Raising heaven
Honors students build replica of Thoreau’s Walden cabin

SARAH MALLORY COMMUNICATIONS & MARKETING

Georgia Tech Honors Program students’ examination of Henry David Thoreau’s writings took a physical turn as School of Literature, Communication and Culture Associate Professor Hugh Crawford’s class reconstructed Thoreau’s famed cabin.

Using only the instructions recorded by the author in his work, “Walden,” the class and numerous other students raised the cabin’s walls and rafters this past Saturday on the lawn in front of the College of Architecture Building. What began as a seminar on the writings of Thoreau became a search for meaning beyond the analysis of words on a page.

“We are searching for a greater understanding of Thoreau’s experience at Walden and of knowledge embodied in practices and processes,” said Honors Program student and builder Victor Lesniewski. “There is a case to be made for gaining a perspective on the world—an additional context for meaning—through material practices. It means understanding that there is knowledge and intellect that cannot be represented through a graph, a lecture or a college classroom. It is a tacit knowledge that can only be achieved through an interaction with the materiality of a tree, a tool, the world.”

Students only used tools that would have been available to Thoreau to recreate the famed cabin. No nail guns, power saws, or pressure-treated two-by-fours—students used felling axes, broadaxes, crosscut saws, adzes, chisels, augers and bores, chalk lines, squares, froses and mallets. They also relied on Thoreau’s spare instructions to guide them through the building process.

“For all his prolixity regarding his house, Thoreau provides little detail about the actual construction,” Crawford said. “All we know is that he went to the woods in late March 1845, felled a number of white pines with his borrowed axe, squared them—probably with a borrowed broadaxe—and constructed a 10-foot by 15-foot by 8-foot timber-frame with 10-foot by 8-foot walls on a replica of Henry David Thoreau’s cabin he built at Walden Pond. The cabin sits in front of the College of Architecture building.”

Jacqueline Royster brings a great wealth of academic and administrative experience to the Ivan Allen College,” Schuster said. “As one known for fostering interdisciplinary collaborations, she will not only be a strong advocate for the College, but also work with faculty, students and staff to expand its role within Georgia Tech.”

During her 18-year tenure at Ohio State University, Royster held a series of executive positions. Most recently, she was senior vice provost and executive dean of the Colleges of the Arts and Sciences, serving as chief academic officer and providing leadership for its five arts programs.

Jacqueline Royster, continued on page 3

Michael Hagearty COMMUNICATIONS & MARKETING

On Feb. 20, students in Literature, Communication and Culture Associate Professor Hugh Crawford’s class raise the timber walls on a replica of Henry David Thoreau’s cabin he built at Walden Pond. The cabin sits in front of the College of Architecture building.

Photographs by the Thoreau Housing Collective

IAC head named
Royster to serve as dean for Ivan Allen College of Liberal Arts

Michele Hagearty COMMUNICATIONS & MARKETING

Following a national search, Georgia Tech Provost Gary B. Schuster has announced that Jacqueline Jones Royster, a professor of English with interests related to rhetorical studies, women’s studies and literary criticism, will be the College’s next dean.

In addition to holding the dean’s chair, Royster will be a professor in the School of Literature, Communication and Culture. She is expected to start by the fall semester.

“With a proven record of leadership and scholarship, Professor Jacqueline Jones Royster brings a great wealth of academic and administrative experience to the Ivan Allen College,” Schuster said.

“We extended the ‘main’ conference from one day to one and a half days, given the suggestions from the attendees last year, and increased the number of workshops immediately following the conference from two to three,” said center co-director and Industrial and Systems Engineering (ISyE) Associate Professor Pinar Keskinocak. ISyE Associate Professors Ozlem Ergun and Julie Swann also serve as center co-directors.

The conference will be held March 4 and 5, at the Georgia Tech Hotel and Conference Center. Registration is open on the conference Web site.

The 2010 Health and Humanitarian Logistics Conference is building on the success of last year’s inaugural effort.

Hosted by the Center for Health and Humanitarian Logistics, the conference features topics on planning, preparation for and responding to disasters and major, health-related societal problems, all focused on bringing governments, industry and other organizations to the table to articulate the challenges in humanitarian response and world health. The conference will offer panel presentations and discussions, workshops and poster sessions, with speakers and registrants from non-governmental organizations, industry, government, military, foundations and academia.

