math education experts have made to their field. Over the years, Carpenter and others in the School of Education, including emeritus professors Thomas Romberg and Elizabeth Fennema, and active faculty such as Richard Lehrer, Leona Schaubel, and Andy Porter, have been instrumental in curriculum reform, standards development, and many other innovations in math education.

Until the new generation of DiME scholars emerges, the consortium is likely to have immediate beneficiaries in the teachers and students in the Los Angeles Unified School District, the Berkeley Unified School District, and the Madison Metropolitan School District (MMSD). These districts have partnered with UW-Madison to become learning labs for diversity education.

Through in-services and workshops, Secada and Carpenter have already been active in the Madison public schools, supporting dozens of teachers as they explore ideas on the diversity components of math, says Mary Ramberg, teaching and learning director for the district.

"We have a wonderful symbiotic relationship with UW-Madison," she says. "We've learned a lot from each other. We believe that all kids can learn math, and a focus on kids who have been left behind is sorely needed."

In spite of the small amount of systemic research in the field, Secada says he has ideas on how to teach math to diverse populations. Among them:

- A focus on smaller class sizes for students who are on the bottom tracks.
- A more balanced curriculum, stressing understanding and skills, operations, applications, contextual problems, and how they all relate to each other.



Providing on-the-spot help is just one way teachers can guide students toward success in math.

- More real-time assistance in which students can get immediate help to understand a problem.
- The development of student reasoning based on problem-solving strategies that are often different from standard, by-the-book procedures.

Some of Secada's ideas are playing out every day in the classroom of Chris Stafslie '98 at La Follette High School on Madison's east side. At 9:40 on a January morning, students in her basic algebra class listen to school announcements before slowly beginning to focus on the day's lesson: functions and absolute value.

Stafslie, a third-year math teacher, is also pursuing her master's in education. For the past three years, she has participated in a seminar for mathematics teachers of low-track students run by Secada, his graduate students, and the MMSD.

"At first, I wasn't sure what kids were thinking about or what they were understanding," she says. "The goal is to get them involved and get them to take ownership of their math. The idea is to take kids with really low math esteem and show them what they're capable of."

The twenty students in her racially mixed group have been recommended for the class by their previous teachers because of difficulties they experienced in

pre-algebra or other algebra sections. Her task is to devote as much time as it takes on each key topic until students seem to "get it." On this morning, the class members happily grab graphing calculators and dig into practice problems. After a few minutes, Stafslie reviews homework and then begins an "investigation," an activity in which the class pairs off with partners and begins working together to solve problems on a graph.

Talking about the problems with classmates makes them easier to solve, says freshman Ashley Huff. "Most other teachers move too fast," she says. "But [Stafslie] moves slowly, and she's always around to help. It's gotten to be fun, because it comes easier to me."

With the "investigation" complete, Huff and a few other students show their work on the board before getting a jump on homework problems. Stafslie circulates through the room, asking questions about each student's progress on the assignment.

Stafslie says her approach is designed to encourage students to think through the concepts they find most difficult to understand. Following Secada's idea on the importance of how students learn to reason, she says she keeps in mind that many may approach the problems differently than she does.

"We've made a lot of progress," she says. "These kids have failed before in the system. They've always looked at math as a dry set of rules and theorems they didn't want to memorize."

"At the beginning of the year, everyone was unhappy with math and kind of resigned to being here," she adds. "Now they're getting excited."

Maurice Dean, a freshman, says he doesn't expect to ever have test retakes, let alone nightmares about algebra.

"It's become my favorite class," he says. "I love the way she teaches." ■

John Lucas, a writer for University Communications at UW-Madison, tried his hand at a few math problems while observing Chris Stafslie's class — and claims that he got the answers right.

UNCONVENTIONAL WORK

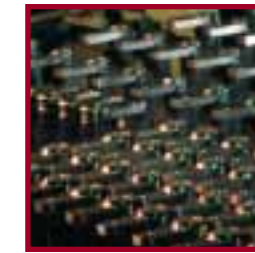
The inner workings — and inner workers — of UW-Madison reveal that it takes more to make a university run than teaching and research.

