SCIENCE EDITOR

A Publication of the Council of Science Editors

COUNCIL OF SCIENCE EDITORS

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The 2013 Annual Meeting Revisited

Scholarly publishing has received an increasing share of media attention in the last few years. We've seen articles and press releases in both traditional news sources and science journals about contentious issues such as open access, peer review, and conflict of interest, to mention just a few. In meetings, listservs, and blogs, the publishing community has conversations about new means of disseminating and reusing content, changing models of peer review, and improving the quality of peer review as well as editorial-office workflow. Publishers wrangle with the issues of content quality, reporting standards, monetizing content, making content easily discoverable, and housing research data. Disruptive shifts in the realm of scholarly publishing include the proliferation of open-access journals, which although welcomed by many has also been accompanied by an undesirable rise in the publication (by unscrupulous or careless publishers) of articles that have not been subjected to adequate peer review.

We talk about these and other trendy topics at CSE's annual meetings. The 2013 CSE annual meeting, to which the current issue of *Science Editor* is devoted, focused on communicating new discoveries effectively—reaching appropriate audiences and providing accurate information.

Intriguing sessions provoked conversations during networking breaks and later in our places of work, where we all strive to improve the quality and practice of scholarly publishing. Thanks to the efforts of Dana Compton, our reporter coordinator, and to the many volunteer reporters, we received summary reports of nearly all the sessions presented at CSE 2013. Those summaries not appearing in this issue will be published in a future issue.

We begin with an introduction by the co-chairs of the 2013 Program Committee, Mike Friedman and Tony Alves. The reports cover the fascinating keynote address by Jeffrey Drazen, editor-in-chief of *The New England Journal of Medicine*, on the evolution of communication in medicine over the last 200 years and also the plenary presentation on issues and opportunities in the current communication climate by *New York Times* blogger Andrew Revkin. Reports in this issue include summaries of sessions on editorial decision making, new standards in identifying funding sources, conflict-of-interest reporting, improving peer-review quality, managing production workflow changes, new journal metrics, the journal–society relationship, preventing publication of products of research

Patricia K Baskin
Editor-in-Chief, *Science Editor*

misconduct, and advances in publishing technology. And . . . we managed to sneak in a few other great items: You can read the story of the establishment and current activity of the Fishbein Fellowship for medical editors at *JAMA*, an article on writing effective queries to authors, and an Ethical Editor column with comments about "predatory publishers".

I hope that *Science Editor* readers who attended the Montreal meeting enjoy these flashbacks and that those who were not present resolve to attend next year's CSE meeting in San Antonio 2–5 May 2014. Don't miss it!

2013 Annual Meeting: A Smashing Success

Tony Alves and Michael Friedman

"Communicate Science *Effectively*: The World Depends On It!" was the theme of the 2013 Council of Science Editors annual meeting. It was a well-demonstrated theme, thanks to all the compelling presentations and fantastic presenters! From the spectacular short courses to the fascinating plenary addresses to the thoughtful and instructive sessions, this year's annual meeting was a smashing success.

The four 2013 CSE short courses brought together experienced veterans of the STM market and professionals new to the journal-publishing world and allowed participants to dig in for an entire day (or two) on a particular activity. The Short Course for Journal Editors included formal presentations on the fundamentals of editing, the editorial board, journal management, publishing ethics, and effective business practices. The Short Course on Publication Management addressed the wide array of challenges faced daily by managing editors and publication managers, including communication, leadership, working with publishing partners, organizing workflows, and current industry controversies. Both new and seasoned copyeditors benefited from the Short Course for Manuscript Editors, in which mechanical and substantive editing were reviewed. In addition, participants learned best practices and many helpful tips regarding Word, data and tables, working with authors, and ethical and legal issues facing manuscript editors. Finally, the Short Course on Journal Metrics explored the kinds of data available to journal managers; different ways to collect, analyze, and present data; how to detect trends and analyze changes; and the use of online data and surveys. Vital features in all the short courses were the group discussions. These dynamic and engaging exchanges provided opportunities for detailed consideration of

decision making, process improvement, and collaboration with like-minded colleagues. Kudos to all the short-course coordinators and their esteemed faculties!

The *Keynote Speaker*, Jeffrey Drazen, editor-in-chief of *The New England Journal of Medicine*, provided a fitting official start to the meeting by reviewing the last 200 years of scientific communication with a focus on clinical medical discovery. His entertaining and informative talk, "Two Hundred Years of Communicating the Medical News", started with a look at the informal letter writing that took place between scientists and concluded with an examination of the modern practice of peer review.

The New York Times Dot Earth blogger Andrew Revkin, senior fellow for environmental understanding in Pace University's Academy for Applied Environmental Studies, turned a critical eye on how science is communicated from the laboratory to the journal to the press and finally to the public in his plenary address on the second day. In his presentation, "The New Science Communication Climate", Revkin pointed out problems with some of the traditional modes of scientific communication and explored the opportunities that exist in new media.

