

## Christopher Watters



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In the early 1990s, cell biology education was still very much an afterthought at the ASCB Annual Meeting, says Chris Watters, a long-time ASCB Education Committee member and Professor of Biology at Middlebury College.

Very few abstracts were submitted for the science education category, Watters recalls, and many presentations at the Saturday afternoon “New Methods” Education Workshop were focused on results, not methods. Says Watters, “These were ‘wannabe symposium’ papers that apparently couldn’t get in anywhere else but the authors were determined to present at ASCB.” So Watters wrote Bob Bloodgood, then the Education Committee Chair. “I complained to him about ‘Truth in Advertising’ for the workshops, so Bob wrote back and said in effect: ‘Point taken. Now put up or shut up. If you want the education efforts of the Society to improve, join the Committee!’”

Once there, Watters began working with Mary Lee Ledbetter, who had been organizing “Coffee Break Talks” focused on teaching and educational issues. Watters took full responsibility for them in 1996 when Ledbetter retired from the Committee, and he guided their evolution into the increasingly-popular Education Initiative Forum. Watters was joined by Linda Silveira in 2001, as the number—and the selectivity—of science education abstracts steadily increased.

Says Malcolm Campbell, a fellow Education Committee member, “Chris really raised the profile for education at the ASCB meeting. On his watch, the programs became more professional and more competitive. Last year, Bill Wood organized a full concurrent symposium on cell biology education, and while Chris wasn’t the organizer, I think that was the fruition of Chris’ vision.” Campbell also gives Watters credit for having helped establish the ASCB

Bruce Alberts Education Award and for helping to launch *Cell Biology Education*.

Watters has a flair for the visual, says Campbell, who was Co-Editor-in-Chief of *CBE* when Watters suggested initiating a *CBE* column to review online videos for classroom use. “It was a niche that didn’t exist, but his column now averages 4,000 hits an issue,” says Campbell. “Chris knew that people would use videos for teaching if they knew where to find the good ones.”

Watters’ flair for the visual also led him last summer to Oxford, England, where he served as a Co-Vice Chair of the 2005 Gordon Research Conference on Visualization in Science and Education. His session on “Visualizing Biological Complexity” marked the first time that biologists played a significant role in this Gordon conference, which had previously been dominated by chemists and other physical scientists. Watters will Co-Chair the 2007 conference.

His professional interest in visualization animates Watters’ chief non-scientific activity, collecting 19th century American maps. “I enjoy maps because they remind me of the different ways that people approach learning,” says Watters. “In cell biology, there are certainly valid non-visual approaches, but I’m a visual person so I find myself thinking about cellular pathways, for example, in terms of maps. There is some exciting work being done now in three-dimensional mapping of signaling and regulatory pathways.”

Chris Watters reflects on his good fortune of having trained with “teacher-scholars,” university scientists who took research and education equally seriously. He comes from the southern Ohio mill town of Ironton, where his father practiced dentistry. With the vague intention of studying medicine, Watters went to Notre Dame and was soon drawn into the laboratory of Kenyon

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Tweedell, a developmental biologist who encouraged his interest in research. Tweedell was also a summer regular at the Marine Biological Laboratory and hired Watters as his Woods Hole research assistant following his junior and senior years, “for the princely summer stipend of \$160,” Watters recalls. “Still, they were perfect summers.” Watters did cytochemistry on annelid eggs, examined regeneration in hemichordates, audited the intensive laboratory course in marine embryology, and crewed in weekend sailboat races.

Entering Princeton as a graduate student in 1961, Watters joined the physiology lab of Bob Allen, who was in the midst of his pioneering light microscopy work on amoeboid locomotion. For his thesis, Watters studied cellular motility in *Heliozoans*, which are amoebic cousins that move by extending and retracting long, radiating axopods. The biology chairman at Princeton, John Tyler Bonner, was the prototypical “teacher-scholar” and made it clear to all grad students that he took the teaching requirement of their NIH training grant fellowships seriously indeed. Watters found that he enjoyed the give-and-take of teaching undergraduates, especially under the quiet tutelage of Victor Bruce, who directed

laboratory instruction in general biology.