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EVENTS

Hamby and Robert Fleming, at 7 p.m. in the Clay Theatre at the Student Success Center.
www.poetry.gatech.edu

CONFERENCES AND LECTURES

March 3
The History Program and the College of Sciences welcomes ecologist and Evergreen State College faculty member Halin Naab, from 7:30 to 8:30 p.m. in the LeCraw Auditorium, in the College of Management.
www.honorsprogram.gatech.edu

March 4
School of Chemistry and Biochemistry Professor Loren Williams presents “RNA: Still Folding After All These Years,” from 3 to 4 p.m. in room G011 of the Molecular Science and Engineering Building.
www.honorsprogram.gatech.edu

March 4–5
The Center for Humanitarian Logistics presents the 2010 Conference on Health and Humanitarian Logistics, held at the GTRI Conference Center.
www.acl.gatech.edu/humlog2010

March 5
Montana State University Professor John Peters presents “The Transition Between a Nonliving and Living Iron-sulfur World: The Biochemistry of Pyridine Nitrogen and Hydrogen Metabolism,” at 3 p.m. in room G011 of the Molecular Science and Engineering Building.
www.chemistry.gatech.edu

Purdue University’s David Hummel presents “The Wage and Employment Effects of Outsourcing: Evidence from Danish Matched Worker–Firm Data,” from 3 to 4:45 p.m. in room 204 of the Old CE Building.
www.chemistry.gatech.edu

March 8
Chinude Franklin with the University of Georgia presents “Preparing Teachers for the New Generations of K-16 Students,” from 11 a.m. to noon, in room 129 of the Global Learning and Teaching Center.
www.chemistry.gatech.edu

March 9
Duke University Professor Katherine J. Franz presents “Manipulating Metal-Catalyzed Oxidative Stress with Triggerable Chelating Agents,” at 3 p.m. in room 320A of the Molecular Science and Engineering Building.
www.chemistry.gatech.edu

March 10
The IMPACT Speaker Series presents Students Who IMPACT, finalists in the ideas to SERVE initiative, at 4:30 p.m. in the LeCraw Auditorium in the College of Management.
www.chemistry.gatech.edu

Setting the stage
Finalists named in the second annual invention competition

Eight finalist inventions have been named in the run-up to the live broadcast of the InVenture Prize @ Georgia Tech.

Georgia Public Broadcasting presents the program, hosted by Miles O’Brien and Bahareh Azizi and televised from Georgia Tech’s Robert Fertz Center for the Arts on March 17 at 7 p.m.

The InVenture Prize is an innovation competition for undergraduate students at the Georgia Institute of Technology. Students work independently or in teams on inventions that will be presented and judged by a panel of experts.

The two winning inventions will be selected on March 17 and the inventor or group will receive a cash prize of $15,000 for first place or $10,000 for second place and a free U.S. patent filing by Georgia Tech’s Office of Technology Licensing (each valued at approximately $20,000).

In addition, a $5,000 “People’s Choice” award provided by the Georgia Tech Research Corporation, will be presented. The live audience and broadcast viewers will have the opportunity to help select the winner of this award by voting on the Internet or texting in their favorite finalist.

The InVenture Prize show co-host Miles O’Brien is an award-winning 26-year broadcast news veteran working for CNN and Headline News specializing in aviation, space, science, the environment and technology.

Bahareh Azizi earned a bachelor’s degree in biochemistry/biotechnology in 1999 from Michigan State University and then moved to Atlanta to pursue a doctoral degree from Georgia Tech in biochemistry. Since completing her doctorate in 2005, Azizi has worked at Georgia Tech and Oxford College of Emory University as an educator, researcher and administrator.

Judges for the 2010 competition are Tech alumnus and entrepreneur Greg Foster, College of Management instructor and entrepreneur Tara O’Connor Hodgson, Regents’ Professor and director of the Engineering Entrepreneurship Program David Ku, and WB Radio personality Scott Slade.

Last year’s InVenture Prize winners were Dialprice by Roger Pincombe in the individual category and Chlorocyte Bioenergy by Joseph Abrahamson, William Boyd, Sanjay Challa, Kento Masuyama and Andrew Punnoonse in the team category.

