



FACULTY IN FOCUS

Flower Power

What is rooted to the ground but faster than a speeding bullet? The humble bunchberry, aka *Cornus Canadensis* or Canadian dogwood, a low-growing plant common to woodlands all over the northern hemisphere.

During June and July, its tiny white buds burst open and fire their pollen into the air in 0.3 milliseconds—three times faster than the time it takes for a bullet to leave a rifle barrel—earning the bunchberry a place in the *Guinness Book of World Records* as the world’s fastest-opening flower. And behind the discovery of the bunchberry’s explosive speed are Williams biologist Joan Edwards and physicist Dwight Whitaker, who reported their findings in the May 12 issue of *Nature*.

In July 2002, Edwards and research assistant Sarah Klionsky '03 were doing fieldwork on Michigan’s Isle Royale, an island carpeted with bunchberry, when they noticed little puffs emanating from some of the buds as they popped into flower. “It was over before you could blink,” Edwards recalls.

Intrigued, she took some of the flowers back to Williams, where she hoped to capture the flower-opening sequence using a high-speed camera. Edwards was working on the project in her lab one day when Whitaker walked by. She called him in and asked him to operate the camera while she triggered the flower’s pollen release. One look at the resulting video and Whitaker was hooked. “Something that



Dwight Whitaker



Joan Edwards

moves that fast and explodes is always appealing to a physicist,” he says.

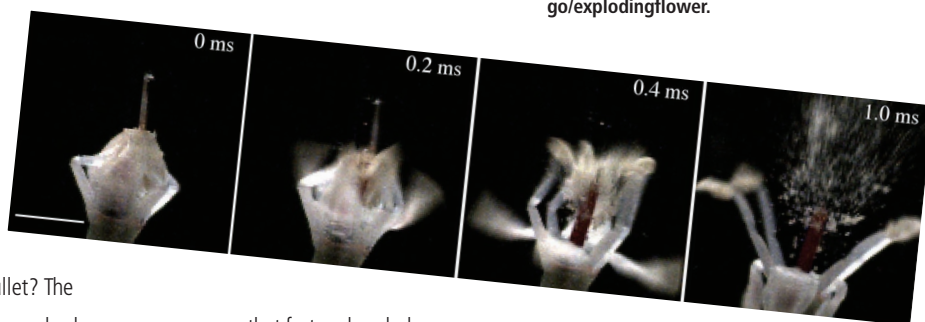
Taking a detour from his own research—cooling atoms to create a quantum form of matter—Whitaker set out to learn how the bunchberry achieves such speed. He and Leon Webster '04 created a computer model duplicating the physics of the flower’s firing mechanism.

With the assistance of a molecular and cell biologist, Edwards and Whitaker established that the bunchberry’s firing power is mechanical. Even when its cells were poisoned, the flower still exploded open when touched.

The scientists went on to discover that over the eons the bunchberry has developed a near-perfect design. Four petals, fused at the tip, restrain four flexible filament “catapults,” which, forced to bend as the plant grows, store elastic energy with which to launch pollen from anthers loosely attached to the filament tips.

When a bumblebee or long-horn beetle touches the flower’s trigger hair, the petals spring open, releasing the catapults, which, like medieval trebuchets, fling their payloads up and out with maximum force. The pollen accelerates at 2,400 times the acceleration of gravity, or 800 times the acceleration experienced by astronauts at takeoff. Thus propelled, pollen is embedded in the body hair of a bumblebee before the insect has a chance to react, or it’s hurled up into the air where the slightest breeze can carry it off—the only known instance of a plant achieving pollination by both insects and wind.

—Zelda Stern



To see a video of the bunchberry’s fire power, visit www.williams.edu/go/explodingflower.

Anime and Academe

As a professor of Japanese, Christopher Bolton addresses themes of confession and deception, love and death, masks and the end of the world in his literature classes. But his research interests extend beyond books, encompassing graphic novels, TV and film and the Japanese phenomena of anime and manga.

Flights of Fantasy

Japan has a long tradition of graphic

storytelling, beginning with elaborately painted scrolls depicting the lives of nobles or telling comic tales. Over time, the media by which these stories were told evolved to include manga (comic books) and anime (animation), which today are two of Japan’s major cultural exports. While some might be inclined to dismiss franchises such as Pokémon and even critically acclaimed films like *Spirited Away* as kids’ stuff, anime and manga

are attracting growing attention in academic circles. In the past decade, Bolton says, scholars at many North American colleges and universities have begun publishing articles and teaching courses applying the analytical tools of a variety of disciplines to the exploration and examination of Japanese animation.