As wonderful as our plenary guest speakers were, the real heroes of the 2013 CSE

annual meeting are the session speakers and the Program Committee members who helped to organize those sessions. The program had broad appeal across the CSE membership. There were forward-looking sessions on new ways of measuring journal impact, emerging standards in science publishing, and advances in publishing technology. There were sessions on communicating science through new media, such as podcasts, social media, and blogs. There were sessions on open access in the United States and abroad and on how to handle change management for communicating science effectively in a rapidly changing industry. Many sessions provided practical advice on such topics as ethics, data access and analysis, peer review, working with vendors, and managing editors and editorial staff. The quality and breadth of the sessions certainly reflected the hard work and commitment of the moderators and speakers, and this, as well as the practical information that attendees can apply going forward, is what made this year's CSE annual meeting so special.

Thanks are overdue to our friends at the Resource Center, including Thomas Farquhar and Executive Director David Stumph, for their excellent organizational and logistical skills in pulling together our

Tony Alves

Michael Friedman

TONY ALVES AND MICHAEL FRIEDMAN *were 2013 Program Committee Cochairs*.

The Legacy of the Fishbein Fellowship

Denise M Goodman

Four editors-in-chief and 31 fellows later, the Morris Fishbein Fellowship in Medical Editing at *JAMA*, the *Journal of the American Medical Association*, continues to offer a rigorous introduction to the world of medical editing, manuscript evaluation, writing, and the many outlets for dissemination of medical information in a rapidly changing health-care environment. In the 35 years since the first Fishbein Fellow was recruited for the academic year 1977–1978, medical knowledge and information technology have changed remarkably. The experiences of the former fellows surveyed in preparation for writing this article reflect that change and underscore the value of a program aimed at teaching the highest standards of medical-science evaluation and writing to physicians who have an MD or DO degree. Such training is ever more essential in light of the explosive growth of scientific output, and the skills learned are transferable to clinical practice and administrative responsibilities as well as to dissemination of new knowledge.

The inception of the program is due in large part to the efforts of M Therese Southgate, MD. When she joined *JAMA* in 1962, besides inheriting the desk of Morris Fishbein, she noted how little most physicians knew about the "nuts and bolts" of editing and dreamed of a fellowship that would remedy this. Before entering medical school, she had worked for several years as a technical editor in civil engineering and as a member of the production staff of a weekly chemical newsmagazine and thus was acutely aware of the need for physicians to understand the entire editorial process. Dr Fishbein died in 1976 and left a sum of money sufficient to support a stipend for a 1-year fellowship, and thus the program began. In naming the program after

DENISE M GOODMAN *was the 2012–2013 Fishbein Fellow at* JAMA, *Chicago, Illinois.*

Fishbein, *JAMA* leadership acknowledged not only his gift but his long service to *JAMA*: he served from 1924 to 1949, including a period as editor-in-chief. A published reminiscence[1] describes Fishbein's often pugnacious efforts against the purveyors of patent medicine in the first half of the 20th century. His was a high-profile position, and Dr Southgate recalls meeting George ("Papa Bear") Halas at Fishbein's memorial service at the Rockefeller Chapel at University of Chicago (she had to ask a colleague who he was), the Buxtahude organ interludes that Fishbein loved so well, and the admiration of Frank Lloyd Wright's work at Robie House at the reception afterward—truly a combination of art and medicine (and football).

In a call for applications for the fifth fellowship,[2] Dr Southgate wrote, "The purpose of the fellowship is to discover those men and women who have the natural gifts to become leaders in American medicine and to provide opportunities for the development of these gifts by on-the-job, hands-on experience on the staff of the largest medical journal in the world." To accomplish this, fellows not only evaluated manuscripts for suitability for publication but worked in proofreading, copyediting, and layout. She reported that of the first five fellows, two returned to clinical medicine (one in psychiatry and one in internal medicine), one became the editor of a major medical journal, and two joined the *JAMA* staff.

Today, Robert M Golub, MD, deputy editor of *JAMA*, directs the program. He notes that "the role of a medical journal editor is critically important to preserving the quality of science. Most editors are not specifically trained and enter the field in other ways, often through recognition as a research leader." In recruiting fellows, he seeks candidates who are likely to use their training directly. Often, it is someone who aspires to become a medical editor or leader in medical publishing, but if fellows' careers take a different direction, they may at least be stronger researchers by knowing what is expected in high-quality publications.

