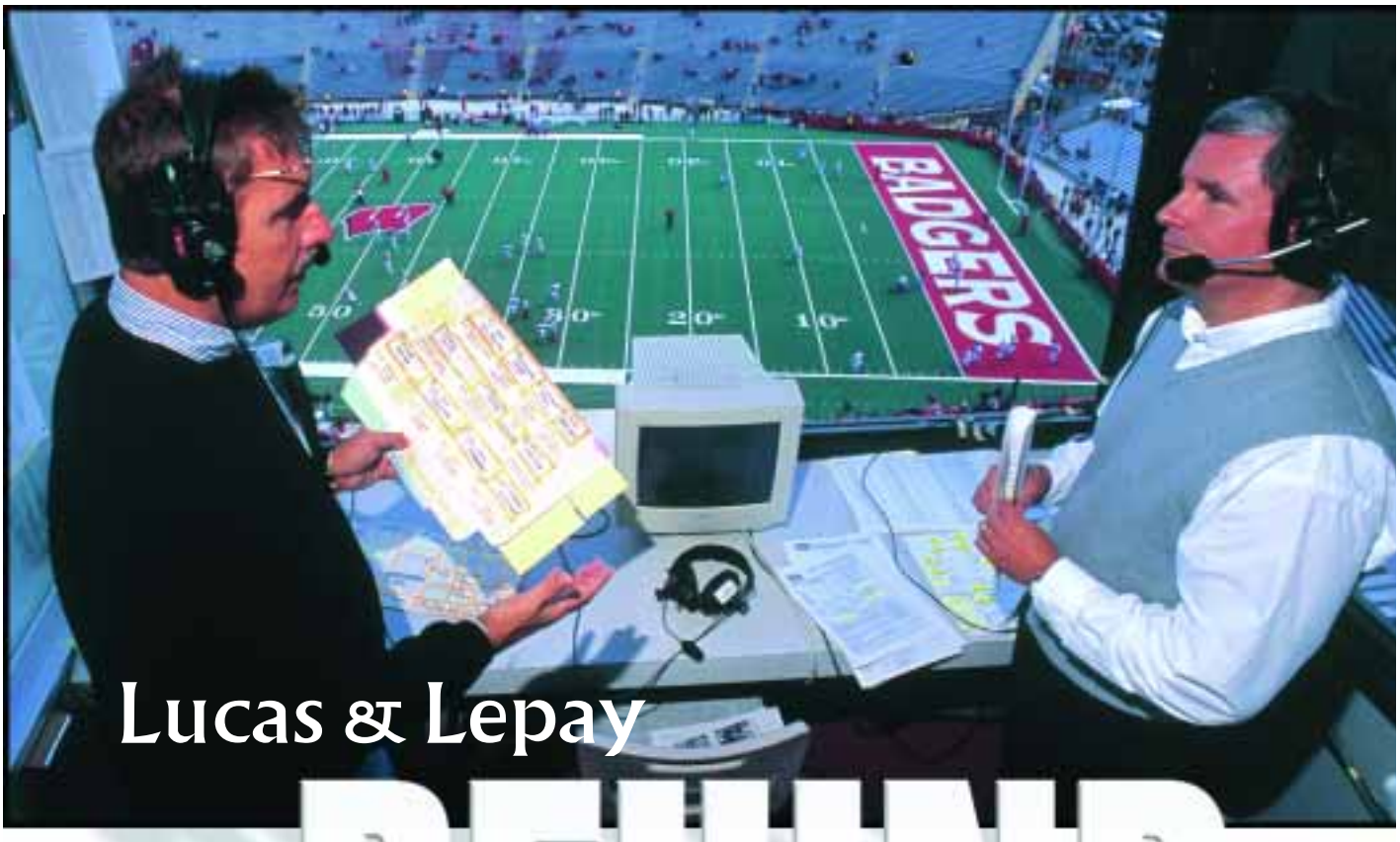
BOB RASHID



Lucas & Lepay BEHIND the Broadcast

By Tim Noonan

Their mellifluous voices are synonymous with crowds roaring, clapping, and stomping at Camp Randall, with the sound of the marching band and the smell of brats in the bracing fall air.

Matt Lepay and Mike Lucas are announcing another Badger football game for radio listeners, and they have the dynamics of a well-oiled comedy team. During the Western Kentucky game, you might have caught this exchange:

Lepay: "Pimpleton forced out of bounds by Scott Starks at the nine-yard line, and then [unbelievingly] Pimpleton goes over the fence . . . dividing the field from the stands area, and . . ." Lepay seems at a loss, but Lucas jumps in: "He's gonna have to buy a ticket to get back in."

Lepay responds, "Yeah, I guess so," and seamlessly picks up the thread as the Hilltoppers are forced to punt, and the Badgers eventually go on to win the game.

Lepay and Lucas are the broadcast team for Wisconsin's Badger Radio Network, which covers all of UW-Madison's football and men's basketball games. Every Saturday in the fall and several times a week during basketball season, their commentary blankets the lake-dappled landscape of Wisconsin from Amery to West Bend, as they call the games over the network's fifty-two radio stations, and to tens of thousands of listeners on the Internet. Lepay, the play-by-play announcer, is the straight man, providing all the facts — who tackled whom, who made the three-pointer, who's carrying the ball, who's the new substitute. Lucas, the color analyst, interprets the action, referring to other similar plays or circumstances, giving background on the players, and commenting on the wisdom, or lack thereof, of a certain coaching decision.

Lepay's job calls for precision and dependability, and as a friendly, straight-shooting optimist, he has the perfect personality for it. On the athletic field, he would be the well-liked captain of the team, a dependable fullback who may not break too many long runs, but who always gets you your yardage.

Lucas is the creative, quick thinker who has to improvise in an unfolding situation. He never knows what's going to happen, nor what Lepay, the first responder to every development, is going to say about it. Part cynic, part humorist, part spin-meister, Lucas has more edge than the upbeat Lepay. He's the crafty, flashy halfback who might make three feints and then tear off in a direction nobody expected. Together, Lucas and Lepay are a professional marriage of reporter and pundit.

"I probably spend more time with Mike than my wife during the season," says Lepay. An Ohio native, he fell in love with sports broadcasting as a kid. "I grew up a fan of the Cincinnati Reds, and [announcers] Al Michaels and Marty Brennaman," he says. "This is what I always wanted to do."

Lepay started on his career path in college. In 1984, during his last semester at Ohio State, he found a job in Columbus as WNCI's morning sports guy. "I read sports, did some news reading, covered the Rose Bowl. WNCI was my education in what real radio was about. I decided then that I wanted to be the voice for a major college team within five years of graduation."

Lepay invests far more time in doing homework than in calling the games. . . . "I wear out one VCR per year watching opponents' tapes," he says. "I spend hours looking at the teams."

For starters, Lepay kicked around small Ohio towns, doing high-school play-by-play, American Legion baseball, and everything else. He called three to four games a week, as well as working regular, eight-hour disc jockey shifts. "I played the music of yesteryear, read the obituaries — everything," he says.

Play-by-play jobs at major schools are plum assignments with hundreds of applicants. The winner often has an inside track with connections at the school or in the state. It is a tribute to Lepay's skill that he had none of these. He simply saw an ad in 1988, and then applied for and won the job, meeting his five-year goal.

"I was scared to death about the snow, plus it was the biggest job I'd ever had," he says. "It was intimidating. And being an Ohio State graduate put me in a position to take a certain amount of grief from Wisconsin people. But that's kind of fun."

Lepay invests far more time in doing homework than in calling the games. "Game preparation is extensive. During fall camp, I try to go to every practice — twice a day during two-a-days — and interview a number of players and coaches. During game weeks, practices are closed, so I do tons of reading, pore through media guides. I wear out one VCR per year watching opponents' tapes. I spend hours looking at the teams." He also hosts weekly coaches' shows, fills in for the local CBS affiliate, and speaks regularly to booster clubs and Madison civic groups.

"The key to success as a play-by-play guy," says Lepay, is to be versatile. "I started as a news reporter. I covered elections. I covered crime stories. As a play-by-play guy, you are in essence covering a sporting news event. So you read as much as you can, and you work to expand your horizons. That gives you context for what you are covering."

Lepay's job is made easier by his partner's experience. Beloit native Mike Lucas is one of the senior members of the Wisconsin sports family. While attending the UW in the late sixties, he wrote for the *Daily Cardinal* and *Badger Herald,* and in 1971, he took a position with the *Capital Times,* where he still works today, writing a regular sports column. Because of his skills as a journalist, his specialty in sports, his extensive University of Wisconsin experience, and his editorial opinions, he was soon recruited to cover Badger sports in other media.

Lucas began with talk shows in 1976 on WIBA and color analysis in 1977 with hockey announcer Chuck Kaiton, who left Madison for a job with the World Hockey Association. Lucas started doing tape-delay football and basketball on WHA-TV in the early eighties, and began working with Lepay in 1994.

Many color analysts were once players, such as Ed Podolak, Iowa's former All-American and Super Bowl star, and former pro-football icon Kenny "Snake" Stabler at Alabama. Ex-players bring both name recognition and insider knowledge to the broadcast. But Lucas has other attributes.

He's worked with three different sports on both radio and TV for years. "When the situation warrants," he says, "I can put some of the things that have happened on the field into historical perspective."

DAVID STLUKA

Basketball engineer Dave McCann, Matt Lepay, and Mike Lucas brought the excitement of the Final Four to Badger fans who couldn't make it to Indianapolis in 2000. Away from the court, Lepay, the guy who needs context, reads history to relax. Lucas also relaxes by reading . . . about Wisconsin sports, broadcasting, or anything else to help him on the job.

A multi-tasker like his partner, Lucas still hosts talk shows, provides daily radio commentaries, and has written two books. But in terms of his job in the booth, Lucas claims that the most important part of a successful broadcast is chemistry: "You have to feel good about the person next to you."

It's also helpful to be on good terms with the coaches, who can make your job easy or hellish. "My relationship with [football coach] Barry Alvarez is terrific," says Lepay. "I do his TV shows. I also had a terrific relationship with [former basketball coach] Dick Bennett."

Badger radio football broadcasts used to involve a couple of guys in the booth, devoting about a tenth of their jobs to covering the game for the local radio station. Today, they require up to a dozen people across a large swath of the Midwest, devoting more than forty hours per person per week in a high-tech, satellite operation. But the success of the broadcast still depends on the professionalism, knowledge, and friendly familiarity of those same two guys in the booth. Wisconsin fans are fortunate to have one of the most respected and talented duos in all of sports broadcasting.

After the week's preparation, the broadcast itself, from pre-game show through post-game report, is a tightly run affair. Lucas and Lepay arrive hours before the first fans, while the engineers are establishing all the communications hook-ups. Once all the technical elements are in place, Lepay begins the pre-game show, usually reporting on the status of both teams, analyzing game plans, and interviewing players or coaches. Occasionally, a guest won't show at halftime, and Lucas will have to revert to his strength — improvisation.

