

The 2009 AAAS Annual Meeting: Some Sessions Related to Science Editing

Bernard Appiah, Marissa Doshi, Min-Fang Huang, Misha Kidambi, MIAO Jingang, and Barbara Gastel

From reflections on environmental reporting to discussion of style manuals past and future to screening of three-dimensional science films, the 2009 annual meeting of the American Association for the Advancement of Science (AAAS) contained much of science-editorial interest. We are pleased to share some highlights of the meeting, which was titled “Our Planet and Its Life: Origins and Futures”. Other information about the meeting, held 12–16 February in Chicago, can be accessed at www.aaas.org/meetings.

Symposium: “Hot and Hotter: Media Coverage of Climate-Change Impacts, Policies, and Politics”

Marissa Doshi

Newspapers are dying. The influence of the Web is increasing. Science and health reporters are the first to be laid off. What do these changes in the mass-media landscape mean for climate-change coverage? Following the political changes in Washington, coverage of climate change is moving away from science and toward the coverage of politics and policy. What challenges will journalists covering climate change face? How can the challenges be overcome?

The session “Hot and Hotter: Media Coverage of Climate-Change Impacts, Policies, and Politics”, organized and mod-

BERNARD APPIAH, MARISSA DOSHI, MIN-FANG HUANG, MISHA KIDAMBI, and MIAO JINGANG prepared these reports while graduate students in science and technology journalism at Texas A&M University. BARBARA GASTEL teaches at Texas A&M University and edits *Science Editor*.

erated by science writer Cristine Russell, discussed the abovementioned issues and tried to provide recommendations for science journalists who now find themselves having to “de-specialize” and cover politics and policy as well as science.

The panelists—Peter N Spotts, of the *Christian Science Monitor*, who had written about the environment for 16 years; Bud Ward, environmental journalist and journalism educator; and Pallab Ghosh, of the BBC and president of the World Federation of Science Journalists—reflected on mistakes of the past regarding climate-change coverage. They also described how scenarios proposed nearly 40 years ago that were dismissed by the mass media are now being played out.

The panelists noted that inconsistent coverage has been another hallmark of the climate-change beat: “It could be months without a call for any stories, [and] then like London buses they can all of a sudden come across together,” Ghosh said. “Usually it is motivated by freak weather conditions. . . . Then we’re expected to put climate-change stories out.”

Then there is the issue of “specialists” who deny that climate change is a reality. With climate change being increasingly covered by general-assignment reporters who may lack the background to evaluate the credentials of such specialists, mentoring by veterans of the environment beat assumes great importance, according to Spotts and Ward. “This field does not do well if it stays ghettoized as the science and environment beat. We need to act as mentors on these issues for our colleagues,” said Spotts, addressing a room filled with reporters who specialize in the environment.

The speakers also provided some guidelines to follow in choosing sources for stories on climate change: Is the source a scientist? Is the scientist actively publishing research related to the story? If the

scientist is a skeptic, is he or she proposing testable alternative hypotheses instead of just throwing brickbats? If the answers to the above questions are yes, the source’s opinion is probably relevant.

To counter the claims made by those who deny climate change, discussant Stephen H Schneider, a climatologist at Stanford University, said that it is important to understand that science is a process. In making risk assessments about climate change, the majority of the evidence and not the anecdotal exceptions should be emphasized, he said. “The denialists take the valid scientific disagreement and say, ‘we found an exception!’ as though it nullifies the mainstream consensus.”

Ghosh pointed out the importance of resisting the urge to paint a “hellish vision” in reporting on climate change. He exhorted science reporters to put out a message that galvanizes the public into action instead.

The speakers all agreed that climate-change stories are no longer about only the science. Economics and finance are now essential parts of these stories. The speakers predicted that as solutions to counter climate change are sought, the science will need to be tested, yielding stories that need to be told.

Career-Development Workshop: “Science with Style: Manuals That Can Help Your Scientific Writing Succeed”

Bernard Appiah

Style manuals in the sciences have changed considerably over the years. The session “Science with Style: Manuals That Can Help Your Scientific Writing Succeed” traced the history of prominent style manuals and discussed some current features and trends.