The year-long program is an immersive, interactive experience, although the responsibilities have evolved with changes in the journal and in the nature of medicine. In a previous description of the program,[3] fellows were responsible for the annual Contempo issue, which eventually became a regular section but is a now-defunct part of the journal. Editor-in-chief William R Barclay, MD, summarized the inaugural Contempo issue: "we present medicine . . . as seen by our Editorial Board [who] have given us brief accounts of what they consider to be important in the field of medicine in 1977."[4] As Stephen J Lurie, MD, PhD (Fishbein Fellow 1999–2000), recalls, "the Fishbein Fellow was able to call up anybody on the planet" to solicit articles. The fellow then took the lead in reviewing, researching, and editing the submissions. Today's fellows might participate in podcasts and author video interviews. One commonality, however, is the opportunity to meet and interview those at the forefront of contemporary medicine. Helene M Cole, MD (Fishbein Fellow 1984–1985), remembers "dining with Paul Volberding and Surgeon General Everett Koop at the first World AIDS Day event" and "interviewing Frank Netter for a Medical News & Perspectives story". As part of a rotation in reporting, I attended a national meeting for radiologists and conducted telephone interviews with experts from around the globe. That illustrates another unique aspect of the program: because *JAMA* is a general rather than specialty journal, the fellow must extend his or her reach into a broad array of content beyond that in which he or she was trained.

The centerpiece of the program is the development of rigorous skills in peer review. To that end, fellows serve as reviewing editors for manuscripts. The fellow evaluates the methods, results, and data interpretation of the submission and through mentored discussion decides whether the novelty, validity, and priority merit external peer review. If so, the fellow shepherds the manuscript through peer review and revision. Once the

continued

external reviews are returned, the paper may be presented for further consideration to the senior editorial staff at one of the twice-weekly manuscript meetings. One former fellow describes the process as "journal club on steroids". She goes on to reflect that learning how to reconcile strong opinions from a variety of points of view is directly applicable to her current administrative responsibilities. If the manuscript is accepted for publication, the fellow takes part in final editing. The fellowship incorporates a number of rotations. Besides the aforementioned reporting experience, fellows spend time in copyediting, as has been the case since the beginning of the program, although now they do so with computer software rather than a pencil. Other rotations include time spent in reviewing letters, discussions centered on legal issues and publishing ethics, and graphics. The fellow selects the abstracts from The JAMA Network journals that appear each week in JAMA and writes Patient Pages, which are intended specifically for a lay audience.

Perhaps the most lasting legacy of the Fishbein Fellowship is that the skills learned during the year, although focused on medical editing, are applicable to all aspects of practice. As the first Fishbein Fellow, Jeffrey R M Kunz, MD (Fishbein Fellow 1977–1978), says, "the Fishbein allowed me to hone journalistic skills begun in high school, nurtured in college and medical school newspapers as a reporter, and exposed me to the wonderful world of medical publishing. . . . It made me a much better writer, editor, teacher, researcher, and physician concerned with the public's health." The diversity of backgrounds of the fellows is matched by the breadth of their postfellowship careers. Former fellows were trained in anesthesiology, family medicine, emergency medicine, internal medicine, neurosurgery, orthopedic surgery, pathology, pediatrics, and psychiatry. Nearly two-thirds have spent at least part of their careers in medical editing, including one who served as editor-in-chief of two journals and several who are working in broadcast journalism. One is medical director of a state Medicaid system, and one is a hospital administrator. Former fellows are active teachers in medical

schools and residencies, and many continue their clinical practice as well. Fourteen have worked at or are current editors at *JAMA*. Former fellows work for the US Army and for the US Food and Drug Administration.

While looking back, the former fellows who contributed their reflections to this article also look forward. Electronic communication, individualized content, and the use of multiple platforms are consistent themes. That said, with rapid turnover of information, journals will be ever more challenged in ensuring that data are accurate. Margaret A Winker, MD (Fishbein Fellow 1992–1993), former *JAMA* deputy editor and now senior research editor at *PLOS Medicine*, when asked how physicians will get their medical information in 10 or 20 years and how journals can facilitate that, comments that physicians "will have opportunities to access large data sets and unpublished trials and dynamically generate analyses. Journals can help move us to that place by providing access to studies and data sets."

The Fishbein fellowship is the oldest such program, but *Fellowships in Medical* editing have been developed by *The New England Journal of Medicine*, *Canadian Medical Association Journal*, *American Family Physician*, *Annals of Emergency Medicine*, the Radiological Society of North America, and others; some of these 1-year programs are for established physicians, and others offer shorter 1-month experiences for those in training. The Stanford University Graduate Program in Journalism offers the 12-month NBC News Fellowship in Media and Global Health. The imperative to train physician–editors remains essential, and some have called for a more formal curriculum among programs.[5] Dr Golub notes that this is one of the most important endeavors to ensure the future of science; training in research methods must be paired with "skills to judge the quality of writing, its precision, consistency, and transparency."

In reflecting on her essays for the cover art of *JAMA*, Janet M Torpy, MD (Fishbein Fellow 2001–2002), notes that "writing about art allowed me to express a different type of expertise, one I don't often use in

the world of anesthesiology and perioperative medicine. However, selecting the proper word, a precise meaning, to explain a concept or an issue to a patient and his or her family actually has daily application in clinical practice."