After the pre-game show, Lucas and Lepay settle into the booth or, if it's basketball season, behind the table. They conduct more interviews at halftime and after the game, while statisticians constantly provide information — how many yards were gained, shooting percentages, and so on. For an hour or so after the game, Lucas and Lepay split duties in the locker room, interviewing coaches and players, and in the booth, giving a post-mortem on the game — discussing the emerging stars, injuries, final stats, and upcoming games. Finally, a couple of hours after the last whistle and maybe ten hours after the day began, the broadcast concludes.

One of the enduring mysteries for careful listeners surrounds an announcer's ability to call the name of a particular player — especially an opposing team's player — instantaneously. The secret to it all is the board. "I keep spotter boards, with all the data on the teams," says Lepay, who spends hours developing a new one before every game. The board sits in front of the play-by-play announcer where it doesn't obstruct his vision of the field, but where he can see it with a flick of his eyes.

"My chart goes three and four deep, and carries every bit of data about every player — position, class, height, weight, hometown, personal data," says Lepay. "Basketball has more games, but fewer players, so the board is easier. But then, basketball is a little more challenging, because you are talking more; basketball is also a tougher challenge for Mike to get in and out and allow me to do my job."

Some schools actually have an independent spotter whose sole job is to point out names. The University of Iowa's Red MacAleece once found his spotter at a loss for the name of a fifth-string opposition player who had just come into the game. When the spotter gave a bewildered shrug, MacAleece reported with nary a pause that "Huck Tucker" had just come into the game.

The next week the spotter was home sick listening to the game on the radio, and he heard his temporary replacement faced with the same situation. MacAleece then announced again that Huck Tucker, who had curiously just transferred that week from the previous week's opponent, had come onto the field. Until they developed a deeper board, Huck Tucker appeared in nearly every game for the opposition.

Team broadcasters such as Lepay and Lucas inhabit a journalistic gray area. They must report on a live event accurately and professionally, but at the same time, they do not need to remain unbiased, as other reporters do. They are part of the Badger sports community.

"We're play-by-play, the voice of the team," says Lepay. "We're not the sports talk guys. There's a big difference between a talk show host and an

announcer. A talk show host is paid to stir the pot when the situation calls for criticism. We won't go as far as the average talk show host. If there's a controversial coaching decision, we raise the issue, and let the coach explain his side of the story, and that's that.

"You try to be honest with what you see and how you report what you see," says Lucas, "but I speak my mind. Right now I'm viewed by some fans as being too soft on the Badgers. Before, they thought I was too hard because I was critical of [former coaches] Morton, Yoder, and Cofield. But they were losing. The perception of me changed with the success of the teams."

The Wisconsin Radio Network, which employs Lepay and Lucas, has actually been owned since 1994 by Learfield Communications of Jefferson City, Missouri. Learfield is one of three large companies that have captured the lion's share of the major college broadcast business throughout the country, with sports broadcast rights to about a dozen major universities.

With its national management and offices in three different states, Learfield makes getting Wisconsin's broadcasts out to radios across the state far more involved than it was when local station WIBA held sole rights. On-site responsibility for football falls to engineer Al Skinner, who ensures that all the phone lines and hook-ups are set up prior to the broadcast. During the program, Skinner makes all the required switches from live broadcast to taped commercials, which have been produced — sometimes at the last minute — in Missouri.

In the Show-Me state, a producer, maybe a high-school student who has never been on the Wisconsin campus, sits in a cubicle next to a dozen other people producing a dozen other Learfield games from different places around the country. The producer listens to the broadcast and plugs in the right commercials at the right breaks.

Throughout the game, Skinner works with the Missouri producer to monitor the live signal. "We run a primary broadcast signal on a digital line, which is essentially a high-fidelity line. Then, if we lose that, we use a POT — plain old telephone line." If that connection fails, Skinner turns to a cell phone.

"It's basically a job of preventive maintenance," says Skinner, "making sure from the get-go that there aren't mistakes from a technical standpoint. In my twenty-eight years, we've lost about a minute of broadcast, and that was because of a failed telephone switch."

You may live two miles from Camp Randall or the Kohl Center, but by the time you hear Lepay's voice, it has traveled across several states and into space before it has hit your local airwaves.

From Missouri, the signal is sent back to a Milwaukee affiliate and then aloft to a satellite, where the stations on the Wisconsin Radio Network pull it down for broadcast. You may live two miles from Camp Randall or the Kohl Center, but by the time you hear Lepay's voice, it has traveled across several states and into space before it has hit your local airwaves.

But high-tech, national support and professional announcers do not inoculate a live broadcast against the unexpected. Several years ago, the basketball team was playing Southwest Missouri State in the early rounds of the NCAA Tournament in Charlotte, North Carolina, when the broadcast team performed what Lepay refers to as the "open mike trick."

"At the end of the first half, the score was 21–12. Really. It was awful," he says. "Murphy's Law was in effect. They were missing open shot after open shot. Mike and I were wondering how to make this interesting. We were asking, 'Can they come back?' The team was having *some* success, but it was torturous to watch. And we felt badly for the coaches and the players.

"Before the second half, the team was very late coming out. Unbeknownst to us, our mikes were left open. We were in kind of a cynical mood, and Mike and I said something to the effect of, 'Maybe they don't want to come out. Maybe they just want to make an apology to the city of Charlotte. Duke [the opponent in the next round] must certainly be frightened of Wisconsin by this point.' We had no idea we were on the air, and we heard about it later from some folks. Fortunately, no one got too upset."

The pressure of juggling numerous variables during live broadcast after live broadcast might drive many people into early retirement. Announcers have to be "on" for up to five hours at a time. In addition to reporting the action accurately, which depends on hours of study and preparation, they have to get the correct number of plugs in for each advertiser, respond to sometimes frantic instructions from the engineer, listen to a constant influx of statistics, handle unrehearsed interviews, and give appropriate cues at appropriate times in a constant exchange with the producers and engineers.

Although he admits that his voice gets tired after five hours, Lepay feels lucky to be living out a lifetime dream. "I always thought that was maybe the greatest job in the world — to be a sports announcer," he says.

"I have too much of a passion for what I do to ever feel stress," adds Lucas. "I don't ever look at this as work, or I would have been out of this business a long time ago." Referring to the sense of exhilaration he still gets whenever he enters a sold-out venue, Lucas says , "I think it's one of the most exciting things I could do — to walk into this arena and just feel the emotion of a crowd. And I wouldn't trade that for anything in the world."

A former president of the Learfield-owned Tarheel Sports Network, Tim Noonan lives in North Carolina and writes corporate and family histories.

As UW scientist Jonathan Foley taught others how greenhouse gases are altering Earth's climate, he decided it was time to slash his own family's energy consumption. Find out how easily you could do the same.

Practicing What He Teaches

BY BRIAN LAVENDEL '85, MA'91 PHOTOS BY JEFF MILLER

Four years ago, climatologist Jonathan Foley '90, PhD'93 and his spouse, Andrea '90, MS'93, lived the American dream: a five-bedroom house on a large double lot, a young daughter, two dogs, two cars, and two jobs in the city.

Every weekday they commuted from the village of Mazomanie to UW-Madison, where she worked in the biochemistry department and he researched how humans alter the global climate. One way, he knew, was by burning fossil fuels such as coal and oil.

Admittedly, the Foleys weren't energy gluttons, but neither were they among the most frugal energy consumers. The three family members burned more than 1,500 therms of natural gas a year to heat their house and water (the Wisconsin average is about 1,000), drove about 35,000 miles per year (the U.S. average is roughly 11,300 miles per car), and used some 550 kilowatt-hours (kWh) of electricity a month (the U.S. average is about 1,000).

Doing their part: Climatologist Jonathan Foley, his spouse, Andrea, and their daughters, Hannah and Kate, live in surprising comfort, despite deciding to slash energy consumption.

Topsy-turvy: Since cold air sinks and hot air rises, the refrigerator saves energy by having the motor above and the freezer below.

Bright idea: Compact fluorescent light bulbs use 75 percent less energy than standard bulbs.

Fertile soil: Flowers, fruit trees, and vegetables flourish on the grounds, thanks, in part, to a garden compost bin the Foleys maintain.

Jonathan Foley calculated the family's direct emissions of carbon dioxide (CO_2) at 42,000 pounds per year — only slightly less than average for two adults in the United States. At the time, he recalls, "Our house was bigger than we needed, and my wife and I were each driving our cars sixty miles a day." Today, the soft-spoken thirty-three-year-old seems almost aghast at his family's once lavish consumption of energy.

Foley doesn't remember when the idea of changing his lifestyle first occurred to him; he calls it a gradual process. But at some point — perhaps during his thirty-mile commute into town, or while mowing his 14,000-square-foot suburban lawn — it dawned on him that his family's excessive use of fossil fuels was partly responsible for the very climate change he studied.

To Foley, it was already a scientifically proven fact that greenhouse gases — especially emissions from the burning of fossil fuels — were accumulating in the atmosphere and altering Earth's climate. His examination of his family's role in the process was a turning point.

"Am I willing to put my money where my mouth is?" Foley asked himself. If not, he figured, he had no business telling others to do their part.

Most of us would say that if there's one thing mere mortals can't control, it's the weather. But Foley says that's not necessarily true, at least not when we look at the big picture. He says our lifestyle choices can and do influence the weather.

Foley ought to know. As director of the university's Center for Sustainability and the Global Environment, he designs computer models that predict how the world's climate and ecosystems will respond to increased levels of CO_2 and other greenhouse gases in the atmosphere. He's a rising star of climatological research, having won the National Science Foundation Career Development Award in 1995 and the Presidential Early Career Award from NASA in 1997.

"Jon is widely admired and respected by the best scientists," says Jane Lubchenco, a zoologist and member of the National Academy of Sciences. "His models and analyses are innovative and credible. He is tackling some of the toughest issues of climate change."

Foley led the team that developed the first computer model to incorporate the effects of biological systems on climate. His research has contributed to an understanding of the interactions among humans, the earth's atmosphere, and the global ecosystem as a whole. He and his team study how land-use practices can alter ecosystems — which, in turn, alter the atmosphere. For example, a pasture generally does not recirculate as much water through the atmosphere as a forest, so replacing forest with pasture leads to a drier climate.

It's not surprising that Foley, who says *Star Trek* and Carl Sagan were powerful influences on him as a kid, became a student of Planet Earth. "I've always been interested in other planets and whether life could exist on them or not," he says. "So I set about looking at atmospheres on other planets, and it dawned on me that I was living on the most interesting planet."

Downsizing: The Foleys moved from a larger home thirty miles from Madison to this cozy brick colonial house near Lake Monona.

No-mow paradise: Opting for raised-bed gardens instead of turf grass on their property, the Foleys have given away their gas-powered lawn mower, replacing its noisy motor with the soothing sounds of birds and insects.

Successful savings: Three years after deciding to make changes both inside and outside, the Foleys have exceeded their original energy-cutting goals.

Smart glass: "Low-emittance" windows allow light to come in, yet keep heat from escaping. On cold winter evenings, the Foleys pull insulated blinds down over the windows, rather like covering them with quilts.

Fan club: All bedrooms in the Foley house sport ceiling fans, helping air to circulate and reducing the need for air-conditioning during the warm months.