The Chicago Manual of Style: Anita Samen, managing editor, University of

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Chicago Press, introduced *The Chicago Manual of Style*. She noted that the manual began more than 100 years ago as a style sheet for compositors and proofreaders at the university's press. The first edition of the manual, in 1906, was a book of 200 pages with the name *Manual of Style*. Now called *The Chicago Manual of Style* and in its 15th edition, with 984 pages, the manual is available online at www.chicagomanualofstyle.org.

Samen said that whereas earlier the intended audience was mainly those in the arts and humanities, the *Chicago Manual* has been broadened to serve the scientific communities better. In addition, she noted that the online edition includes a section for addressing questions related mostly to the use of the manual. Samen advised editors and authors to become familiar with style manuals in their disciplines. "Learning a style manual is like learning a new language," she said. She observed that learning one style manual well makes it easier to become familiar with others.

AMA Manual of Style: Cheryl Iverson, chair of the committee that wrote the 10th edition of the *AMA Manual of Style*, published in 2007 by Oxford University Press, noted that the first edition, published in 1962, was written mainly by physician editors of the journals published by the American Medical Association. The current edition had a writing committee consisting of five physicians and five non-physician editors.

Iverson said that over time, the tone and content of the manual have become less didactic and more collegial to reflect the needs of authors and editors. She emphasized that the manual provides guidelines, not absolute rules. "A stylebook gives you options," she said. The manual has grown from 68 pages in 1962 to 1,032 pages in 2007, and its scope has been broadened to meet the needs of an international audience.

In spring 2009, Iverson reported, an online version of the *AMA Manual of Style* would be available at www.amamanualofstyle.com. Iverson said the online version would offer subscribers a variety of features, including self-tests, an SI-unit calculator,

periodic updates, open URL bibliographic references, and search and browse options. Iverson also said that a "personalized experience", including bookmarking and the ability to save searches and annotations, would be available in the phase 2 version, expected 4 to 6 months after the initial launch.

Other Style Manuals: Session moderator Barbara Gastel, who teaches science communication at Texas A&M University, noted some distinctive features of other style manuals. They included the following:

- *Scientific Style and Format: The CSE Manual for Authors, Editors, and Publishers*, 7th edition (2006)—presents style conventions for a variety of sciences.
- *ACS Style Guide: Effective Communication of Scientific Information*, 3rd edition (2006)—has information on the editorial process and electronic submissions.
- *Publication Manual of the American Psychological Association*, 5th edition (2001)—has guidelines to reduce bias in language; includes sample papers.
- *The Associated Press Stylebook*—is commonly used by newspapers; has an online version that is continually updated.

Gastel, who also is editor of *Science Editor*, advised authors and editors to have more than one style manual.

Symposium: "Celebrating the Year of Science 2009: Efforts to Improve Public Engagement in Science"

Misha Kidambi

2009 is the "Year of Science", noted the panelists at the symposium "Efforts to Improve Public Engagement in Science". The panelists called for a shift from public understanding of science to public engagement in science, and they tried to answer the question of what can be done to engage the public in science.

Jay Labov, of the National Academy of Sciences, moderated the session. The panelists were Judy Scotchmoor, project coordinator, the Museum of Paleontology at

the University of California; Sheri Potter, senior associate at the American Institute of Biological Sciences; Tiffany Lohwater, public-engagement manager for AAAS; Ben Wiehe, television station WGBH; and Marie Studer, education and outreach officer for the Encyclopedia of Life.

Scotchmoor started her talk by quoting US President Barack Obama: "We will restore science to its rightful place." She said that belief in pseudoscience is relatively widespread among Americans. One reason, she said, was the lack of realism in teaching schoolchildren the scientific method.

Talking about how children can be introduced to the "real" process of science, Scotchmoor showed the audience the Web site Understanding Science (undsci.berkeley.edu). This site, she said, teaches that the scientific process is not linear and that "science is messy". Another important concept that she said children should know is what science can do and what it cannot do.

Potter spoke next. She is the project manager for the Coalition on the Public Understanding of Science (COPUS), which describes itself as a grassroots effort to engage the public in science and increase the public's understanding of the value of science. Potter used numbers to illustrate why efforts like COPUS are essential. "About 67% of Americans do not understand what science is," she said. The goal of COPUS is to develop a "shared appreciation of science" and make science accessible, she stated.