Having nurtured the teacher-scholar ideal, Bonner called it to life two years later with a handwritten letter to Watters, who was by then finishing his post-doc in biophysicist Murray Rosenberg’s cellular adhesion lab at the University of Minnesota. “It was a classic Old Boy network kind of thing,” says Watters, “but I’m still grateful.” Bonner wrote to say that a friend and former Dean at Princeton, classicist James Armstrong, had just accepted the presidency of Middlebury College and had sought his advice about how to upgrade the Middlebury science curriculum. Bonner suggested new faculty, new facilities and a new commitment to undergraduate research. “Then he suggested that I would find Middlebury an exciting place to be,” says Watters. Save for periodic research leaves, Watters has been at Middlebury ever since.

Watters’ wife, Cynthia, is a professional librarian and Head of Cataloging for the

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*See Profile, page 20*

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Profile, continued from page 19

Middlebury College library. They have three sons: Alex, who just successfully defended his PhD in Molecular and Structural Biology at the University of Washington; David, who owns an interior painting firm in Boston, and Martin, who is an assistant lacrosse coach at Colorado College in Colorado Springs.

The Watters lab at Middlebury works on computer simulations of membrane functions, particularly ion pumps, calcium uptake and the signaling activities of membrane receptors. After 37 years in the classroom, Watters will finally cut back this fall to a halftime teaching commitment, freeing up more time for writing on scientific visualization and for computer simulations.

In or out of the classroom, Chris Watters is a Middlebury scientific legend, says Stan Fields, a former student who is now a yeast geneticist

and HHMI Investigator at the University of Washington. When Fields first signed up for Watters' cell biology course 30 years ago, his friends tried to talk him out of it. He recalls: "At Middlebury, Chris had the reputation of being a very demanding professor who ran experimentally-oriented courses that were all about reasoning and deduction. He was also known as a tough grader, which scared off some of my pre-med friends. But once you got past his slightly gruff demeanor, you discovered that Chris was very committed to mentoring students. He was passionate about research and the life of the scientist, but he also had a sense of humor. You got a sense from Chris that science was important but also fun to do."

Fields continues, "The other thing I remember about his classes was how demanding Chris was about writing. He would be very critical—in the positive sense—of how you wrote. He would take his pen and splash red ink right across the page. That had a huge impact on me. Now I teach a course on scientific writing for grad students and I find myself making suggestions that I got from Chris thirty years ago." ■

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Call for Entries

## Celldance Festival 2005

ASCB's First Annual Cell Biology Film Contest

First prize: \$500

Entry deadline: September 30, 2005

To open the eyes of the world to the best in visually stunning cell videos that highlight cell biology, the ASCB Public Information Committee (PIC) announces the "Celldance Festival 2005," the ASCB's first annual cell biology film contest.

First prize is \$500 cash and a free 2005 ASCB Annual Meeting registration for the winner. Additional runners up will receive smaller cash prizes. A Celldance Festival 2005 winners' reel will be posted for free, open-access downloading at [www.ascb.org](http://www.ascb.org) and promoted for free use in education, media outreach and other noncommercial use. Winning entries will be deposited in the new ASCB Image & Video Library. Entries can be submitted for publication in the ASCB journal, *Cell Biology Education*.

**What:** Entries can be descriptive or experimental, newly-created video or classic 16-mm films transferred to video, animations, cartoons, or dynamic sequences from electron microscopy.

**Who:** The contest is open to ASCB members and ASCB member applicants. Each prize will be given to a single winner.

**When:** Entry deadline is September 30, 2005. Winners will be notified in advance and prizes awarded this December at the ASCB 2005 Annual Meeting in San Francisco.

**How:** Entries must be submitted online as described on the Film Contest web page, and must be in QuickTime (.mov) or Microsoft Audio Video Interleaved (.avi) formats. Files can be no larger than 25 megabytes. To enter, or for technical advice, go to <http://www.ascb.org/movie/>.

## Exploring the Mysteries of Actin and Myosin:

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This symposium will bring together internationally recognized scientists who will share ideas and present state-of-the-art research on the mechanisms of actin assembly and the functions of myosins.

There is no fee to attend this symposium but registration is required. To register and obtain additional information, visit [www.nhlbi.nih.gov/meetings/korn.htm](http://www.nhlbi.nih.gov/meetings/korn.htm)

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