It's been a breeze: Even on windy days, the Foley house stays comfortable, thanks to caulk and weather-stripping.

Up-front solution: Water use drops to a mere 11 gallons per load in the front-loading washing machine, compared to the 20 used by traditional models.

Studying the connection between human actions and climate helped Foley see the light. In late 1998, he and Andrea made what he calls a new-millennium resolution: to reduce their CO_2 emissions by 50 percent. Three years later, the Foleys agree to show me what they've done to achieve that goal.

The first step had been to part with their large house outside of Madison and move to a smaller house in the city, near the shore of Lake Monona. I expect that their new living quarters will be sparse, efficient, and chilly, in keeping with their resolution. When the front door of the white-shuttered brick colonial opens and I catch a glimpse of a plush living room beyond the foyer, I wonder if I've mistakenly knocked on the door of a neighborhood bed-and-breakfast. But no, this is the place.

Foley greets me at the door, his young daughter, Hannah, at his feet. Behind him, comfortable sofas and antique tables are carefully arranged across dark wood floors softened with plush Oriental rugs. Classical music plays at a low volume as sunshine streams through the many tall windows.

"It's not a house of denial," says Foley. And yet, he explains, this warm, cozy abode consumes a fraction of the fossil fuel used by neighboring homes.

Hannah spins and tangles herself in her father's legs as he gives me a tour of their home. Along the way, he points out the energy-saving features — most of which are not obvious to the casual eye.

We start in the kitchen, which is lit, like the rest of the house, with compact fluorescent light bulbs. Thanks to recent improvements in the technology, says Foley, some bulbs (those with a lower "color temperature" rating) now give off a more pleasant spectrum of light and can be used with dimmer switches. Compact fluorescents use 75 percent less energy than standard bulbs, so each compact fluorescent bulb cuts coal-burning CO_2 emissions by about 1,300 pounds over its ten-year lifetime.

Before us stands a new refrigerator. The freezer section, Foley points out, is below the refrigeration compartment. "Why put the motor on the bottom, where it heats everything up?" he asks rhetorically. Since cold air sinks and hot air rises, explains Foley, it makes sense to put the coldest section on the bottom and the motor on top. That way the motor can give off excess heat without warming the fridge itself. Although many refrigerators are energy hogs, side-by-side refrigerator-freezer combinations — with their large freezer sections — are the worst, sometimes consuming more than 1,200 kWh a year. This model, which uses only 537 kWh, has earned an Energy Star label for highly efficient appliances from the Department of Energy and the Environmental Protection Agency.

On the other side of the kitchen sits a German-engineered dishwasher that uses 4.8 to 7.2 gallons of hot water in a cycle, depending on the size of the load — compared with 15 for an ordinary dishwasher. This and other Energy Star dishwashers use more efficient technologies for the primary wash cycle and use less hot water to clean. In addition, like many new dishwashers, it has an air-dry cycle

Nothing too small: Even the energy saved by using a super-efficient electroluminescent night-light in their daughter's bedroom adds up over a year's time.

that recirculates residual hot air, adding to the energy savings.

In the basement, Foley shows me a super-efficient furnace equipped with a variable-speed fan. "So if only a little heating is needed, the motor doesn't have to run as much," he explains. The variable-speed motor uses only one-eighth the electricity of the more common single-speed motor.

Happily for the Foleys, their new home had already been outfitted with four solar panels to help heat its water. Despite Wisconsin's cold winter climate, the panels supply two-thirds to three-quarters of the family's needs. "I love going into the basement on a sunny day in January and seeing the water pre-heated to 110 degrees by the sun," says Foley. During the summer, the family is able to get by without using their natural-gas water heater at all.

In another corner of the basement sits a front-loading washing machine. One of the most efficient available, it uses eleven gallons of hot water per load, versus twenty gallons for a traditional top-loading machine. The Foleys use drying racks whenever possible, which conserve more energy than their efficient, gas-powered clothes dryer.

Foley explains that he and Andrea didn't buy all of these appliances at once. They set aside a portion of their wages each month, and when they have saved enough, they make whatever improvement is next on their list. The couple spent $800 on the washing machine and dryer, another $800 on the refrigerator, and $4,800 on the furnace and a new central air-conditioning unit — a model

What You Can Do

An average homeowner can take many steps to reduce energy consumption and greenhouse gas emissions, says UW climatologist Jonathan Foley. He suggests consumers learn about how they can modify their homes, driving habits, and lifestyles to cut back. Foley says he garnered tips from several Web sites, especially those from the U.S. Department of Energy and the Environmental Protection Agency. He recommends the Rocky Mountain Institute in Snowmass, Colorado, for books and other publications on energy efficiency.

Energy-efficient appliances are much easier to find these days, Foley says. Such items are increasingly available at major department and appliance stores. Compact fluorescent lights and other energy-saving products can be found at Real Goods, a company specializing in ecologically sustainable products. Even Home Depot now sells compact fluorescent bulbs.

For more information, check out these Web sites:

http://energy.gov
www.energystar.gov
www.rmi.org
www.cleanerandgreener.org
www.americanforests.org
www.realgoods.com

with a seasonal energy-efficiency rating of 14 out of 15, versus a rating of 5 for the old unit.

Back upstairs, Foley takes me into the master bedroom and gestures at the ceiling. It's the first time I notice that all the bedrooms have ceiling fans that reduce the need for air-conditioning. Even Hannah's night-light hasn't escaped an energy saver's scrutiny: it's a super-efficient, blue-glowing electroluminescent light, using a mere 0.04 watts — compared to 4 watts for a typical night-light. That may not sound like much, but those 4 watts of power would light one hundred of Hannah's blue beacons.

"Jon and I grew up during the energy crisis of the early seventies," says Andrea. "I've always tried to think about wastage and minimize it. I hope this has the same effect on Hannah someday."

In addition to cutting down on the amount of energy going into the house, the family also worked to make sure that what energy they did use wasn't going right back out. They patched cracks around doors and windows with rope caulk and weather-stripping. They insulated the attic. Fortunately, the previous owners had installed double-paned "low-e" (low-emittance) windows, which are filled with argon gas and coated with an invisible layer of metallic oxide or silver. This allows light energy in and prevents the escape of radiant heat, keeping the house both bright and warm. On cold winter evenings, Foley explains, they pull insulated blinds down over the windows, as if covering them with a quilt to keep cold out and warmth in.

The family's emissions-saving techniques extend even to the outside of their home. Expecting a broad lawn, I find instead raised-bed gardens filled with prairie plants and perennials, now dormant for the winter. There's none of your ordinary turf grass here — just flowers, a small salad garden, and fruit trees.

"We don't need a big yard," says Foley, noting that just down the street is a neighborhood park for an evening stroll or playtime with Hannah. The Foleys were able to give away their gas-powered lawn mower, trimming eighty pounds of CO_2 emissions a year. What's more, the landscape outside their home attracts birds and insects — not to mention the human eye.

Perhaps the crowning stroke is that the Foleys' electricity is virtually emission-free. When Madison Gas & Electric announced a new wind farm, from which residents could purchase energy at a premium of three cents per kWh (about $7 a month), Foley jumped at the chance. Since wind energy doesn't involve the burning of fossil fuels, he explains, even the little electricity his family uses — less than half that used by a typical Wisconsin family — is produced without adding carbon emissions to the atmosphere.

The biggest savings of all came from replacing their two cars with a hybrid electric vehicle. The car, says Foley, "reduces tailpipe emissions by about 90 percent compared with other cars on the road. In terms of CO_2 and gas consumption, it's also quite good: it gets about fifty miles per gallon on the highway and in the city. Because we do mostly city driving — when we drive at all — this cut our car-related CO_2 emissions roughly in half. Our previous car got about twenty-five miles per gallon in the city." They get by with one car thanks to their new location; both Jon and Andrea often take the bus or bicycle to work. Cutting down on their commute has had the added benefit of saving time, says Foley, noting that he and his wife formerly spent about an hour and a half a day in the car.

Today, three years after declaring their energy resolution, the Foleys can celebrate success. In fact, they exceeded their original goal, managing to chop their annual CO_2 emissions by two-thirds, to about 15,000 pounds. They cut their energy use in all categories: electricity from 550 to 295 kWh per month, natural gas from 1,500 to 900 therms per year, miles driven from 35,000 to 10,000 a year.

And it didn't involve any bloodletting, says Foley.

He knows that the emissions of one family are a mere drop in the ocean of atmospheric pollution. But he says, "I believe in the power of good examples." He hopes that by modeling energy efficiency while maintaining a comfortable lifestyle, his family's actions will ripple through the lives of students, neighbors, and colleagues. Indeed, it's the responsibility of a scientist to act on the results of his or her research, argues Foley. "We can't hide out in an ivory tower anymore," he says.

Their example is already paying off. Neighbor and county supervisor Andy Olsen MS'96 says that Foley inspired him to switch his home lighting to compact fluorescents. "Jon told me where I could purchase them, and I changed the bulbs in my house fixtures and gave bulbs as Christmas gifts to my family and a lot of friends," Olsen says.

Foley says that as a scientist, he asks a simple research question: How are we doing in terms of managing this planet? At present, he believes, "We're monkeying around with the global climate in ways we just don't understand." What the results of the experiment will be, even climatologists can't tell.

But Foley thinks we should err on the side of caution. "Are we willing to place a burden on future generations by wastefully consuming cheap energy now?" he asks. "We know that we have to move away from fossil fuels — they will run out eventually."

If we anticipate that economic shift, we'll save energy and money, he argues. Besides, he adds, taking steps to save energy will only benefit the economy, by increasing efficiency.

"This is the biggest business opportunity ever," says Foley. "And it's win-win. Energy conservation is a good thing to do, no matter what you think about the fact of global warming."

Brian Lavendel '85, MA'91, environmental journalist, Madison resident, and a neighbor of the Foleys, bicycles whenever possible, leaving his rather ancient, combustion-engine Toyota parked in the driveway. A version of this article first appeared in *Audubon Magazine*.

September 11, 2001

Reflection, Reaction, Response

9.11

On September 11, suddenly the world we knew would never be the same. There was only the before, and the after.

There are moments that carve life like a great river, and everything is defined as being on this side of it, or on the other. Pearl Harbor, President Kennedy's assassination, and the end of Communism all divided our lives like cultural fence lines. They are moments etched forever in our memories, as though our minds instantly recorded every detail of where we were and what we were doing. September 11, 2001, is now one of those moments. To help us remember and reflect, *On Wisconsin* asked a variety of alumni, students, and faculty to tell us what they were doing on that day.

MICHAEL FORSTER ROTHBART

My mom called, and woke me up: "Dave, turn on your TV! The World Trade Center was just bombed again."

For the next four, maybe five hours, I was glued to CNN. I had questions running through my head. *Who did this? Are there going to be more attacks?* I had braced myself for the newspeople to tell us that the White House had been hit, or maybe the president killed, or worse. The Pentagon had already had one side blown out, and I was just waiting for the next piece of bad news. The towers were emitting billows of black smoke, and it covered all of lower Manhattan. I remember sitting in my apartment, actually crying. New York officials and media personnel had begun speculating about how many people could have been in the building, and how many could've died. The numbers were astonishing. In my lifetime, I had seen nothing like this.