Potter explained how Flat Stanley, a character in a children's book published in 1964, has been effectively used to pique children's interest in science. She emphasized that the aim of COPUS is not to "reinvent the wheel" but to "try to create a platform that can show people that science can be interesting."

Lohwater works with scientists rather than the public. As the public-engagement manager at AAAS, she has the task of equipping scientists to communicate science to general audiences. She said that most research is publicly funded, so it is a researcher's duty to communicate with

the public. She has conducted workshops for researchers in which she has stressed the importance of presenting science as a dialogue, incorporating varied perspectives, listening to the public, and addressing not only the benefits of science but also the limitations. The workshops have been huge successes, Lohwater said. The scientists and engineers participating said that the workshops were extremely useful in forwarding their careers in science.

Wiehe discussed his work as a science-café organizer. Science cafés “are live events featuring unscripted conversations between a scientist and the public.” The aim of science cafés, he said, is to reach out to audiences who are not science enthusiasts. He spoke about how an unconventional setting, such as a sports bar, can be a great venue for a science café.

The last speaker, Studer, who coordinates the COPUS Boston regional hub, explained how regional hubs operate. She said that it is important to create such hubs because people find them more approachable than national-level organizations. She encouraged members of the audience to get in touch with her or Potter and start hubs in their own regions.

Near the end of the symposium, audience members were asked to form small groups and come up with their own ideas of how to engage members of the public in science. Ideas such as targeting retired people were noted and the panelists said that they seemed innovative and could be useful.

Symposium: “Science Cafés: Taking Science to Public Places”

Bernard Appiah

The session titled “Science Cafés: Taking Science to Public Places”, moderated by Patrick Vittet-Philippe, of the European Commission, discussed how science cafés have promoted two-way communication about science among such groups as high-school students.

Livio Riboli-Sasco, of Association Paris-Montagne, Paris, France, presented the results of a French program that started 4

years ago. The program originally was one in which high-school students from disadvantaged areas visited research laboratories. The program later became a science festival, and it now is a science café, in which members of the public can interact with researchers. Riboli-Sasco noted that the science café has made participants more motivated to study and discuss science. Jan Riise, president of the European Science Events Association, noted how science cafés not only increase scientists’ relevance but create an atmosphere of mutual learning and build relationships with new audiences. Discussant Suzanne Auburn, of Northwestern University in Illinois, indicated that, for their mutual benefit, scientists should endeavor to reach the public through such means as science cafés.

Career-Development Workshop: “Publish or Be Damned: Peer Review, the Public, and You”

MIAO Jingang

When you walk on the street, ask people you meet what peer review is. Chances are they won’t be able to give a satisfactory answer, and many may have never heard the term. You’ll probably agree that peer review is important and that it’s good for scientists, and even the public, to know more about it. The process, functions, and public perception of peer review were discussed at the session “Publish or Be Damned: Peer Review, the Public, and You”, intended largely for early-career researchers.

Peter Lee, editor of *Immunity*, explained that peer review is a process in which one’s work is examined by peers with appropriate expertise. Peer review helps to ensure that conclusions are based on sound science and have adequate supporting evidence. Lee said that peer review offers confidence that a work is of high quality on the basis of available information and that work may become part of the foundation for answering complex questions.

Lee divided peer review into three types: single blind, double blind, and open. His

main points included the following: Single-blind peer review, in which the reviewers know who the author is but the author does not know who the reviewers are, helps prevent excessively gentle reviews and minimizes mutual “back scratching” between author and reviewer; however, it offers a reviewer opportunities to give harsh or irresponsible comments if he or she doesn’t like the author. Double-blind peer review, in which the author doesn’t know who the reviewers are and the reviewers do not know who the author is, reduces biases relating to the author’s status, sex, nationality, and so on; however, author identity may be easy to guess despite the attempt at blinding, and sometimes better questions can be asked when the author’s background is known. Open peer review, in which the author knows who the reviewers are and the reviewers know who the author is, prevents reviewers from taking advantage of anonymity and acknowledges the reviewers’ contribution; however, reviewers sometimes are less likely to support publication for fear that their names may be associated with work that turns out to be flawed. Lee suggested that one should try to network and publish many papers to get the attention of editors if one wants to become a reviewer.