The eight finalists and 22 inventors are:

- EEG Brainwave Analysis Headset (A device to prevent drowsy driving) Ganesh Malayil Nair, Aerospace Engineering (AE); Neil Shah, Biomedical Engineering (BME); Robert Thomas Lindenmire, AE; Brandon Michael Fox, BME; and Rohan Trivedi, BME.
- FandomU (A computer program)

Research
Fighting for the future
Tech researchers focusing on defeating cancer at the nanoscale

DAVID TERRASO
COMMUNICATIONS & MARKETING

In an Institute without a medical school, Tech researchers are truly fighting cancer on the smallest possible scale. Both the Ovarian Cancer Institute and the Laser Dynamics Laboratory are attacking cancer cells with nanoparticles.

According to School of Chemistry and Biochemistry Regents’ Professor Mostafa El-Sayed, by directing gold nanoparticles into the nuclei of cancer cells, they can not only prevent them from multiplying, but can kill them where they lurk. The research appeared in the Feb. 10 edition of the “Journal of the American Chemical Society.”

“We’ve developed a system that can kill cancer cells by shining light on gold nanoparticles, but what if the cancer is in a place where we can’t shine light on it?” asked El-Sayed, director of the Laser Dynamics Laboratory at Georgia Tech.

“Fixing the problem,” we’ve decorated the gold with a chemical that brings it inside the nucleus of the cancer cell and stops it from dividing. Once the cell stops dividing, apoptosis sets in and kills the cell. ‘In cancer, the nucleus divides much faster than that of a normal cell, so if we can stop it from dividing, we can stop the cancer,” El-Sayed said.

In previous work they showed that just bringing the gold into the cytoplasm does nothing. In the current study, they found that implanting the gold into the nucleus effectively kills the cell. The gold works by interfering with the cell’s DNA, he added.

how that works exactly is the subject of a follow-up study. Next the team will test how the treatment works in vivo.

At the Ovarian Cancer Institute, researchers are using nanoscale hydrogels and magnetic particles to fight cells on multiple fronts. As reported in the online journal “BMC Cancer,” by using hydrogels—polymer chains often used as “scaffolds” in tissue engineering—scientists are able to introduce a particular type of small interfering RNA (siRNA) into the cell. Once in the cell, the siRNA activates the programmed cell death of the body to kill mutated cells and assist in traditional chemotherapy.

“With our technique we’re inhibiting EGFR (epidermal growth factor receptor) growth, with small interfering RNA,” said School of Biology Professor John McDonald, chief research scientist at the Ovarian Cancer Institute.

And by inhibiting its growth, we’re increasing the cell’s apoptotic function. If we hit the cell with chemotherapy at the same time, we should be able to kill the cancer cells more effectively.”

While good at shutting down EGFR production, once inside the cell siRNA has a limited life span. Keeping it protected inside the hydrogel nanoparticles allows them to get into the cancer cell safely and acts as a protective barrier around them. Currently, the tests have been shown to work in vitro, but the team will be initiating tests in vivo shortly.

In another method to treat cancer in humans, which appears online in the journal “Nanomedicine,” magnetic nanoparticles attach themselves to metastasizing cancer cells, enabling them to be removed from the body. The idea came to the research team from the work of Ken Scarberry, then a doctoral student at Tech. Scarberry originally conceived of the idea as a means of extracting viruses and virally infected cells. At his advisor’s suggestion Scarberry began looking at how the system could work with cancer cells.

He published his first paper on the subject in the “Journal of the American Chemical Society.”

CANCER, continued on page 4

INVENTURE, continued on page 4

Image courtesy Ken Scarberry
Nominations for faculty committees, opposition to a more lax conceal/carry law, and a presentation regarding the combining of two College of Engineering schools headlined the docket of the Feb. 16 faculty governance meeting.

President Bud Peterson called to order the combined meeting of the General Faculty, the General Faculty Assembly and the Academic Senate, addressing questions regarding additional furloughs for Georgia Tech faculty. “We believe we have managed the FY2010 budget going forward,” he said. “We do not anticipate any changes in the required furloughs for this fiscal year.”

Peterson also told those in attendance that an announcement was imminent for dean of the Ivan Allen College (Jacqueline Jones Peterson) was named Feb. 18), the three finalists recently selected for College of Computing dean would be coming for campus visits soon, and that the search committee for provost had been formed.

Administration and Finance restructuring

JulieAnne Williamson, assistant vice president for Administration and Finance, presented the recently announced restructuring of the Division of Administration and Finance. By reducing the number of direct reports and reorganizing departments into analogous groups, Williamson said the new structure will bring more efficiency to the entire division. “We’re not correcting any problems,” she said. “We’re creating a better organization.”