Good medicine is good communication, and the challenges of and changes in medicine demand continued expertise not only in the content of medical inquiry but in its dissemination to peers and the public.

I can attest to the extraordinary opportunity that the fellowship provides. Each fellow brings a unique background and individual goals. In the supportive environment of *JAMA*, these can be refined and realized. The editors and staff have a wealth of diverse experience and expertise, and by the end of the year, the fellow has a deep and rich understanding of what constitutes excellent scientific inquiry and high-quality scientific communication.

Dr Southgate summed up the Fishbein Fellowship well when she noted that she was surprised by how simply the program began. "My greatest gratification is the number of top-notch editors it has produced, many of whom stayed on at *JAMA*—some to this day—and their important contributions over the past 36 years and, I hope, for years to come."

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The Art of Writing Effective Queries

Diana Burke

In the world of manuscript editing, a query is a note from the editor to the author in which the editor alerts the author to a problem, such as a passage that is confusing, or explains the reason for a revision that the editor has made. The purpose of a query is to ask the author to consider fixing the problem or to encourage the author to accept the revision.

Writing a note to an author seems like a simple task, but it is not. Query writing is a nuanced skill that is acquired and honed through practice. Skill in writing queries is important because the author's response, or lack of response, can affect the quality of a document.

Three important aspects of query writing are when to query, tone, and clarity.

First, when to query. When an editor spots a problem, which can range from a missing comma to poor document structure, the editor has three options: ignore it, fix it if possible, or query it.

Limitations of time and budget can require that low-priority problems be ignored, but the options are usually whether to try to fix a problem or to query it. For me, the decision depends on two things: how confident I am that I can fix the problem without affecting the meaning and my relationship with the author. If I have not worked with the author before, I may revise less and query more until I think that the author has started to trust that I won't make changes that are unnecessary or that alter the meaning. I may also explain the reasons for the revisions that I have made more than I usually do, with the understanding that queries are time consuming to read and that too many queries can be off-putting.

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The second important aspect of query writing is striking the right tone. The tone should demonstrate the editor's respect for the author's expertise and the effort that has gone into the writing. Respect can be shown by being tactful. Editing is in essence a criticism of the author's writing, so tact is vital for establishing or maintaining a good author–editor relationship. A good relationship is critical for producing a document that achieves its purpose, particularly if the editing is at a substantive or higher level.

Another way to strike the right tone is to make the reader the focus of the query; this makes the query less personal ("If the target reader may not know what photoremediation is, the term could be defined here"). Focusing on the reader is logical in any case if the primary purpose of the document is to convey information to a target audience.

The choice of personal pronouns may also affect the tone. Some editors use "we" in queries, as in "Can we support the statement that the fish species will not be affected by an increase in lake water temperature?" "We" can be interpreted to mean the author and editor's organization or "we, the author and editor." I avoid "we" because I think that the author could find the latter interpretation presumptuous inasmuch as the editor is not a cowriter. I also try to avoid "you" because it can sound accusatory, as in "You are discussing two topics in this paragraph; paragraphs should be limited to one." Third person is probably the safest, except for second-person imperative constructions, such as "Consider moving this sentence to the beginning of the paragraph."

The third important aspect of writing queries is clarity. The clearer the query, the more likely the author is to understand what the editor is asking or suggesting. "Consider explaining why the trench needs to be 6 feet deep to help justify the cost of the trenching" is clearer than "Consider providing more information about the trench." Clear queries often contain more information than vague ones. "This sentence was revised to correct a dangling modifier, which was the original first phrase" has more information than "This sentence was revised because it had a grammatical error." A query that is clear is also concise—it does not contain unnecessary words or irrelevant information. Finally, the author may understand better what the editor thinks is wrong if the editor provides a suggestion for fixing the problem, and a good suggestion has the added benefit of making it easier for the author to take an action.

When the editing is completed, it is a good idea to reread the queries to make sure that they are necessary, have the right tone, and are clear. I rarely skip rereading my queries, because I think the improvements that I make during the rereading are worth the time and effort. When I have finished reviewing a manuscript, I usually understand the content better than when I started reviewing and often can fix some of the problems that I had queried. In addition, I usually find queries that are inconsistent or unclear.

To determine how effective queries are, the editor needs to see how the author responded to them—which ones were ignored, which ones were misinterpreted, and which ones had the intended effect. Skill in query writing can be measured by the percentage of queries that the author responds to in a way that improves the document. The quality of the author–editor relationship is also a reflection of query-writing skill.

In my experience, effective query writing is often underrated and gets less attention than the other aspects of manuscript editing, but it is an essential component.

Keynote Address: Two Hundred Years of Communicating the Medical News

Speaker:
Jeffrey M Drazen
New England Journal of Medicine
Winchester, Massachusetts

Reporter:
JM Dormon
Canadian Science Publishing
Ottawa, Ontario, Canada

Jeffrey M Drazen's fascinating keynote speech underlined the importance of accurate, unbiased, scientific data in the progress of health science, specifically with respect to the causes and management of diseases.