That night, I thought about my parents — how they had been at UW-Madison during the Vietnam War. It was a time of external struggle, but the resistance to the war caused great trouble within our borders. *Was this our new war, like the newspeople said? Will there be a draft? Can we catch who did this? Will it happen again?*

— David Karrow x'04, student

JEFF MILLER

Above: At a candlelight vigil on the night of attacks — you could see the collective shock and grief on hundreds of candlelit faces as they observed a lengthy moment of silence. — *J.M.*
Left: At a Library Mall gathering, a student wore a flag draped across his shoulders, as if it were a shield. I saw faces echoing the grief I felt, people holding each other tightly. — *M.F.R.*

On September 11, I was on my way to Boston and had to change planes in Pittsburgh. As I was walking into the terminal, I saw a crowd watching TV in a café, and there was a building on fire. Several people said that all the airports in the U.S. had been closed, so I called my parents and got the whole story. My first concern was getting to Boston. My sister was in the hospital, and there was no way I was going to be kept from seeing her. But when I got back to Madison eight days later, I and the other ROTC candidates had a lot of questions for the officers — we wanted to know who was being called up and how the campaign might play out. They didn't know specifically, of course, but they're experienced, and we wanted to get their opinions.

— Matt Silverman x'04, student

At the time of the attacks, I was in Santa Barbara, California, along with my wife and Sandy Wilcox, Marion Brown, and Rudy Fleitner from the UW Foundation. We had just wrapped up a series of events for West Coast alumni and donors, and were getting ready to come home. [WAA President and CEO] Paula Bonner had been with us, too, but had left that morning on an earlier flight.

I had just finished packing when the phone rang — I think it was Marion who called — with news of the first plane collision. We turned on the television and watched with disbelief as the second plane hit the World Trade Center. As reports of the Pentagon and the other hijacked plane filtered in, we watched, shocked, not knowing how to react.

Our group met in the hotel parking lot to decide what to do. We thought we might have a better chance of getting a flight home from Los Angeles — a mistaken notion, as it turned out. We still had no idea of the full scope of the tragedies or the extent of the disruption to transportation systems.

On the drive back to Los Angeles, I alternated between listening to radio reports and talking by cell phone to people on campus. There was much to decide. Was campus secure? What should we tell our students and the public? Should classes go on? All of these decisions were complicated by my frustration at not being there — not being able to talk in person with staff and students as the events unfolded.

On Wednesday, when we were still unsure about when airports would open, I decided to rent a car. I was lucky. I booked the last one from the hotel agency. By Thursday morning, LAX still hadn't reopened, and Rudy, my wife, and I started driving home.

We stopped to pick up Paula in Las Vegas, where her plane had been forced to land. We stopped in Wyoming for three hours of rest. Otherwise, we didn't stop, getting to Madison at midnight Saturday. The drive was long, and we all had so much on our minds, so many things that we wanted and needed to do. I may never have been more anxious to get back to my office and all that awaited me here.

— John Wiley, chancellor

I was planning to fly home from Santa Barbara by way of Denver, and the plane took off at about ten minutes to six in the morning. Ten to six in California, of course, is ten to nine in New York — we were taking off just as the first plane was hitting the World Trade Center. Forty-five minutes or so into the flight, the pilot came on the intercom and told us what had happened. It felt like ice water washing over the passengers — we were all shocked out of our individual pods and began talking to one another.

Even more chilling news came when the pilot added that all U.S. airspace had been closed, that all aircraft had to land immediately. We were set down in Las Vegas, and in the airport was a bar with a huge-screen TV.

About the photographs

These pictures capture a few of the many ways that people grieved, shared, and coped in the extraordinary aftermath of September 11. University photographers Jeff Miller and Michael Forster Rothbart worked at the numerous vigils and events on campus. Nina Barnett '69, a photojournalist and lifelong Manhattanite, took pictures of New York City in the days following the attacks. "This city is wounded to its soul," she says.

JEFF MILLER

On September 14, about 20,000 people gathered on Library Mall to participate in an event to remember and reflect on what happened. As I first leaned over the edge of the Memorial Library rooftop to make this picture, I was awed by the crowd. I can't think of another time in my years on campus when such a public outpouring has occurred. — *J.M.*

People gravitated there and stood stunned and horrified to see the tape of the planes crashing and the buildings collapsing.

I was grounded in Las Vegas for two days before John and Georgia [Wiley] and Rudy [Fleitner] picked me up as they drove home to Madison. Along the way, we passed through a stretch of Nevada, Arizona, and Utah, and there was this crystal blue sky blazing over red rocks and mesas. In the immediate wake of the attacks, seeing the beauty of the country gave me a profound feeling.

— Paula Bonner MS'78, president and CEO, Wisconsin Alumni Association

Like any other day, I took the Number 4 Express down to my office in Lower Manhattan.

Standing in the shadows of the two World Trade Center towers, I purchased breakfast at the farmers' market — not fresh produce, because I would be flying to San Francisco the next morning. I crossed the street to my building, One Liberty Plaza. What a beautiful, sunny day! I sat at my desk and began working.

Suddenly, there was a large explosion. The building shook, and the lights flickered. The sky was swimming with documents and debris. The emergency system told us to stay in the building, but away from the windows. But when we felt another explosion, the message changed, and we were ordered to evacuate via the stairwells — fifty flights down. When I arrived at the ground floor, I heard the sirens and saw the fire engines attempting to drive down Broadway. My legs kept moving me calmly north, away from the World Trade Center, despite the panic going on in my head. I was not looking where I was going. I had tears in my eyes, and I was shaking and tense. I heard screams and another loud explosion, and when I turned back, the entire avenue behind me was filled with smoke. All I could think was, "The sky is falling. The end of the world is at hand, and I'm in Chinatown!"

I was lucky. The next day, I would have been on the flight that crashed in Pennsylvania. If the eleventh had been spoiled by rain, if those events had taken place on the twelfth, I could have lived a different story.

— Jennifer Terio '94, New York City

My roommate, Nick Davis, came in and said, "You've got to come here and look at the TV."

I couldn't put into words what I was feeling. It was just so unreal.

About a half-hour later, I went to class. We tried to talk through it, but it was hard. Most students had the same reaction I did — just being shocked and not knowing what to say.

By about 1:30 p.m., I went to football practice. In the locker room, there are three TVs, and usually, they're tuned to

MICHAEL FORSTER ROTHBART

In the days after the attack, we all desperately wanted to find something we could do to help. Giving blood seemed like one option. At the Youngblood Center in Union South, the line of people waiting to donate blood stretched out the door. — *M.F.R.*

MTV or SportsCenter. That day, they were all on CNN. Everyone was just glued to the TVs. There was none of the normal locker-room talk. Guys were just listening quietly, not saying much.

It was hard to concentrate on football, but we really needed to focus. We had just lost to Fresno State, and the game coming up [later postponed] was going to be really important for us. Coach Alvarez addressed the issues, and he talked to us about what was going on. He said the only way to get through something like that was to talk with one another and support each other. And I think as a unit, we all realized this put things in perspective. Football is only a very, very small part of life. There are definitely bigger things to worry about.

— Joey Boese x'02, Badger football player

The leadership group of University Health Services was gathered in the UW Foundation Building for our regular monthly meeting. In the middle of a robust discussion about the challenges of student health insurance, a member of the group who had left the meeting for a moment returned with the horrific news about the attacks. Stunned, we immediately adjourned the meeting.

As I hurried back [to my office], I began thinking of all the students who would be directly and indirectly affected: the large number of students from the East Coast, the international students and minority students who might begin fearing backlash, students in the reserves who might be called to active duty. I thought also of all the other students who would be experiencing a heightened sense of vulnerability, anxiety, anger, or hopelessness.

Dennis Christoffersen, our clinical director for crisis, began organizing teams of counselors to go to the residence halls, family housing, church groups, and other groups that might request crisis debriefing. As we prepared to help others cope with the stress and uncertainty of the day's events, we spent some time supporting ourselves, recognizing that many of us cope with our anxiety by helping others.

— Bob McGrath, director of Counseling and Consultation Services

I had just arrived in the Longworth House Office Building across the street from the Capitol when my staff informed me that a plane had struck the World Trade Center. We all watched TV in horror as the second plane struck and news of an explosion at the Pentagon began to circulate. We decided to close our office and leave the building when word came that the Capitol and all adjacent buildings were to be evacuated. My staff and I walked to my apartment near the Hill, where we watched TV for the next several hours.

I was deeply moved on Tuesday night when I joined my fellow House members and Senators in returning to the steps of the U.S. Capitol. There we held hands and sang "God Bless America" to symbolize and demonstrate our love for this country, our sorrow for the victims and their families, and our unity.

I embraced and tried to support my many colleagues who represent Manhattan and surrounding areas as they shuttled each day to the Capitol and each night back to their districts to do whatever they could to assist.

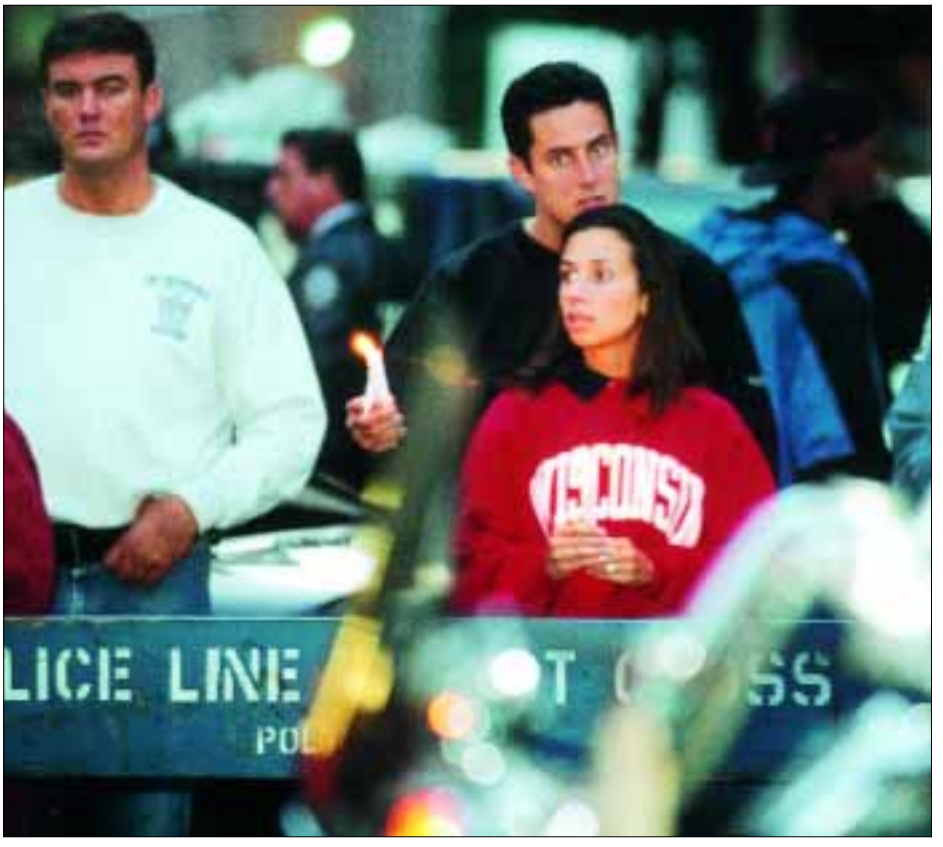
— Tammy Baldwin JD'89, U.S. representative for Wisconsin's Second District, including Madison

We had four cellular phones, one real phone line, one computer hooked up to a cable modem, and one big television with about three hundred channels. Four ex-New Yorkers paced nervously in an upstairs apartment on Madison's near east side. Family members were safe. We were hoping to hear from all the friends.