Christopher Bolton

Reading the Visual Medium

The appeal of “Japanimation” involves what Bolton says is “the chance to investigate the fuzzy boundaries of

what we call literature and the ways technology is forcing us to rethink those boundaries.” In his January 2005 Winter Study course “Japanese Animation,” students ▶ p.10





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Blending Science and Fiction

Imagine the splitting of the atom. How would you write about it as a novelist? As a journalist? As a playwright? Those are the types of questions Andrea Barrett posed to Williams students in her “Imagining Scientists” class last year in an effort to show how malleable facts are and how powerful good writing can be.

The award-winning novelist and short story writer is about to start her second year as a lecturer in English, having come to the College at the suggestion of English professor Jim Shepard. Barrett previously taught exclusively at writing conferences (where she met Shepard) and at the MFA Program for Writers at Warren Wilson College.

But at Williams, Barrett says, she quickly learned that teaching in a residential academic setting “uses the same part of the brain and takes the same energy as writing.” She particularly enjoys finding her students the right book at the right time and the chance to witness their thrill of discovery.

As she did last year, Barrett is spending the fall in the classroom, teaching “Advanced Fiction Workshop” (for English majors interested in creative writing) and “Introductory Fiction.” She plans to devote the spring semester to her own writing.

With five novels and two short story collections behind her, Barrett says writing doesn’t get any easier. Each project begins differently—inspired by the sound of a voice, an image, a landscape, or a piece of architecture or music. She often relies on her education in biology and her interest in history and does extensive research. But she never knows where a story is going until she sits down and begins to write.

Growing up on Cape Cod, Barrett was an avid reader. She trained as a biologist and pursued graduate work in zoology before realizing that she couldn’t translate her interest in science into a career.



Andrea Barrett

So she decided to give writing a try.

Two of her best-known works are *Ship Fever & Other Stories*, which won the National Book Award for Fiction in 1996, and *The Voyage of the Narwahl*, published in 1998.

Science plays a central part in both books, so readers tend to think of her exclusively as a science writer. Barrett, however, defines herself by her character-driven approach, even though science is fertile ground for her writing and allows her to join her two interests.

—Jennifer Grow

Other fiction by Andrea Barrett:

Servants of the Map, 2002

The Forms of Water, 1993

The Middle Kingdom, 1991

Secret Harmonies, 1989

Lucid Stars, 1988

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considered “whether traditional ways of reading literature and film can effectively grapple with this material,” according to the syllabus. It’s an issue he hopes to explore further in

Mechademia, an academic journal of anime, manga and the “fan arts,” soon to be published by University of Minnesota Press, on whose editorial board Bolton sits. Similar in scope to *Gastronomica*, the award-winning journal of food and culture produced by Williams Russian professor Darra Goldstein, *Mechademia* seeks to bridge “the gap between academic and fan discourses,” Bolton says. In helping to

develop the journal, he and Goldstein discussed publishing and editing strategies as well as “what it takes to produce a visually beautiful journal.”

Moving Away

Growing up in Williamstown, Bolton nurtured twin interests in science fiction and Japan, which he visited as a high school exchange student. As a Harvard undergraduate, he studied Japanese language while majoring in electrical, computer and systems engineering. A career in software development eventually led him back to Japan, where he was a liaison

between American and Japanese programmers. Realizing that he’d rather improve his language skills than his programming ones, Bolton left the computer world for Stanford to pursue a doctorate in Japanese with a focus on modern fiction. “I found literary studies very similar to programming in some ways,” he says. “Both involve immersing yourself in the world of a text and talking to the text.”

Coming Home

Bolton taught for several years at the University of California, Riverside,

and then joined the Williams faculty the day after his father, economics professor Roger E. Bolton, retired in 2003. (The senior Bolton, who spent 35 years at Williams, still has an office in Kellogg.) Though he is glad to be home, Bolton says it was a bit of a culture shock. During a tour of faculty apartments in the former Southworth Elementary School, he realized he was standing in his old sixth-grade classroom. And he’s still getting used to the idea of dropping off his 2-year-old daughter for playgroup in the same place he attended preschool.

—Amy Lovett