Over the course of human history, theories concerning the transmission of contagious diseases have ranged, depending on the prevailing wisdom of the day, from religious to scientific. However, it has been the scientific analysis of the causative factors involved in contagion that has led to successful identification and treatment. For example, in the case of the highly contagious and lethal disease tuberculosis, before it was possible for information regarding common symptoms (such as coughing and fever) to be shared among health practitioners and before new technologies—such as microscopy, staining, and x-rays—had been developed, all that medical practitioners could do was try to treat for the symptoms and hope for the best. Thousands of people died of tuberculosis every year; a popular cure was to send those showing blatant signs of the disease to a sanitarium, far away from cities, where they could find "clean air". That "treatment" did not guarantee a cure; however, assembling groups of patients made it possible for researching physicians to try their own "cures" on them (which Drazen referred to as "the early days of drug trials"). In the 1920s, great claims were made for the efficacy of of a gold-based compound, and data were provided to support its use. However, the data were flawed, and unsound conclusions were based on

selection of patients in a nonrandom manner, which introduced bias. A later, thorough, randomized investigation of the compound revealed that it was not a cure at all; in fact, it increased the likelihood of death! That revelation focused the scientific community on the importance of eliminating bias from such studies and served as a warning about accepting results at face value.

Much research has since been dedicated to the development of thorough and unbiased methods for evaluating the efficacy of drugs and other treatments. Although the randomized controlled trial itself did not come of age until the 1960s, its importance for public-health management and disease control is widely recognized.

High-quality data are needed to make informed decisions about health, disease, and treatment. The desire to perfect statistical test methods and statistical analysis has resulted in many groups' dedication to the cause, and the last 50 years have seen marked development of techniques for removing bias. Such reports as the Greenburg Commission report in 1967 and such publications as *Data Monitoring in*

Clinical Trials by DeMets and colleagues have contributed to the improvement of research results.

However, there are still numerous examples of how poor study design, changes in protocols, and misinformation result in faulty drug evaluations. In 2004, given that study design and protocol are of such monumental importance, 13 scientific journals refused to publish papers for which test protocols had not been registered in a central National Institutes of Health database. There was initially substantial push-back from the pharmaceutical companies, but compliance has been increasing since 2005.

The future of scientific breakthroughs depends on the application of sound test methods, the open discussion and analysis of results among the community, and the constant improvement of the technology that we use to disseminate our data. With respect to public health, only the most ethical protocols can be considered, and careful oversight is required. Accurate and clear communication of results and discoveries is key, and the community needs to be dedicated to this goal.

Plenary Address: The New Science Communication Climate

Speaker:
Andrew C Revkin
Pace Academy for Applied
Environmental Studies
Pleasantville, New York

Reporter:
Diane M Sullenberger
Proceedings of National Academy of
Sciences
Washington, DC

Andrew C Revkin, award-winning *Dot Earth Environmental Blogger* for *The New York Times* and former *New York Times* staff reporter, delivered a lively and compelling keynote address, "The New Science Communication Climate", at the 2013 CSE annual meeting on 6 May. His talk was a wakeup call to science editors on how to survive and thrive when traditional scientific journalism shrinks and massive amounts of information are at everyone's fingertips and are creating turmoil for readers who don't know what information to trust. He made a plea for editors to try to make scientific information useful by clarifying the science and by not overdistilling it. He also encouraged such partnerships as artist–scientist collaborations to convey science in intriguing ways that engage readers.

Revkin acknowledged how hyperlinked we are and noted that many people now just "know" the news through the Web, Facebook, Twitter, or the like and from a multitude of devices. He pointed to a Web site, *http://Newsmap.jp*, that uses a visualization algorithm to display the most popular Google News stories, which are constantly changing around the world. He stressed that people need to know how to sift out the truth and how to avoid confusion and uncertainty, as occurred with the glut of information and misinformation regarding the 2013 Boston marathon bombing and with the wealth of conflicting information about climate change.

Andrew C Revkin

Both a critic and a champion of the scientific communication process, Revkin discussed some pitfalls:

- Science is prone to **overinterpretation** (for example, genetically modified organisms cause "mortal peril").
- Science is prone to **distortion** (for example, the fracking controversy).
- Science can be **torqued**, or spun, and create reader "whiplash" (for example, studies showing that coffee is good for you or coffee is bad for you).

He presented some "warning labels" for scientific information:

- The **single-study syndrome alert.** Revkin encouraged fostering the perspective that science is a journey and urged writers to cite previous papers.
- **Publicity before publication.** Revkin cautioned about publicity for research that occurs before it has been peer reviewed.
- The **lure of front-page thought.** Is the story really news? Does it justify front-page treatment? Revkin noted that "funders and reporters have a responsibility in the age of the Insta-net to pause and consider the impact of overstating findings."