The phone lines in most of Manhattan and Brooklyn (and Florida, it turned out) were overwhelmed. So were most cellular services. Only e-mail got through. A series of "please forward to" and "tell everyone I'm okay" e-mails made its way to my computer screen. On September 11, the Internet seemed to be the only thing we could count on.

By the end of the day, we had heard from most of our friends in most of the

NINA BARNETT(2)



Above: Washington Square, September 15 — flowers and memorials cover a chain link fence. Right: On September 14, there was a candlelight vigil at the Armory, where families went to report the missing. I don't know who the woman in the Wisconsin sweatshirt is, but when I saw her, I immediately thought of my alma mater. — *N.B.*

city. So our immediate anxiety was allayed. All that was left was the substantial fear about the future of our city, our nation, our species. By late in the afternoon, these larger questions occupied us. Weeks later, we still have more questions than answers.

But as we looked outside the window that day at the lovely Wisconsin autumn, we felt just far enough from the horrors of New York City. Yet we felt more connected than we ever expected to be.

— Siva Vaidhyanathan, professor in the School of Library and Information Studies

As a student newspaper editor, the tragedy had special implications for me. While most people could turn off the television or radio and set down their newspapers, I helped make sure what they learned from these media was correct and current. I couldn't turn away, and I didn't want to turn away. This could be the biggest event of my journalism career, I thought.

The paper's office buzzed with activity. Its phone lines flashed red as contributors frantically tried to contact friends, family, and sources in New York and Washington, D.C. I discussed layout ideas for the front page and story lengths with other editors. Tuesday's terrorism quickly became an extracurricular activity for me, rather than a devastating act of hatred. In my mind, I understood how horrific the violence was, but it hadn't reached my heart.

I got home from the paper at about 2 a.m. Wednesday. I knew I was exhausted, but I couldn't sleep. I was afraid of something unidentifiable, intangible. I slept with a night-light on. I hadn't slept with a night-light on in ten years.

— Erin Buege x'03, copy chief for the *Daily Cardinal*

I was at La Guardia [in New York], waiting to board my plane home, when we got the incredible news in bits and pieces. Suddenly everyone was evacuated from the terminal, and thousands of us were left wandering outside with no phones, no transportation, and no place to go.

Eventually, I was rescued by a man picking up his mother, who offered a ride and shelter to as many people as could fit into his van. Hotels were booked to overflowing, so he took us home, where his wife welcomed us, literally, with open arms. Although the household consisted of ten people (mother; father; children ages two, four, and fourteen; the mother's brother, sister, and her baby visiting from Peru; the father's nephew; and the grandmother), all of us were invited to stay as long as we needed.

How lucky I was to be adopted by this wonderful family! One minute total strangers, and the next, a closely bonded support group. When they found out my expertise was television and children, they asked for advice on not traumatizing the kids.

In my overnight stay with the family, I really connected with all of them,

NINA BARNETT(2)

Above: "Missing" signs were everywhere — thousands covered walls, bus shelters, phone booths, every surface. Left: Looking south from Sixth and Lexington, the World Trade Center used to be directly ahead. It's still unbelievable — the New York City skyline is tattooed on my brain. The WTC is like a severed limb you still sense is there. — *N.B.*

including the delightful fourteen-year-old daughter (whom I tried to recruit for UW), the wonderful grandmother (with whom I had so much in common), and the charming nephew, who guided me through the subway to make sure I found my way to my relatives. I will never forget my new friends, their kindness, and the silver lining it demonstrates about the tragedy of September 11.

— Joanne Cantor, professor emerita of communication arts

At 4:48 p.m. Cairo time on September 11, preparing to attend a research-related evening meeting downtown, I got a call on my mobile phone from a fellow graduate student here that a plane had struck the World Trade Center. I stepped onto my ninth-floor balcony and for the second time in a decade, looked north along the Nile to Cairo's identically named shopping and business complex, the World Trade Center, and said "Where? I can't see anything." He further explained it was New York that had been hit, and that a few people we knew were gathering at another American friend's home to watch CNN.

I am in the middle of conducting field research for a PhD in sociocultural anthropology at New York University. As a white European-American with light features, I physically stand out as obviously foreign in the Cairo landscape. Since the WTC-Pentagon attacks, I have received sympathetic words from strangers on the street, in banks, restaurants, newspaper stands, and grocery stores. Those I know and love, Egyptian colleagues and friends from all over the country, called immediately to make sure my family and loved ones were safe in the United States. I wish I could hear the same about the treatment of Arabs and Muslims in the U.S.

— Elizabeth A. Smith '91, Cairo, Egypt

On September 11, I was in Chevy Chase, Maryland, reviewing vaccination research proposals for the National Institutes of Health. But I was hoping to return to Madison that night — my twin sons, Ben and Ty, would have their sixteenth birthdays on the twelfth.

Of course, by the end of the morning, transportation was paralyzed — around D.C. and across the country.

I spent the night of the eleventh with my sister in Baltimore, trying to figure out a way to get home to my sons. The next day, I called a cab to take me to the bus station so I could try my luck getting on a Madison-bound Greyhound. As we rode over, the cabby offered to drive me home for $400. I asked if he was serious, and he said yes, that he had family in Lansing, Michigan, and after the attacks, he just wanted to stop in and see them. So we took off.

Thirteen and a half hours later, we pulled up to my house. I happily paid him the $400, plus extra for gas and a big tip.

— James Gern, professor of pediatrics

My initial reaction to the attack was one of denial and confusion. I did not want to have to explain the day's events to my students. After all, I am in many ways of the same young, naive lot as these high-school juniors. What do I know about war? Suddenly the reality of growing up in a small, Wisconsin town made it feel as if I had been terribly sheltered. What made this attack so frightening was that neither I nor our country's leadership knew who our enemies are or when exactly they would strike. My fears were simply not enough to keep me from discussing this with my students. This had a teachable moment that could not be ignored.

— Kathryn Stower '01, student teacher, eleventh-grade history, Sun Prairie, Wisconsin

NINA BARNETT

A security officer comforts a stranger near the Armory. The world is finally seeing what New Yorkers have always known — we are wonderfully and unhesitatingly courageous, generous, kind people with attitude! — *N.B.*

I was sitting in a dentist's chair when I heard that the first plane had struck the World Trade Center, and I was just kind of stunned. When the second hit, I said, "Uh-oh, I have to go," and headed into the office to help field calls. At 9:30, I went to the Dane County emergency operations center, where public officials were putting together their emergency response — deciding whether school should stay in session, how to provide support to people who were grounded at the airport, and so on.

Once Dane County's plans were organized, I met with university staff to decide on the UW's emergency plan. It seemed that everyone in town was glued to the TV but us — I was so busy, I didn't see footage of the planes crashing or the buildings falling until Thursday night.

— Sue Riseling, UW police chief

Editor's note: Law Professor Walter Dickey '68, JD'71 lost his brother, Joseph '72, in the attacks on the World Trade Center. He immediately left Madison for New York on September 11 and spent the remaining week there. He wrote the following letter to colleagues and friends after returning to campus, and later gave us permission to share it. Students from the Law School made an $11,000 contribution in Joseph Dickey's honor to the Uniformed Firefighters Association Widows and Children's Fund to assist the families of the eleven firefighters from the Dickeys' old neighborhood firehouse who died in rescue efforts.

My brother, Joseph, was on the 105th floor of Building One of the World Trade Center on September 11 when a plane struck the building immediately below his office. My family gathered in New York during the past week in hope of a miracle and to gather strength during this difficult time. I have had many thoughts and feelings flood me during the past week, and I would like to share a few of them with you.

Joe was a hard-working, dedicated family man who devoted himself to his wife and children. He was generous and kind and touched warmly all who came to know him. He had friends wherever he went and will be remembered by all who knew him as an honest and decent man.

Joe graduated from the University of Wisconsin-Madison in 1972 and visited Madison a couple of times a year. He had nothing but the most fond memories of Madison and his time here.

On the day before he died, he participated in a golf outing organized by firefighters with whom we grew up in our old neighborhood in the Bronx. When he got home, he remarked to his wife, Irene, and son, Joseph, and daughter, Lizzie, at the camaraderie which existed among these firefighters. He also noted that the day was organized as inexpensively as possible, so that the maximum amount of money could be raised for the disabled child of the firefighter for whom the outing was organized.

A precipitating event that led my father to leave Belfast as a young man was also an act of terrorism, when his home was burned down. He and my mother were deeply grateful, as immigrants, for the opportunities and freedom they were afforded in this country. As I walked around New York during the past week and saw the people of so many colors and national origins, many of whom lost loved ones at the World Trade Center, I could not help but think that these people share the same feelings of gratitude, freedom, and patriotism as my father felt and which the Dickey family shares.