Paul Basken, of the *Chronicle of Higher Education*, shared his experience in reporting science and health stories. He said that reporters depend too much on peer review; even if a paper had been peer reviewed, he would do some examination, such as background research or consulting an outside expert. If a researcher used a lot of jargon and terminology, such as *confidence level* or *confidence interval*, he would ask the researcher to present the information in language that would make sense to a general audience.

Tracey Brown, managing director of Sense About Science, a nonprofit organization promoting evidence and good science for the public, pointed out that few members of the public know about peer review and that few can differentiate among a poster, an abstract, and a peer-reviewed paper. She introduced a leaflet titled “I

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DON'T KNOW WHAT TO BELIEVE . . . Making sense of science stories", published by Sense About Science to improve public understanding of peer review.

Career-Development Workshop: "The One-Minute Talk"

MIAO Jingang

When meeting senior scientists at conferences, many young researchers just look at their shoes and waste the opportunity to introduce themselves. Yet in this and other professional situations, introducing oneself effectively in a minute or less can be beneficial. Victoria McGovern, senior program officer at the Burroughs Wellcome Fund, shared some tips on how to make good use of this "one-minute talk".

Early in the session, McGovern asked attendees to introduce themselves to people around them. Then she gave and demonstrated some tips. In briefly introducing oneself, she suggested covering the following points: who you are, what you do, why you're here, and why people should care about your work. She reminded people to relax, be calm, breathe, smile, look the other person in the eye, and think through what they want to say. Near the end of the session, she asked people to introduce themselves again, using her tips. People were wowed by the difference her magic little tips could make.

Sponsored Workshop: "Book Publisher Pitch-Slam: Who Wants to Be an Author?"

Min-Fang Huang

This workshop gave authors a rare opportunity to present their book proposals in front of editors and get instant feedback. It also served as an orientation for future authors. The panel of editors consisted of Todd Baldwin, senior editor at Island Press; Christie Henry, executive editor at the University of Chicago Press; Ann G Merchant, director of Outreach and Marketing at the National Academies Press; and Amanda Moon, editor at the Perseus Books Group. Several brave authors

pitched their proposals and received precious feedback. The other attendees took the following valuable messages home:

- *Research the targeted publisher before pitching the book proposal.* Bookstores and book catalogs from targeted publishers are two places to learn the interests of publishers. Look through books on topics similar to yours.
- *Identify the strengths of your book proposal.* In addition to the subject and quality of the proposal, marketing potential is an important consideration. Come up with one or two sentences to describe your book. These key sentences can help the marketing department to sell the book by, for example, attracting book reviewers.
- *Be patient.* Publishing a book is a long-term process. Once a book proposal is accepted, it usually takes 6 months to 1 year to produce a book. Be patient and plan accordingly.
- *An agent is not necessary, quality is.* Some authors might worry that without an agent, they have less chance to sell their proposal to editors. The panel thought the opposite. Although most proposals they received were from agents, these editors said they prefer to work with authors directly. It is true that a good agent can refine a proposal. But the key factor in whether a proposal is accepted is the overall quality of the proposal. In general, only 10% of proposals lead to published books.
- *Short is better.* The panel suggested that beginning writers write medium-length books. They all agreed that 75,000 words is an ideal length for packaging and design of a book.

Sponsored Workshop: "You Ought to Be in Pictures: Science as Entertainment in Movies and Television"

Marissa Doshi

Hollywood has long been accused of distorting and ignoring science. But many TV shows being aired today are trying

to depict science realistically. To help do so, they are hiring scientists as consultants, said the speakers at the National Science Foundation-sponsored workshop "You Ought to Be in Pictures: Science as Entertainment in Movies and Television". The speakers were David Kirby, author of a forthcoming book on the experiences of science consultants in Hollywood; Tony Chan, University of California, Los Angeles, mathematics professor and physical sciences dean and consultant to the television show *NUMB3RS*; and David Saltzberg, consultant to the television show *The Big Bang Theory*.

The speakers explained that science consultants are usually involved in ensuring that sets seem authentic, that characters are portrayed realistically, and that the overall science is plausible. After all, who but a scientist would know that Kimwipes are an indispensable prop for a movie laboratory set? The speakers also explained that directors and producers have a sense of what sells, so not all suggestions from a consultant are followed. Anything included in a television show or movie must be dramatic. So even though it is inaccurate to show complex experiments as taking just a few minutes, such scenes remain because researchers twiddling their thumbs do not contribute to dramatic effect.