Journal editors also have a responsibility, according to Revkin. Journal abstracts are now immediately public and often posted as news, he said, and this makes it important to state uncertainties and warnings in an abstract itself. Even a simple word choice, like the "Here we show…" wording that Revkin said is required in abstracts by *Science* and *Nature*, can make findings appear more definitive than they are. "Uncertainty is a form of knowledge," he stated, and he suggested instead using "Here we explore…" or "Here we discuss…".

Revkin also advocated using innovative ways to convey the process of science. He provided some examples:

- "A postcard from the Pleistocene", *http://dotearth.blogs.nytimes.com/2009/07/24/a-postcard-from-the-pleistocene/* on Revkin's Dot Earth blog, gives a first-hand glimpse into the Polaris Project expedition in Siberia.
- *The New York Times* Scientist at Work Blog: Notes from the Field, *http://scientistatwork.blogs.nytimes.com/*, is a modern field journal.
- The National Aeronautics and Space Administration Jet Propulsion Laboratory Twitter feed, @AsteroidWatch, has more than 1 million followers and tracks asteroids and comets.
- #birdclass, an ornithology course feed about bird sightings and behavior; #wjchat for Web journalists; #scicomm for science communication; and #paceblog, Revkin's Pace University class blog.

Although he said that the examples above are a "great way to use tools we are just scratching the surface of", he also provided examples of new ways to look at data:

- *The New England Journal of Medicine*'s dynamic graphic representation of

Transforming Journal Content for the Public's Use

Moderator:
Christine Casey
Morbidity and Mortality Weekly Report (MMWR)
Atlanta, Georgia

Speakers:
Daniel DeNoon
Harvard Heart Letter
Atlanta, Georgia

Mike Stobbe
The Associated Press
Atlanta, Georgia

Karen Hilyard
Department of Health Promotion & Behavior
University of Georgia
Athens, Georgia

Reporter:
Megan Gebhard
Western North American Naturalist
Provo, Utah

Storytelling is the basic unit of communication that connects us with each other. It can be difficult for scientific journals to make their content accessible and available to a broader audience that is not necessarily part of the scientific community but may be interested in or affected by the findings reported. It is difficult to communicate what we don't know to an audience made up of "regular people". But most scientific studies have good stories behind them. Telling those stories in a compelling way is crucial for disseminating information to a wide audience.

Disseminating information faster and more efficiently is key to reaching a broader audience. If a breaking story or influential research is being published, be sure to alert the mass media. Embargo your research; give the press access to the news before the research is officially published. You can use your authors' academic connections, such as a university's or department's press office, to spread the news concerning the story via press releases. Be sure to get your information to the press as soon as possible. Provide at least a few days for the embargo.

When looking for articles and stories to bring to the public's attention, be selective. Two aspects of a story make it relevant and interesting to an audience: timing and proximity. Timing is pivotal in publishing a story. An article about beach-hole deaths is relevant if published in June but has a much smaller impact if published in January. Proximity affects how much the audience will be affected by a story. The closer the story is to the audience, the bigger its impact.

A former senior medical writer for WebMD, Daniel DeNoon suggested that the audience consider the question, What are people going to read? Medical news can have a large influence and is likely to be covered by the mass media and to reach ordinary people. Human studies, late-stage studies, and women's health studies are usually interesting to the general population. Perspective and editorial pieces help to put findings into context and make it likely that the lay press will understand and report study results. When celebrities are affected by unusual or compelling medical issues, there is intense mass-media interest in these issues. "Gross" stories, such as stories about flesh-eating bacteria, also easily catch readers' attention.

Mike Stobbe, a public-health reporter with the Associated Press, listed six types of studies and stories that he's wary of: animal trials and phase I or II trials; studies that identify genes and explain disease development, especially of rare diseases; studies in which researchers have a conflict of interest; studies that present findings in relative terms; stories that raise questions rather than provide answers; and stories that give conflicting opinions.

When scientific information is published for a broader, nonscientific audience, a disconnect between the writer and the audience can be common. Karen Hilyard is assistant professor of health communications at the University of Georgia, a National Science Foundation fellow, and part of the Foundation's "To Think, To Write, To Publish" project. The project bridges the disconnect between scientists and the public through creative nonfiction. Scholars and writers collaborate on creative nonfiction that discusses research to engage the public. Creative nonfiction is a new and accessible way to raise awareness about scientific issues. It uses scenes, action, dialogue, and inner monologue to tell a story that reads more like a novel than a news story. The researchers can write a memoir-like reflection or a third-person account. Creative nonfiction can also use verified facts to recreate scenes in history. It shows, rather than tells, readers why they should be interested in the story.

This session offered creative ideas for helping publishers to make their journals' content more accessible to a broad audience. The speakers addressed press-release strategies, recommended topics for press releases, and discussed modes of communication, especially creative nonfiction.