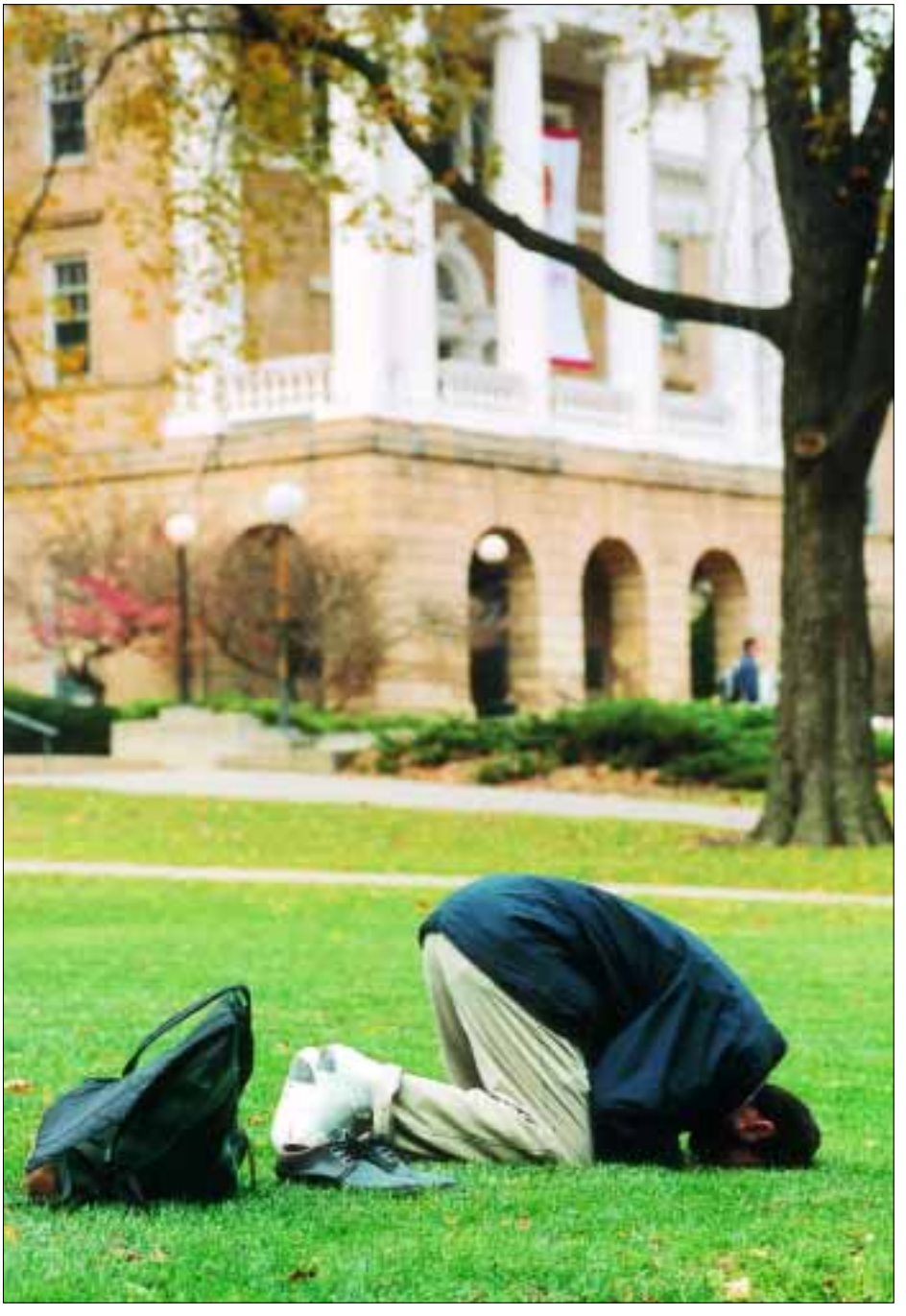
On behalf of the Dickey family, I want to thank everyone who has been thinking of us at this difficult time.

— Walter J. Dickey, professor of law

a muslim's Jihad

September 11 brought new worries — and an unexpected opportunity — for UW-Madison's followers of Islam.

JEFF MILLER



Student Ayman Kotob takes a moment to pray on Bascom Hill between classes. Few passersby may have noticed the religious expressions of Muslim students before, but the interest in Islam is now at a peak.

By Michael Penn MA'97

For one irrational, indescribable, insane moment on the afternoon of September 11, while people grappled with fears about terrorism and national security, Ayman Kotob had a more elemental problem. He was afraid to enter his apartment.

Like most everyone during those first harrowing hours after the terrorist attacks, Kotob had been banging discordantly through the full scale of emotions. A sophomore who was born in California but grew up in Kuwait, he felt the horror of watching footage of the attacks. There was the adrenalized panic that the attacks might not yet be over. There was the worry that the perpetrators might be Muslim, like him. There was anguish about the ocean that separated him from his parents. There was the tone of caution that tempted him to swallow his thoughts, lest he be labeled as pro-terrorist or anti-American. There was the unexpected relief of having a lecture hall full of students applaud him when he did finally try to articulate his feelings. Disgrace and gratefulness churned around like oil and water, creating that numbness and confusion that come when the data don't add up.

And there was fear. When Kotob returned to his apartment that afternoon, the door stood slightly ajar — leaving just enough space for his imagination to fill in all kinds of scenarios for why it wasn't closed. Someone's in the apartment, someone's waiting to do something to me, he thought. Although he hesitated only for a moment, the day's events had made him wary of backlash.

"I thought, 'Oh my God, this is going to hurt us so much. This is going to hurt Muslims,' " Kotob says. "I'm kind of angry at myself for thinking that, because this is not Islam that I thought that. This was me as a human being."

As campus percolated through those first few days, many Muslim students experienced similar worries. In the month following the tragedies, campus officials collected anecdotal evidence of fifteen instances of harassment against foreign and supposedly foreign-looking students. Despite more-numerous demonstrations of kindness and support, those reports were enough to put UW-Madison's Muslim community on guard. "A lot of us weren't going anywhere alone," says Hiba Bashir, a senior. "We always went in groups, for fear that something would happen to us if we were alone." Along with the doubt and worry brought on by terrorism, Muslims felt the doubt and worry of counterterrorism, that they and their religion had suddenly been cut from the herd of American experience and were now being scrutinized.

"September 11 for us was a kind of double jeopardy," notes Ahmed Ali, director of Madison's Islamic Center, "because not only are we suffering personally to cope with those horrible acts, but Islam is on trial because of them."

For anyone who knows Islam — and thus knows the futility of trying to color the attacks in shades of mainstream Islam — the notion of the world's second most-practiced religion on trial may be intensely frustrating. The 99 percent of the world's one billion Muslims who lead peaceful lives and abhor violence should be evidence enough that Islam is a defendant falsely accused. But just as the justice system gives the innocent a chance for defense, the events of September 11 have created a perverse opportunity — a stage for educating a suddenly receptive public about the tenets and customs of Islam and its followers, what they are, and what they aren't.

Before September 11, for example, many people probably never noticed the white stucco building behind Taco John's on North Orchard Street that houses Madison's Islamic Center and a mosque for campus-area Muslims. When the directors held an open house there last year, seven people attended. But following the attacks, non-Muslims began to turn up at the Friday noontime congregational prayer, when it is obligatory for all Muslims to pray at a mosque. Someone posted a large sign on the door, expressing the neighborhood's support and solidarity. The center's most recent open house, held a month after the attacks, drew more than six hundred visitors.

"People are being more open about Islam and are questioning a lot more about Islam than they used to," says Asif Sheikh x'03, president of UW-Madison's Muslim Students Association, which has about two hundred members. "Unfortunately, you can say that it's [a] good [thing about September 11]."

The university, too, has seized the opportunity, putting on a medley of events, panels, and discussions. The first of those, a teach-in on Islam held eight days after the attacks, featured ten faculty, as well as two scholars from the community, with expertise in Muslim traditions and cultures. It was attended by nearly seven hundred people, who quickly filled the seats of the Humanities Building lecture hall and spilled over into the aisles. The mood during the nearly three-hour talk reminded some on the panel of the days before the Vietnam War, when serious-minded people came together to talk about a part of the world many knew little about.

The crowd, which ranged from students to retirees, came with a spirit of inquisitiveness, asking probing questions about concepts like the *fatwa* and *jihad*, the vexing new vocabulary of our political dialogue (see sidebar, page 39). They heard straightforward answers from people such as Joe Elder, a professor of sociology who was born in Tehran and has lived in Afghanistan; David Morgan, who has researched the origins and history of the Taliban; and Charles Hirschkind, who has spent the past few years in Egypt listening to audiotapes of the Qur'an and other Islamic texts to understand how Islam is communicated in the Middle East.

It was a night for administrators to relish, because very few universities in the United States could match the breadth of experience on the panel. "This is certainly as large, if not a larger, nucleus of people than I think you could find anywhere in the United States," says Charles Cohen, UW's director of religious studies, who organized the event.

And, in another irony of September 11, the teach-in also represented a coming-out party, of sorts, because at least three of the panelists wouldn't have been there — and the panel might not have convened at all — if the university had not been in the midst of building up its resources in Islam and Middle Eastern history. Religious studies didn't exist as an official major until this fall. As recently as four years ago, the school's Middle Eastern studies program was so understaffed that Michael Chamberlain, in one of his first acts as director, recommended disbanding it. "We've gone pretty quickly from a position of relative weakness to one of relative strength," says Chamberlain. "And I think we all feel pretty fortunate for that now."

Charles Cohen is a Jew and a native New Yorker, which in the wake of the World Trade Center's collapse could make him an unlikely watchdog for the sanctity of Islam and Muslims. He is also an expert on colonial British North America and early American religious history, which has made him familiar with the Salem witch trials,

and the ugliness that often has ensued when communities act to protect themselves from those they consider enemies. With the smoke still heavy over Manhattan, Cohen picked up the phone and started calling colleagues, hoping to disseminate information about Islam he thought the community wanted and needed — and to try to keep local Muslims from becoming victims of a Salem-like hunt for blame.

"We should have done it, we had to do it. That's what we're here for," Cohen says of the teach-in. "It's the place of the religious studies program to teach people about religion, and in this case, Islam."

It is perhaps unusual that the university didn't have a formal religious studies major until this fall; it was, in fact, the most popular among the College of Letters and Science's custom-designed majors for more than a decade. There were several dozen faculty on campus who taught subjects related to religion, but nothing brought them together as colleagues until 1997, when Cohen sought to reinvigorate the program, which had languished for more than two decades. When the university began its interdisciplinary hiring efforts that same year, Cohen saw the chance to bring in a core group of professors who could improve coverage of the world's religious traditions, expand the expertise available to students, and integrate all those disparate areas of expertise into a coherent curriculum.

Most religious studies departments are built around comparative studies of major religions. But as Cohen looked around at other universities, Islam clearly stood out as the forgotten faith, taking a back seat to other traditions even at leading departments. He realized that new hires in Islamic studies would not only help balance the UW's own expertise, but could actually vault the university to a position of relative superiority on the subject. "It was very striking that of the major world religions, Islam was the least well-represented across the board," he says. "In at least one or two [large university programs], there was nothing on Islam at all."

Some blame the relative absence of Islamic studies in universities on Western biases and ignorance. Islam is a global religion practiced from Indiana to Indonesia, and easily the fastest growing religion in the United States by percentages, but it has been shackled in the past by a perception that it is archaic and anti-intellectual. That is a false premise, says Muhammad Memon, who teaches the UW's introductory Islam course, and one that is perpetuated by pop-culture imagery of only the extremist factions of Muslim life. "Where do you see Arabs?"

Now, Muslims are talking about how they can reach out across broad gaps of language and culture. "You can actually see the beginnings of Islamic civil society being built here in America."

he asks. "Only in caricatures." Even the characterization of the Muslim definitively as an Arab is misleading, since 80 percent of the world's Muslims live outside the Middle East.

Indeed, the formidable intellectual heritage of Islam is generally poorly acknowledged. For the last part of the first millennium and the start of the second, Muslims could legitimately claim to be the torch holders of innovation and progress. Islam produced the world's leading scientists, mathematicians, architects, and artists. Muslims invented algebra, our system of numerals, and the concept of zero, and they founded some of the earliest universities, which makes Islam's current low profile in higher education all the more perplexing.

For many reasons, not the least of which is a legacy of Western colonialism, the past few centuries have seen a slide in the intellectual prowess associated with Islam. Reality today for many Muslims, especially those in the Middle East, is one of poverty, drought, illiteracy, and political isolation — conditions that don't usually nurture a self-confident expression of civil society, and which also may help fanatics like Osama bin Laden gain power. As Umar Faruq Abd-Allah, an Islamic scholar from Chicago, noted aptly at the teach-in, "Monstrous conditions create monstrous people."