The structure includes the Institute Strategic Resource Management Office (ISRM), Campus Services, Facilities, Information Technology and an office containing all enterprise risk management and public safety groups.

A national search was initiated Jan. 8 to fill the currently open position of the senior vice president for Administration and Finance, who will oversee ISRM. Rosalind Meyers, formerly associate vice president for Auxiliary Services, was named vice president of Campus Services, and now will oversee Auxiliary Services, Business Services and the Office of Human Resources, units with defined customer relations functions. A search will begin in the spring for an associate vice president to oversee the enterprise risk management and public safety groups.

Peterson added that the impetus for change in the organization was based in part on feedback from the Tech community during the initial phase of strategic planning.

Committees

Nominees sought by March 3

Sam Nunn School of International Affairs Associate Professor Kirk Bowman, vice chair of the Faculty Executive Board, solicited nominations for elections to standing committees of the General Faculty and the Academic Senate. While pointing out that many committees have received nominees, several are still short.

Committees needing nominees in the General Faculty include Faculty Honors and Academic Services. Academic Faculty committees needing nominees include Student Regulations, Student Academic and Financial Affairs, Student Activities, Student Honor, and Student Computer Ownership. The Undergraduate Curriculum Committee needs College of Engineering and College of Sciences nominees, and the Graduate Curriculum Committee is in need of representatives from the College of Engineering. “Given the technical nature of some homework and exams, there has been the expression of need of both math and computer science faculty [in the student honor committee],” Bowman said.

Nominations are due March 3. Elections will take place March 31 through April 14, with final election results announced soon after by the Executive Board.

Discussion on House Bill 615

Peterson, assisted by School of Public Policy Academic Professional Bob Pikowsky and Georgia Tech Police Chief Teresa Crocker, as well as Student Government Association Undergraduate Student Body President Alina Staskevicius and Graduate Student Body President Linda Harley, led the discussion regarding faculty governance’s opinion on the conceal/carry bill currently before the Georgia House of Representatives.

House Bill 615 would effectively allow anyone of legal age who holds a concealed/carry license to carry that weapon anywhere on public property, except into the part of a building housing a courtroom, jail or prison. Because Georgia Tech is a state-funded school, so-licensed firearm owners—whether faculty, staff, students or visitors—would not be prohibited from concealing concealed weapons on campus.

According to Griffin, PTFE has turned its focus toward polymers and materials engineering in the last decade. “In the last seven years, the school is no longer as product-focused, but has moved into a broader spectrum of materials,” he said.

The merger also meets the needs of MSE, Griffin says, as MSE is more focused on metal and ceramics engineering. With the merger, MSE will have a strong polymer-research background.

With the merger, the new MSE school will be a national leader in materials research and education,” Griffin says. “It will provide leadership and service to [academics], the industry and state of Georgia, as well as the nation and society as a whole.” Griffin and MSE Chair Bob Snyder will serve as co-chairs.

For more information www.facultysenate.gatech.edu
six-by-six beams joined by mortise-and-tenon joints. Beginning in October, students began felling yellow pine trees from a farm near Monticello and squaring them by the ever-present crew of framers, and latter-day Thoreaus working on the cabin, together in what could be considered an early version of flat-pack.

“Thoreau didn’t detail how much labor it took to build a cabin like this,” Lesniewski said. “In trying to figure out how he built this, we are gaining an experience similar to Thoreau’s.” Also informing the experience, Lesniewski added, were conversations with Crawford working on the cabin, “We have conducted interviews with Thoreau scholars, timber framers, and latter-day Thoreaus to continue adding depth to our understanding,” he said.

The result of the class’s innovative approach to research yielded a new insight about the author. “Many people see Henry David Thoreau as an anti-social crank who chose to spend his time alone, counting ants or measuring the ice at Walden Pond,” Crawford said. “While there is some truth in that perspective, the students have also learned how much of his activities demanded community, particularly the work of his house.”

“Thoreau spent many a long day squaring up large timbers, squashing occasionally with the casual passerby. But he also needed the help of a good number of friends and townpeople to raise the frame, an activity that requires teamwork, patience and good spirits, and is usually accompanied by music, feasting, and all-around good times.” Crawford observed this sense of community firsthand.

Many of the students who were not enrolled in the class joined the self-dubbed Thoreau Housing Collective, their interest piqued by the ever-present crew of students who will hold a March 16 poster presentation of the project during the Undergraduate Research Student Symposium in the Student Center Ballroom, and a student video about the project is in production. The Thoreau Housing Collective also has documented its experience at its Web site, which includes movies, pictures, journals, interviews and research.