Using Popular Social Media

Moderator:
Rebecca McLeod
Aries Systems
North Andover, Massachusetts

Speakers:
Aaron Weinstein
Plastic and Reconstructive Surgery
American Society of Plastic Surgeons
Dallas, Texas

Nick Lindsay
The MIT Press
Cambridge, Massachusetts

Duncan MacRae
Neurosurgery
Atlanta, Georgia

Reporter:
Daniel Salsbury
Proceedings of National Academy of Sciences
Washington, DC

This session focused on the best practices for using social media, the integration of social media into editorial workflows, and tips for measuring the effect of social-media campaigns.

The first speaker, Aaron Weinstein, managing editor of digital media and supplements at *Plastic and Reconstructive Surgery*, spoke about using Facebook as a publisher to encourage sharing of links to content. Posts to Facebook should encourage users to interact with the journal or other people. A simple automated push of notifications, such as updating when a new issue is posted or a particular type of article is published, can be set up with Rich Site Summary (RSS) feeds from a journal. Weinstein cautioned not to overwhelm "fans" and to spread multiple posts throughout the day. Automated posts can be augmented with manual updates, but these take time, and he recommended planning the content of the posts ahead of time. Using such information as an upcoming table of contents, an editor can craft posts and have them ready when the material is published. A table of contents can be sliced into many separate posts to highlight different types of content in a journal.

His overall recommendations were to be "human" and not too stodgy with the language of posts, to augment automated posts with "live" posts from the field, and to interact with users because social media can make it fun to capture new audiences and provide information.

The second speaker, Nick Lindsay, journals director at The MIT Press, spoke about the experience of the press with social media and marketing. Facebook may not be a good driver of sales or subscriptions, but it does drive the use of particular articles. Twitter was recommended as a better medium because its users are more accepting of multiple posts on the same topic and are more likely to check for updates than are Facebook users. Google+ was discussed briefly, but it is not now a major player. Lindsay noted that articles that are the subjects of podcasts receive substantially more downloads than the average article.

The third speaker, Duncan MacRae, managing editor of *Neurosurgery*, spoke on interpreting social-media metrics. The key to using social media is to define a successful campaign at the outset: establish expectations—such as increasing reader engagement, expanding audience, or promoting content and activities—and stick to them throughout the campaign. Facebook has built-in metrics that are available on the administration panel. MacRae cautioned that "likes" do not tell a lot because a user can like something once and never come back, whereas "talking about this" is a better gauge of user involvement. He shared the Bieber example: Justin Beiber has 53 million "likes", but fewer than 1% are "talking about this". Another Facebook metric to evaluate is "reach", which provides demographics on users' locations, sex, and ages. YouTube channel analytics can be downloaded, and the sources of users' access (such as mobile phones) are available. Following and assessing conversations on Twitter is time consuming. The built-in analytic tool "Interactions" provides some data, but it may be necessary to use third-party tools to dig into Twitter data.

Although social media can be a distraction, the positives of engaging readers tend to outweigh the negatives. Interaction with the audience is critical, and using Facebook, Twitter, or YouTube effectively can help to achieve marketing success. Be sure to set goals ahead of time and take advantage of the analytics available within the platforms. Interact with users in a professional but not too formal manner. Determine posts in advance, and craft messages that encourage users to interact with each other. 🔧

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continued (*from page 80*)

obesity in large social networks, *http://www.nejm.org/doi/full/10.1056/NEJMsa066082.*[1]

- A striking illustration of global water and air volume, *http://www.sciencephoto.com/media/159214/view.*

Revkin concluded by saying that "how we present data is the biggest area for breakthroughs" and he wonders if there are business models for data presentation. He encouraged partnerships, collaboration, and cross-talk among videographers, artists, and scientists. 🔧

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1. The Spread of Obesity in a Large Social Network over 32 Years. N Engl J Med. 2007 Jul 26;357(4):370–9. Epub 2007 Jul 25.

Obtaining Reader Feedback and Using It To Improve Your Journal

Moderator:
Ingrid Philibert
Journal of Graduate Medical Education
Chicago, Illinois

Speaker:
Arlene Weissman
American College of Physicians
Philadelphia, Pennsylvania

Reporter:
Jessica LaPointe
American Meteorological Society
Boston, Massachusetts

Arlene Weissman, director of the Research Center of the American College of Physicians, kicked off this session with the provocative question, Why do we care about readership feedback? After all, if it ain't broke, why fix it? Publishers may believe that they are doing an outstanding job in meeting their readers' needs, but the readers themselves may have a different perspective. Ultimately, publishers want to know whether they are making the most efficient use of their resources and how they can enhance their readers' experiences most effectively at minimal expense.

First, publishers must determine what information they are looking for, why they want feedback, what kind of feedback they are seeking, and what they intend to do with the feedback that they gather. It is during this project-planning stage that publishers establish their goals and objectives and decide whether they want to gather feedback from readers, authors, editors, or other nonreaders. Once the objective is known, everything else will follow.