The absence of a strong tradition of scholarship in Islam, especially in the West, exacerbates problems by making it more difficult for mainstream Muslims to repudiate extremists and keep their faith from being hijacked by political agendas. The concept of *jihad*, for example, is rarely interpreted fully or accurately in public deliberations. The word, literally Arabic for "struggle," has layers of meaning, including how one might describe a woman in labor or the terms one would use for a personal quest. Radical groups such as Al-Qaeda or Egypt's Islamic Jihad would have Americans believe that all Muslims subscribe to a predestined holy war against the West — a notion that Western media often repeat compliantly. Those factions prey on the relative vacuum of reasoned dialogue, where mainstream Muslim views are rarely aired and refined.

Islam, full of such razor-fine distinctions, is made to be studied, deliberated, argued, and turned over. There are legitimate questions about where Islam ends and Islamic culture begins. The Qur'an and the life of Muhammad, the Muslim messenger of God, provide a complete template for Muslim life, dictating everything from how and when a Muslim prays to how he or she conducts business or dresses. Devout Muslims do not date, drink alcohol, or eat pork. Many men wear beards, because Muhammad did. These are examples of the ways in which Muslims seek to mimic the path to enlightenment followed by Muhammad. In this way, Islam is both a theology and a set of laws that can be expressed by an Islamic government.

But other practices common in some Islamic states, such as the subjugation of

JEFF MILLER

After September 11, a few Islamic scholars advised American Muslim women to abandon tradition and not cover their heads in public, fearing that they would be easy targets for backlash. Senior Hiba Bashir, at center, above, says she never considered changing her dress. "I don't want to have to relinquish my Muslim identity just so people can see that I'm American," she says.

women, are not Qur'anic in origin, but cultural. It takes expertise to know the difference.

"A lot of what people understand the religion to be is based on what happens in some Islamic countries," says Hiba Bashir, who was born in Milwaukee to Sudanese parents. "It's hard for people who aren't Muslim to make the distinction between cultural practices and the religion."

Bashir became one of the first students to declare a religious studies major in part because she wanted to understand those lines better herself. "When people would ask me questions about the role of women in Islam, I didn't really have good answers or concrete examples to give them," she says.

Similarly, Asif Sheikh says he has learned more about Islam in three years in the United States than he ever did growing up in Pakistan. "The fundamental principles of this country allow for that kind of experience," he says.

And that's where the UW's new hires come in. The first wave of hiring brought Morgan and Hirschkind, along with two scholars of Theravada Buddhism and East Asian religious philosophy. A second wave, under way now, will further bolster both Middle Eastern and religious studies by recruiting an expert on the Qur'an and a political scientist with experience in Islamic law and government.

Chamberlain calls the teach-in the "first payoff" on the university's investment. But he's more anxious to see the new experts go to work breaking down the stereotypes and misinformation that exist about Muslim culture. Chamberlain is eyeing a program to get curricula on Islamic history and traditions into state schools, where some of those prejudices incubate. "That," he says, "will be the second payoff."

On a Friday in early October, I stood in the basement of the Islamic Center and watched a group of young men prepare themselves for God. Huddled around a wash basin, their bare feet curled against the chill of the tile floor, they took turns cleansing themselves for prayer. Each washed his right hand first, wiping water up to his wrist three times, then did the same for the left. Next, each gargled water in his mouth three times, and then snuffed water in his nose three times. The pattern continued as they attended to their faces, arms, ears, and feet, passing water over each three times. Their hands, moving quickly into and out of the faucet stream, created a water ballet of rhythm and motion that was, to someone not accustomed to seeing it, mesmerizing.

To those who don't follow it, Islam may appear a demanding faith. Muslims pray five times daily. The ritual washing, known as *wudhu*, always follows the same order and pattern. Prayers are recited in Arabic, no matter the worshippers' native tongue. Muslims are bound to follow the *Sunnah*, a code of behavior dictated by the life of Muhammad. It is these unwavering methods that have led people to predict the demise of Islam for fourteen hundred years, dating to when Muhammad and his followers were persecuted by Meccan society and cast out into the Arabian desert.

Islam has survived not on its symbols, but on the principles that underlie the symbols. The *wudhu*, for example, isn't about getting clean, although cleanliness is important. "You could take a shower for that," says Abdus Samed-Zawtaw, one of the men in the mosque that day. (Muslim men and women pray in separate spaces.) "It's about putting your mind in the consciousness of God. The prophet Muhammad, peace be upon him, was always in the consciousness of God. We believe he was a perfected human being. But we are not perfected. We need these steps to bring ourselves into the proper frame of mind for prayer."

Like Catholics who say Hail Marys or Buddhists who meditate, Muslims adhere to these practices because they believe that in practice is perfection. And that quest for the ideal will bear significantly on UW-Madison, as Muslims renew their desire to reflect and explain their faith. "People are knocking on our

door, trying to wake us up," Ahmed Ali told the congregation at the mosque that day. "We have to react." The next decade may witness an unprecedented examination of Islam, not only by curious non-Muslims, but by Muslims who want to take a more active role in understanding and expressing their identity.

In the past, American Muslims may have found it difficult to communicate their common experiences, because on the surface they have so little in common. Followers of Islam in the United States make up an amazingly diverse community, representing at least sixty different nationalities and all manner of socioeconomic levels. Now, Muslims are talking about how they can reach out across broad gaps of language and culture. "You can actually see the beginnings of Islamic civil society being built here in America," says Sheikh.

With the benefit of a large international community and on-hand experts, UW-Madison is poised to emerge as a locus for Muslims who have a desire to gain an academic understanding of their religion, its culture, and its history — as well as a place where non-Muslims find honest interpretations of Islamic faith and politics. "One of the obvious ways to do that is for students to take classes on Islam and how it relates to society," says Cohen. "And we will have them."

One of those students will be Ayman Kotob, who says that September 11 and its aftermath have "awakened" him. He says, provocatively, his ideal is to be an Islamic fundamentalist. "Not in the way the American media describes it," he hastens to add, "but to return to the beautiful fundamentals of this religion. We have totally forgotten our roots."

Fundamentalism to him represents a focus on peace, charity, and enlightenment — the very things the perpetrators sought to extinguish. It's the fundamentalism that makes him ashamed of the knee-jerk pity he felt for himself and fellow Muslims on the day of the attacks. There was no one waiting to hurt him in his apartment. His roommate had simply forgotten to close the door. He says he should have worried about the victims and their families, not himself. On his path to Mecca, fear was only a detour.

Once in his apartment, Kotob turned on his computer to look at pictures of the smoking shell of the Trade Center towers. He put on headphones and began listening to verses of the Qur'an. Muslims believe that the Qur'an was recited to Muhammad by the angel Gabriel, and therefore to listen to it, as spoken poetry, is one of the most deeply religious experiences one can have. Kotob sat there, stunned by the lyrical intonations in his ears and the grisly scenes before his eyes. He heard God, and he saw evil. Tears began to roll down his cheeks.

"So many innocent lives lost," he says. "And there was no justification. It was supposedly in the name of a religion that is so beautiful, that is so just, that seeks prosperity for all. I thought if our Prophet, peace be upon him, were here, what would he do? His teachings have been so distorted. I just started crying, thinking this is not what Islam teaches, it's not what Islam wants."

Two weeks later, as we sat on the Terrace, Kotob looked out at the water and said, "You know, Islam is like a stream. At its source, it's so pristine, so clear, and so beautiful. But as it flows down, you have other rivers coming into it. People start polluting it. It becomes distorted. We as Muslims need to speak out and to be the leaders in the struggle against oppression and cruelty. It's our duty.

"This," he said, "is our *jihad*."

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TERMS OF ISLAM

The language of Islam is Arabic, the rich and complex tongue of Muhammad. Muslims around the world often greet people with the Arabic expression *Assalamu alaikum*, meaning "peace be with you." When one speaks of Muhammad or other prophets (from Adam to Jesus), it is customary to add, *Sallallahu 'alaihi wa sallam*, or "peace be upon him."

Arabic terms such as *jihad* and *fatwa* are complex and often misinterpreted. *Jihad*, sometimes translated as "holy war," is more commonly believed to be a struggle or an act of diligence. Although *jihad* can signify an act of self-defense, most Islamic scholars repudiate any connection between *jihad* and acts of aggression.

Fatwas are legal opinions, issued by someone considered an expert in Islamic laws, about what behaviors are consistent with Islam. Because there is no formal process for becoming an "expert," a *fatwa* may be put forth by reputable scholars or extremist militants, and often those *fatwas* are contradictory. They're often weightless.

Allah is simply the Arabic word for God. Muslims worship the same God as Christians and Jews, although they do not share the Christian belief that Jesus was the son of God.

ROLe PLAYing

How does a nation win a war against terrorism? One crucial step is to get into the minds of terrorists to figure out what might deter them from acting. Physicist Jay Davis PhD'69 has aided the federal government by "playing terrorist" with top U.S. officials.

by John Allen

Imagine for a moment that you head the military for a large nation. You have a wealthy citizenry with commercial interests stretching around the globe, and your powerful army is well equipped and highly trained. This combination of guns and money gives you a great deal of influence in diplomatic circles and involves you in other countries' internal politics.

Then, let's say I'm a revolutionary, a fiery orator who leads a small group of devoted followers in an effort to force violent political change. We neither trust any government nor are trusted in return. Many of our activities are illegal, so we operate in secret, moving from one nation to another, looking for the most favorable conditions in which to prosecute our revolution.

Your goal is to maintain a stable environment at home and abroad so that your trade can flourish and your citizens can pursue happiness.

I want to create enough instability so that governments such as yours are unable to prevent the change I desire.

During his tenure as director of the Defense Threat Reduction Agency, Davis's work helped to enforce arms control treaties in an effort to lower the risk of nuclear terrorism and war. Among the mementos he picked up during that time was this model of an SS24 rocket — a gift of the Ukrainian minister of defense.

You see me as an enemy of the peace; I see you as a corrupting, stifling influence and an enemy to my cause.

What is that cause? It doesn't much matter. What does matter is the means through which I pursue it. I've read Jefferson, so I know that the tree of liberty must be refreshed from time to time with the blood of patriots and tyrants. And I've read Robespierre, so I know that pity is treason. I don't value my own life very much; I value yours even less.

I am a terrorist.

So here's the challenge: how do you keep me from killing your citizens, destroying your property, and spreading fear?

I'll admit that I make the question particularly difficult by withholding any specific information about my terrorist movement. Since you don't know much about me, you can't really negotiate with me. But when, in the wake of the September 11 attacks, President Bush declared war, it wasn't against a *terrorist* specifically, but against *terrorism* in general. The enemy isn't an individual or a nation or even a political movement. It's a method of action — a concept. And how does one successfully fight a concept?

"That," says Jay Davis PhD'69, "is still an open question."