BY JOHN ALLEN
PHOTOS BY BOB RASHID '87

Supporting a total population of 60,083 — 41,219 students, 2,175 faculty, and 16,689 staff — UW-Madison isn't just one of the nation's largest universities. It's a whopping big community. When class is in session, the 933 acres of central campus pack in a higher population density than does New York City.

Just about everyone knows the main industries of our quasi-city on the shore of Lake Mendota — minting new university graduates and extending the boundaries of knowledge. But though instruction and research get all the glory, they're only a small part of the work going on at UW-Madison. On the following pages, you'll meet people whose jobs may, on the surface, seem far removed from the business of education. They virtually never coordinate a syllabus or publish a research paper, but their work ensures that the UW's teachers can teach, its researchers can investigate, and its students can learn.

This list of hidden professions isn't exhaustive — not by a long stretch. With our limited space, we couldn't fit, for instance, Doug Thiessen '77. Known as the Critter Catcher, Mouse Man, or Batman, he's UW-Madison's sole pest control specialist, and he's climbed through just about every nook, cranny, passage, and crawlspace on central campus. Nor could we fit the cheese makers at the Babcock Dairy, the person who oils the Union's bowling lanes, the School of Music's instrument tuner — the list goes on. Consider this only the beginning.



■ NOW WE'RE COOKING

If the Rathskeller is a UW-Madison institution, you might say John Peek '84 has been institutionalized. On any given weekday, during the lunch rush, you'll find him by the Rathskeller's grill. He's easy to recognize — he's the guy who serves up a standup comedy act along with the Paul Bunyan burgers. He's been at the Rat, off and on, for eighteen years, climbing his way from student worker to assistant manager.

"I'm a firm believer that, as a manager, I need to be out on the line, doing the same kind of work as the staff," he says.

So he faces fifteen hours of splattering grease every week. But the shifts allow him time to be with his family, and besides, management has its perks. Among Peek's duties is the responsibility for making sure the restaurant's pantry is stocked. This gives him the opportunity not only to keep the Rathskeller's food fresh, but to keep its menu fresh, as well.

And Peek enjoys introducing Rathskeller diners to new specials. If not for him, there would be no Messy Veggie sandwich today. Nor would there be a Jackhammer. Or a Deutschland Delight.

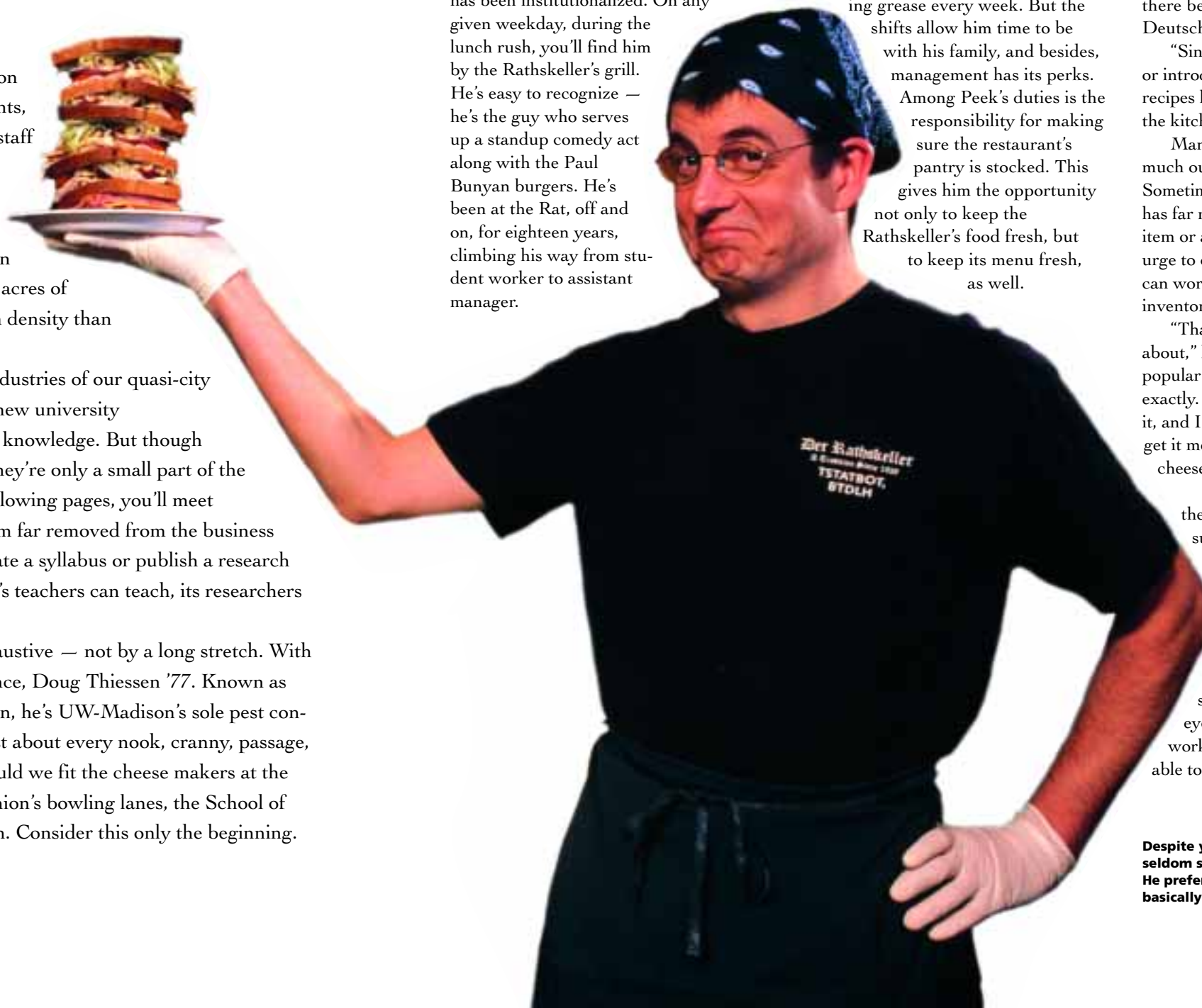
"Since 1995," he says, "I've created or introduced more than a hundred new recipes here. I enjoy experimenting in the kitchen."