Science consulting is one way for a scientist to supplement his or her income, Chan observed. It is also an opportunity for scientists to share their expertise and engage the public in science, said the speakers while describing their experiences as science consultants. For example, the whiteboards used as props in *The Big Bang Theory* have authentic mathematical formulas scribbled on them, and Saltzberg, the show's science consultant, has received mail from fans with questions about these scribbles. As a science consultant, be prepared to answer questions outside your specialty, warned the speakers, but they emphasized that you should always have fun.

If you were distracted by the "incorrect" night sky in *Titanic* or abhor Hollywood's "mad scientist" stereotype, science consulting might interest you.

Features

Sponsored Workshop: “Ultra-High Resolution Stereo Visualization Theater”

Misha Kidambi

Think of 3D visuals. What’s the first thing that comes to mind? Animated Hollywood capers—say, *Coraline* or *Bolt*? How about 3D movies to “support scientific narratives for outreach purposes” in fields ranging from astronomy to archeology? Not an obvious thought, right? Well, supporting such narratives was precisely the purpose of a show that a team of visualization artists from the University of Illinois at Urbana-Champaign presented at the AAAS meeting.

The Ultra-High Resolution Stereo Visualization Theater—a 3D visualization show—took the viewer through a 20-minute journey into the far reaches of the universe, the world of atmospheric sciences, the Chicago transport system, and the scenic ancient ruins in Cyprus. Viewers donned 3D glasses and enjoyed the fascinating visuals while a team member explained how and why each movie was created.

Alex Betts, Jeff Carpenter, Donna Cox, Matthew Hall, Stuart Levy, and Robert Patterson—the team members who worked on the short 3D movies—said they hoped that the visualizations will “communicate, inspire, and reach out to large, nonexpert audiences”.

The visualization team works with scientists to develop the 3D narratives.

Thus, all their movies are “data driven”, that is, supported by scientific data. The Public Broadcasting System’s *NOVA*, the Discovery Channel, and NBC *Nightly News* are a few of the platforms on which their work has been presented.

Special Event: *Annals of Improbable Research*

Min-Fang Huang

The Ig Nobel Prize, given to research that makes people first laugh and then think, stole the show at a special session of the AAAS meeting. The session included an opportunity to see winners of the Ig Nobel Prize in person.

Interspersed throughout the session was a miniopera describing the precious love between an oxygen atom, Atom, and a female scientist, Eve. The unlikely lovers finally stayed together forever with help from Bose and Einstein. The development of Bose–Einstein condensation made Atom become big, stable, and palpable!

Project Steve, from the National Center for Science Education, announced its 1000th member, Steve Darwin (not related to Charles), at the session. Steve Darwin is a professor of ecology and evolutionary biology at Tulane University in New Orleans and directs Tulane’s herbarium. Project Steve aims to collect signatures of scientists who support teaching evolution in schools. Named for Stephen Jay Gould, it welcomes scientists named Steve (or Stephen, Steven, Stephanie, Stefan,

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Etienne, Esteban . . .) to sign up and support evolution openly.

People who attended the session were excited to see a video showing how to make barbeque in seconds. This “superfast ignition method” for barbeque was created by George Goble, senior systems engineer at Purdue University. However, do not try this method without firefighters as your backup. Not everyone can use liquid oxygen to ignite safely.

The show featured two past recipients of Ig Nobel Prizes. (The 2009 prizes will be announced in October.) Recipient Theodore Gray received an Ig Nobel Prize in 2002 for creating a wooden periodic table in which samples of elements (other than radioactive ones) were placed in their positions. At the session, he discussed crazy experiments he has done in his role as a columnist for *Popular Science*.

The climax of the show was a sword-swallowing demonstration by Dan Meyer, the 2007 Ig Nobel Prize winner in medicine. Meyer is chief executive director of the Sword Swallowers Association International. Attendees held their breath as they watched Meyer put a sword down his esophagus into his stomach without any help. Hardly anyone could resist exclaiming. Imagine if at that moment the sword was against his heart! Then Meyer asked a woman to remove the sword from his body. No blood spilled on the floor. This was a perfect end to an amazing night! 🍷