The cabin will be displayed on campus for an indefinite amount of time. While the ultimate fate of the structure is uncertain, the legacy of the project is already making an impact across the country. High school students in Cincinnati used a Skype connection to hear a lecture about the project and learn more about Thoreau. Plans for additional Thoreau lectures around the country may be on the horizon. In addition, Lesniewski plans to present a summary of the experience to the American Literature Association in the coming months.

For more information www.thoreauhouse.org

KEEPING IT PROFESSIONAL

Professional Education Web site redesigned for ease of use

Tech’s Distance Learning and Professional Education office has redesigned its professional education Web site, making it easier for visitors to search for and find information on job-focused short courses, certificate programs and customized training taught by Georgia Tech faculty and industry experts.

A significant feature of the redesigned site includes robust search capabilities allowing courses to be located by title, keywords, subject, instructor, location, date and format (onsite or online). According to Bill Holm, associate vice provost for Georgia Tech Distance Learning and Professional Education, the new site is designed to meet the needs of professionals and organizations interested in taking advantage of career-advancing educational opportunities.

“In today’s business environment, professionals are truly time-starved and simply don’t have the time to browse the variety of rich programming and courses we offer,” Holm said. “We concluded that the way to address their needs was to build a powerful search feature that enables them to quickly examine the opportunities and identify the best options that will help them advance their careers.”

Research played a significant role in the redesign and ensured that the most important customer needs were met. Synaxis, a national strategic marketing, branding and technology firm, was selected for the Web site redesign.

In conjunction with associate Georgia Tech’s Distance Learning and Professional Education, Synaxis conducted both qualitative and quantitative research among professionals from a wide range of industries. In addition to focus groups and online surveys, visual designs were tested, and many of the insights were incorporated into the final site.

“We are confident that we deliver outstanding programs taught by accomplished educators who bring tremendous practical industry experience to each course,” added Holm. “We are confident that we deliver outstanding value to professionals seeking to advance their careers and to organizations committed to enhancing their employees’ skills, and we did not want to present our curriculum without more insight into our customers’ needs. “The research we conducted provided invaluable input that we applied to the Web site, resulting in an extremely functional and user-friendly experience.”

For more information www.pe.gatech.edu

INVENTURE, continued from page 2

connections people in interest-based collectives): Christopher Stuckey, Computer Science;

Multifunction Automobile Powered Pump (A device for water access in the developing world): Steven Casavoyez, ME; Costantine Polizos, ME; Hugh Linton, ME; Daniel Henyu Lin, ME; Denise Elaine Hughes, ME; and Simon Clark, ME;

Drum Tuning Device: Sarah Vaden, AE;

The Express Press (A French press coffee maker that prevents spills): Joyce Zeng, Industrial Design;

The Flash Card Organizing System: Quinn Lai, ME;

The Koozie Cooler (Portable beverage cooler): Robert Gillian, ME; Nicole Danielle Miller, ME; Matthew Hickey, ME; Lindsay Brandino, ME; Matthew Edward Kinsel, ME; and Charles Henry Fub, ME;

Weighted Exercise Clothing (Exercise clothing without range of motion limitations): Patrick Whaley, ME

In addition to airing on Georgia Public Broadcasting, the 2010 Georgia Tech InVenture Prize competition will be streaming online at www.gpb.org/inventures.

CANCER, continued from page 2

Society” in July 2008. In that paper, he and McDonald showed that by giving the cancer cells of the mice a fluorescent green tag and staining the magnetic nanoparticles red, they were able to map the growth and move the green cancer cells to the abdominal region.

“Often, the lethality of cancers is not attributed to the original tumor but to the establishment of distant tumors by cancer cells that exfoliate from the primary tumor,” Scarberry said. “Circulating tumor cells can implant and grow to secondary tumors. Our technique is designed to filter the peritoneal fluid or blood and remove these free-floating cancer cells, which should increase longevity by preventing the continued metastatic spread of the cancer.”

In tests, they demonstrated the technique worked as well as capturing cancer cells from human patient samples as it did previously in mice. The next step is to test how well the technique can increase survivorship in live animal models. If that goes well, they will then test it with humans.

For more information www.biology.gatech.edu

www.chemistry.gatech.edu

www.idl.gatech.edu

www.ovariancancerinstitute.org