Many of Peek's creations grow as much out of necessity as inspiration. Sometimes he'll find that the Rathskeller has far more than it needs of one food item or another. Then Peek will feel the urge to create a new special to see if he can work through some of the back inventory.

"That's how the Jackhammer came about," he says. "Jack is one of our less popular cheeses — I don't know why, exactly. Once we were stuck with a lot of it, and I had to come up with a way to get it moving, so I thought, hey, ham and cheese — people like that."

Over the years, Peek has left the grill behind several times — to supervise at the Stiftskeller, to run the sandwich deli, and, for a four-year stretch in the early 1990s, to give up salaried work altogether and be "Mr. Mom" to his young daughter. But he's always been drawn back. "I like serving and being in the public eye," he says. "The best thing about working in the Rathskeller is being able to interact with the customers."

Despite years of working at the Rat, you'll seldom see John Peek buying his lunch there. He prefers to brown-bag it. "What I make is basically a deli sandwich anyway," he says.



■ A SCIENTIFIC UNDERTAKING

Once upon a time, it was almost a cliché: “I’m not going to be buried,” people would say. “I’m leaving my body to science.”

Well, in Wisconsin, science has the face of Bob Schlotthauer. He’s the senior mortician with UW-Madison’s body donation program, and he and his partner, Phil Schadler, are responsible for keeping the medical school’s cadavers as healthy as corpses can be. “Some people get a little queasy about the idea of body donation,” says Schlotthauer. “But it’s important that medical students learn from real bodies. If I’m going to see a doctor, I’d rather see one who’s actually practiced on the real thing than one who’s only dealt with plastic models.”

Schlotthauer and Schadler log more than 30,000 miles annually, fetching bodies back to Madison. About sixty of the hundred or so bodies they embalm every year will be dissected in UW Medical School gross anatomy classes. Others may go to hospital residency programs or to other body-related classes, such as kinesiology or physical and occupational therapy.

Schlotthauer has been a UW mortician since 1980, and in that time, he’s never misplaced a body — or even part of one. But in 1996, he managed to lose his own heart in the embalming room. While on the job, he met medical student Barbara Knox MDx’02. She had stuck around after anatomy class, and struck up a conversation with Schlotthauer. Eventually they went out for a beer, and dating led to marriage in 2001. “After all these years,” he says, “I finally got something lively out of this job.”