For Davis, this sort of role-playing has real-life consequences. He's a national security fellow at the Center for Global Security Studies, an arm of the Lawrence Livermore National Laboratory, one of the nation's leading nuclear science — and nuclear weapons — labs. The center examines ways in which technology and international policy intersect, and since long before September 11, Davis and his colleagues have been studying the now-urgent questions of how to deter terrorists and other threats to stability around the world. It's a problem that requires strategists who are well versed in politics and military tactics, but who need to think scientifically and philosophically as well.

Davis is no stranger to terrorism. He had his first run-in with political violence more than thirty years ago, while he was still living in Madison.

He had come to the UW to study nuclear physics, but when he received his degree, that field was stuck in something of a recession. "We'd all been trained to be professors," he says, "but 1969 saw the first real crash in scientific funding in the U.S. The economic stress of the Vietnam War was ending a lot of scientific programs at universities." Unable to find a faculty job, Davis became a postdoctoral fellow for the Atomic Energy Commission, working on the particle accelerator in UW-Madison's Sterling Hall.

"We were an accidental target. The bombers didn't aim for the physics department as such. They meant to hit the Army Mathematics Research Center, which was in Sterling Hall's upper floors. We were just collateral damage — which doesn't really make you feel much better."

But if the Vietnam War was stifling scientific careers, it was also fueling student unrest. Through 1969 and 1970, violent protests escalated at the UW, from demonstrations to riots, from brickbats to Molotov cocktails. Then, in the early morning hours of August 24, 1970, four Madisonians — Karl and Dwight Armstrong, David Fine, and Leo Burt — detonated a truck bomb in front of Sterling Hall.

"We were an accidental target," says Davis. "The bombers didn't aim for the physics department as such. They meant to hit the Army Mathematics Research Center, which was in Sterling Hall's upper floors. We were just collateral damage — which doesn't really make you feel much better."

The bomb did little harm to the Mathematics Research Center, but it crippled the physics and astronomy departments and badly damaged the particle accelerator. It also killed Robert Fassnacht, one of Davis's fellow physics postdocs.

In the weeks that followed, Davis and his colleagues worked long hours combing through the wreckage, attempting to recover as much material as they could. By the beginning of December, they had the accelerator back on line. The physics department would receive a commendation for its recovery efforts, but the bombing had left its mark on Davis. One of his friends was dead, several others would leave the UW without finishing their doctorates, and his major professor, Henry Barschall, would never take on another graduate student.

"I've had a serious emotional tie to counterterrorism ever since," says Davis.

That tie would grow slowly stronger over the following years. When Davis left Madison in 1971, it was to join the staff of Lawrence Livermore. There he developed his research and managerial skills and designed accelerator facilities. In an effort to re-create the collaborative, team-oriented atmosphere of the UW-Madison physics department, he helped to found the Center for Accelerator Mass Spectrometry, which serves the research programs at Livermore and at the nine campuses of the University of California. His work has contributed to studies in biomedicine, geochemistry, materials science, and arms control.

Davis grew in prominence through the 1980s and served as a science adviser

to the U.N. Secretariat, several U.S. agencies, and the governments of Australia and New Zealand, often on arms control issues. "Although I've never been a weapons designer," says Davis, "I'd certainly know one if I tripped over it in the dark."

When the fighting ended in the Gulf War in 1991, he was named to the second team that the U.N. Special Commission on Iraq sent to investigate that nation's plans to develop weapons of mass destruction (WMD). During a surprise inspection at Al Fallujah, outside Baghdad, his team nearly did trip over a nuclear weapons facility. There they turned up evidence that would ultimately force Iraq to admit that it had secretly violated the terms of the nuclear nonproliferation treaty.

As Davis and his colleagues were searching for WMD in Iraq, the U.S. Department of Defense was working to adapt to changing rules in the game of global security. During the Cold War, the country had followed a working strategy to deter conflict — one based on the doctrine of "mutually assured destruction," or MAD. The key to the strategy was maintaining a large nuclear arsenal, so that, were the U.S. attacked, it could respond with a nuclear strike so devastating that the attacking nation's victory would be rendered meaningless.

But such a MAD concept must necessarily come to an end. The doctrine worked only when there was a balance of power between two primary opponents. The collapse of the Soviet Union left the U.S. without a credible rival, putting America's nuclear force in a doubtful position as far as deterrence is concerned. Nuclear arms are too terrible to use against any enemy except one that poses a nuclear threat, and over the last decade, the nation's adversaries have increasingly been small states and terrorist groups. If they know that the U.S. won't use its nuclear arsenal, then those weapons lose their effectiveness as a deterrent. Now, says Davis, "considerable effort goes into expanding the idea of deterrence to something larger than the nuclear concepts."

In 1998, the Department of Defense called on Davis to help work on the problem of making an increasingly complicated world less dangerous. He became the founding director of a new combat support outfit, the Defense Threat Reduction Agency (DTRA), which has been described as America's "Anti-Doomsday Agency." DTRA offers scientific assistance and advice to the military and the government to help reduce the danger of attacks using weapons of mass destruction. During the nearly three years that Davis directed the agency, he led efforts to create technologies and strategies to counter terrorist devices and to support a civilian and military response should chemical, biological, or nuclear weapons ever be used against American targets.

As part of this work, "I got to play terrorist," he says. "One of the difficulties Americans have is getting their heads into the minds of the other guy." So he worked with high officials in the Departments of Defense and Justice to examine the question of what the U.S. might do to effectively convince terrorists from various cultures not to attack.

DTRA's work also aided the country's emergency plans for containing the damage of terrorist strikes. In TOPOFF, a May 2000 exercise, DTRA offered advice to top officials in federal, state, and local governments as they worked out what they would do if terrorists released a chemical, biological, or nuclear threat in an urban center. The exercise, according to congressional testimony, "graphically demonstrated the shortcomings of the federal government's organizational structure" when it came to dealing with WMD, and led to recommendations for improvement.

In July 2001, Davis returned to Livermore and the Center for Global Security Research so that he could pursue his scientific work. But he's still looking for the best answer to the question of how to deter terrorists. Currently, the center is finishing a yearlong study of what the country can do to deter future threats. "We had been doing that before the events of September 11," he says, "but the motivation sure got stronger." In the time since the attacks, several of his colleagues have been called in to the Pentagon to aid with planning, and Davis says he expects that he, too, will be asked to contribute ideas.

The question of how best to deter terrorists is not merely academic. According to Davis, leaving the question unanswered could become increasingly catastrophic: "Use of both nuclear and biological weapons is a logical endpoint for a terrorist who wishes to attack a civilization."

Davis, then, is the sort of person who can offer his experience as we try to find a realistic answer to our question: how do you, a large, powerful nation, keep me, a determined terrorist, from spreading destruction and upheaval?

Deterring me with the threat of military force is one option. After all, you've got a large army — why not make use of it, as a threat, if not in actuality? You could attempt to dissuade me from engaging in terrorism by saying you'll wage war against the country in which I'm taking refuge.

But, says Davis, conventional military response may not provide the most effective deterrent. The threat of military force may work against an established nation, he says, but its deterrent effect "particularly evaporates in the case of transnational terrorist groups, which have no territory or assets to defend, and which don't really care about the safety of the population that surrounds them."

In other words, if I'm not too attached to the people or things near me, a threat to destroy them isn't likely to factor into my decision-making process. Further, the introduction of military force into my region may serve to weaken local governments, endangering

stability, which was my goal all along. Can you be certain that your use of force won't aid me in the long run?

Another option is to beef up your intelligence — to discover my plans and disrupt them. In the weeks following September 11, some officials and media critics asked why the U.S. intelligence community hadn't been able to discover the plotters and preempt their attacks. Former President Bill Clinton, for instance, suggested that there might have been an "intelligence breakdown" and that "there will come a time when we will want to have an impartial inquiry into that whole question." Will you use your spies to catch me before I make any mischief?

Preemption seems to offer the best hope of good results — after all, if it's successful, none of your people get hurt. But preemption is also the most difficult option. There's the practical question of how, in a large world with many different countries, one could hope to keep an eye on — and stay a step ahead of — different terrorist groups. And then there are philosophical issues.

"Preemption poses an intellectual problem as well as operational problems," says Davis. Even if one successfully prevents a strike, it's difficult to know how to prosecute captured terrorists for crimes that they're kept from committing.

The September 11 attacks make a perfect case in point. "Say you'd grabbed these guys at the airport," says Davis. "If you'd hauled them before a judge and claimed that, with a collection of razor blades, they were going to hijack airplanes and bring down the World Trade Center, the district attorney would have tossed you out of court."

In the recent past, successfully preempted terrorists have proved to be a legal challenge. When the so-called Millennium Bomber, Ahmed Ressam, was captured traveling from British Columbia to Port Angeles, Washington, in December 1999, he had with him all the implements necessary to make a sizable bomb, which authorities discovered was intended to blow up Los Angeles International Airport.

But even though Ressam had been caught red-handed, his trial was no slam-dunk. The judge found that evidence gathered by Canada's Security Intelligence Service didn't meet U.S. standards for due process, damaging the prosecution's case. And though Ressam was ultimately convicted in April 2001, authorities have failed to decide on a proper punishment. His sentencing has been delayed until 2002.

So if preempting me is hazy, both logistically and legally, and if the threat of broad military force is too ham-fisted to be an effective deterrent, Davis suggests that you may have to get creative in thinking of ways to convince me not to attack.

"When I met with government leaders [to talk about addressing terrorist threats], I was sort of naive," he says. "Here I was, with my science background, thinking that there would be a technological solution. But we had to get into social studies" — that is, they had to examine the psychology and culture of terrorism.

By looking closely at the values behind terrorist movements, a government may be able to discover the kind of policies that might dissuade those movements from acting. "A government can issue, not necessarily a threat, but a political statement," Davis says. "For instance, our government has a policy against assassinations. This isn't the same as a policy against targeting individuals." The former would be a political murder; the latter is a military operation in which the objective isn't to destroy an armed force or installation, but rather to capture or kill a specific person. It's a fine distinction, but on such threads hangs international law. "A valid question to ask is, would announcing such a policy — either targeting terrorists themselves or the heads of state of the countries that shelter them — serve as a deterrent in the culture of one or more terrorist groups?"

This appears to form part of the strategy that President Bush has laid out in recent months — targeting Osama bin Laden and other "most wanted" terrorists. Davis points out that the Israeli Defense Force has followed a similar policy of targeting individuals, especially during the latest Intifada. However, Israel's experience has not led to unqualified success. Not only has it sparked international criticism — including condemnation from the U.S. government — but it doesn't seem to have done much to deter terrorism within Israel's borders.

Still, asking valid questions about which policies will and won't work is the first step in developing a long-term strategy, one that can address the larger concept of stopping terrorism as well as the more immediate concern of stopping specific terrorists. Throughout his career, Davis has been helping to raise those questions.

"The danger," he says, "is that we've become real good at asking the questions. We haven't come up with a lot of the answers."

Asking valid questions about which policies will and won't work is the first step in developing a long-term strategy, one that can address the larger concept of stopping terrorism as well as the more immediate concern of stopping specific terrorists.

John Allen is associate editor of *On Wisconsin*.