■ MASSIVE PRODUCTION

If you need a compact muon solenoid, Farshid Feyzi ’80, MS’82 is the man to see. He and his colleagues at UW-Madison’s Physical Sciences Laboratory (PSL) are some of the few people in the world who know what the device is — and how to build one.



Though it makes their jobs more hectic, Bob Schlotthauer, above, and Phil Schadler prefer to do their own embalming. “Our material is superior to what other [morticians] use,” Schlotthauer says. “Once we seal a body in its plastic bag, it’ll mummify before it goes bad.”

And there will be only one — when it’s finished, that is. The solenoid, a subatomic-particle detector that scientists will use to seek evidence of a certain kind of particle known as a Higgs boson, will be assembled in Geneva, Switzerland, in a couple of years. Currently, its components are under construction at several labs around the world. PSL is one of those labs, with responsibility for the instrument’s two endcaps, each of which weighs about 3,000 tons.

But the compact muon solenoid isn’t PSL’s only project. In its cavernous, aluminum building north of Stoughton, the lab designs and builds unusual — often unique — scientific instruments. Since 1995, Feyzi has been the lab’s associate

director, supervising the thirty members of PSL’s technical staff — the engineers who design such instruments, the machinists who build them, and the specialists who calibrate them.

PSL exists, essentially, to help researchers overcome one problem: the gulf that separates scientific hypothesis from real-world conditions. Feyzi’s team has constructed speech therapy monitors for the Waisman Center, vacuum chambers for the physics department, rainfall run-off samplers for the Wisconsin Department of Natural Resources, and neutrino detectors for the UW’s astronomy department.

“In the years PSL has been here,” Feyzi says, “we’ve done more than six



Above: One of the aspects of Chris Ott’s job that he enjoys most is going into the field to collect new specimens. But the Geology Museum is largely dependent on volunteer diggers. “We have a fieldwork budget of \$500 and a van,” he says.



Left: Farshid Feyzi holds one of the tools of his uncommon trade: the Superbolt. These are some of the largest screws in the world, able to apply 250 tons of clamping force. Even so, his lab, the PSL, will need about 1,600 of them for the compact muon solenoid it is helping to build.

thousand projects, and each one is different. But overcoming unique problems — that’s what we’re good at.”

■ STONES AND BONES

No one knows better than Chris Ott ’99 that the keys to the future lie buried in the past. But then, for Ott, the present lies buried in the past, too — under plas-

ter dust and the dirt of millennia. His work space, an overgrown closet crammed with tools on the ground floor of Weeks Hall, is covered in clumps and lumps and specks and motes that are older than ancient.

Ott is in charge of specimen preparation at UW-Madison’s Geology Museum. More than five hundred tours pass through that museum every year, making

it the second most popular on campus, after the Elvehjem Museum of Art. Ott’s duties include not only creating eye-catching displays, but also cleaning and classifying new additions to the museum’s collection and even going into the field to collect specimens of his own.

For the last several summers, Ott’s been digging in the Hell Creek Formation in Montana, “an amazing site” where he has identified at least fourteen different dinosaur skeletons. Recent digs have brought in some impressive specimens, including bones from a *Triceratops* and one of its distant relatives, a *Leptoceratops*.

When not cleaning or preparing displays, Ott is busy cataloging materials in the museum’s collections, which include

Right: According to Edie Brogan, "In a crowd situation, the most important things for an officer to do are to see and to be seen. Horses are perfect for this, because they get you up above crowd level, and they attract attention."

Below: Bubble sheets continue to grow ever more common at the UW. "In the last five years," says Char Tortorice, "there's been a 23 percent increase in the number of sheets that pass through our office."

not only the items on display, but thousands of specimens stored below Weeks Hall. "Invariably," he says, "they were collected by one professor or another way back when. I'd like to get an inventory of it all." This will be no simple task. Some drawers, crammed full of specimens collected decades ago, are simply labeled "Rocks."

■ SERGEANT BROGAN OF THE MOUNTIES

Not many UW-Madison staff have their own trading card. But then, not many UW employees have four legs, either. McAllister is gifted with both — he's the horse who puts the "mount" in the UW-Madison Mounted Police (UWMP).

That, says his companion, Sergeant Edie Brogan, makes McAllister something of a celebrity. "Kids love to see him and pet him. They're who the cards are for."

Brogan established the UWMP at the beginning of the 1989 football season, when her partner was a horse named Kiddo. The unit showed its worth almost immediately.

"During the second home game that year, our captain and another officer were arresting a suspect, and he took off," says Brogan. "Kiddo and I gave chase, and by the time the other officers caught up with us, we had the suspect pinned against a tree and cuffed."

Brogan will occasionally patrol in areas such as the Arboretum or Picnic Point, where vehicles can't go, but the unit's most important duty is crowd control. For special events, the UWMP can expand, adding a freelance force of five other mounties from around the state.



After September 11, she even tapped the City of Milwaukee Mounted Unit for help at two Badger games.

"Horses present a dichotomy," Brogan says. "They're great for moving crowds. Even when people won't get out of the

way of emergency vehicles, they'll still move for horses. Their presence is intimidating. But horses are also excellent PR — those who aren't intimidated by horses are attracted to them, which makes them wonderful for community policing."



"We get anywhere from two to seven semitrailers full of merchandise every week," says Tim Sell. "Most of it is gone within a week and a half." Very little of SWAP's inventory ends up at the recycler. Instead, most of it (like these chairs) finds a home in a new office or classroom.

■ CONNECT THE DOTS

If you ask Char Tortorice '72, MS'75 which tool has done the most to improve efficiency at UW-Madison during the last thirty years, she'll probably tell you it's the number two pencil.

Tortorice, associate director of the Office of Testing and Evaluation Services, can tell you all about the low-tech number two, just a soft graphite rod jacketed in pine. When used properly, it makes a dark, even dot on a bubble sheet. "A number two works perfectly," she says, "especially if it isn't too sharp."

Bubble sheets — those fill-in-the-dot forms — have become ubiquitous on campus for use in surveys, applications,

course evaluations, and as answer pages for multiple-choice exams. More than a million of them pass through UW-Madison every year, an average of nearly twenty-five per student, and all of them go to Tortorice and her colleagues. They possess Madison's only NCS 5000i optical scanner — the bubble-sheet reading machine. "Any data that can be collected on a sheet will be," says Tortorice. "And all those sheets come to us."

But though everyone who passes through UW-Madison is touched by the bubble sheet, there are still students and faculty members who fail to remember the importance of the number two pencil. "Just last term we had a student call us up because he'd failed his final," says

Tortorice. "He wanted to know how he could've gotten a zero. We looked at our records and saw that the machine had read his sheet as blank, and I knew, this kid did his final in pen. The machine isn't calibrated to read ink. It's got to be graphite."

■ SELL OUT

With a name like his, Timothy Sell was destined to work in sales. And as business manager for UW-Madison's SWAP Shop, he faces an unusual sales challenge: to perfect the theory that one office's trash is another's treasure.

SWAP is the university's surplus program. Its name is an acronym for Surplus with a Purpose, and that purpose is twofold: to reduce the amount of material sent to Wisconsin's junkyards, and to make money. Last year, the SWAP Shop did more than \$1 million in sales and recirculated nearly 700 tons of stuff that otherwise would have gone to the dump.

Sell, who's been with SWAP for five years, says the variety of that stuff runs from the mundane — "We've got old computers, office supplies, beakers, and athletic shoes" — to items you won't find at the local mall. Some of the things that have passed through SWAP's sales register include horses, chairs that belonged to the UW System board of regents, glass globes from the capitol, and a \$400,000 laser that could cut through six inches of steel. "Of course," says Sell, "you've got to go through a background check if you want to buy that one."

The shop works like an enormous consignment store. University and state offices send old equipment to SWAP and receive a share of the sale price. Most offices then use their earnings to purchase other items from the SWAP inventory. Once a week, SWAP is open to the general public, to keep the goods moving. "We're like a giant garage sale," Sell says. 🐾

John Allen, associate editor of *On Wisconsin*, spends a lot of time wondering what other people do for a living — which probably doesn't sit too well with his boss. If you'd like to read more about the people profiled here, visit www.uwalumni.com/onwisconsin.