The next step is to decide on the method for gathering information and to determine the analysis plan. Weissman outlined two basic types of research: qualitative research, often conducted through focus groups, and quantitative research, which includes conducting surveys. A focus group allows a publisher to examine why readers behave as they do and is helpful for exploring and generating ideas. In contrast, a survey provides publishers with hard numbers for data analysis.

If a focus group is selected, open-ended questions are best for prompting useful answers. For example, a publisher may ask participants how they prefer to read articles and what makes an article interesting to them. If a survey is chosen, the next step is to design it; this includes establishing an appropriate length for the survey and crafting questions that will elicit the most valuable answers. Readers may be asked to rate the quality of articles, the relevance of the content to their field or specialty, the timeliness of articles, or the readability of material (including typeface, graphics, and layout).

For both surveys and focus groups, participants tend to be more likely to respond if they are given some kind of incentive. Weissman's organization has used raffles for gift cards and gourmet fruit baskets with cash; $2 bills are particularly effective in eliciting survey responses. Another popular incentive is to give points to participants each time they complete a survey that can be redeemed for gift cards on Amazon.com or another site.

When the data have been gathered, the next step is to carry out the analysis plan and to determine how to report the findings to survey participants (and others) to let them know that their opinions have been heard. Publishers must decide what changes they are willing to make and what effect the changes will have on their organization. One common pitfall publishers make after data gathering is to take no action once the survey results are in. Weissman pointed out that any type of survey or focus group is a form of communication; after asking for feedback, a publisher must use the data that it gathers to respond to its readers' thoughts and concerns.

Prudent publishers want to know whether they are meeting their readers' needs and how they might make their material more accessible to readers. Publishers must first determine their ultimate objective, which will drive the data-gathering process. Gathering feedback is not a one-time event. Once results are available, publishers should be prepared to share their findings and implement changes. By gathering reader feedback, publishers increase their ability to understand their readers and respond to their needs and thus retain current readers and attract new ones. ◍

continued (from page 75)

largest annual meeting in many years (and of course, the appealing location helped a bit, too).

We especially want to thank CSE Past President Ken Heideman for all his hard work and dedication to making this year's meeting come together so well. His leadership, his creativity, and his inextinguishable enthusiasm were key to making the meeting a success. In keeping with the theme, he effectively communicated his expectations and ideas, which helped the Program Committee to stay on track and deliver a truly outstanding meeting. We have every expectation that the 2014 annual meeting in San Antonio will meet and match the superlative time that everyone had in Montreal. ◍

International Boundaries, Publishing Barriers: Empowering Authors in Newly Industrialized and Developing Countries

Moderator:
Carolyn Brown
Ottawa, Ontario, Canada

Speakers:
Alejandro Velázquez
Center for Research on Environmental Geography
National Autonomous University of Mexico
Gatineau, Canada

Barbara Gastel
Texas A&M University
College Station, Texas

Reporter:
Clarinda Cerejo
Scholarly Communications
Cactus Communications
Mumbai, India

Did you know?
92% of journals publish in English.
94% of literature-search tools are limited to English-language documents.
97% of editors-in-chief are native English speakers.

Those striking facts, presented in a breakout session at the 2013 CSE annual meeting, emphasize the need for academic authors in developing and non-native English-speaking (NNES) countries to receive English-language grounding in an era of globalization. The session highlighted interesting case studies as food for thought on how NNES authors can be empowered.

One specific case presented was that of Universidad Nacional Autónoma de Mexico, or the National Autonomous University of Mexico (UNAM). UNAM is considered the most prestigious Spanish-speaking university, with a strong presence in Mexico (39 campuses) and internationally (United States, Canada, and China). Why, then, is UNAM not ranked as one of the top 10 universities worldwide? The answer might lie in the fact that the top 10 universities are in English-speaking countries.

The bias in favor of native English-speaking authors in prestigious universities has been documented.[1] Although corporate services offer translation and editing support to NNES authors, such services do not necessarily solve the language-barrier problem that NNES authors face. That situation prompted the speakers to start various programs dedicated to capacity building for NNES authors.

A "boot camp" course for manuscript preparation, with submission and acceptance as the goal, was developed for UNAM students. Piloted in 2011, it is a 2- or 3-week full-time course for PhD candidates and faculty. It comprises a blend of lectures, reading material, interactive workshops, and one-on-one sessions on the publication process, manuscript preparation, and publication ethics. Students are expected to apply their learning to develop their present manuscripts. On course completion, the participants' progress and manuscript status are evaluated, and suggestions for further improvement are offered. The facilitators hope to make the course a part of the regular UNAM curriculum and extend it to other Spanish-speaking countries.

Other initiatives undertaken to empower NNES authors include the China Medical Board (CMB) Program in Biomedical Writing and Editing, the Texas A&M Intensive Course in Research Writing, and AuthorAID. Those initiatives have many features in common with the UNAM course.

The CMB program, which ran from 1996 to 2007, was based in China with a US coordinating center and served multiple health-science centers in China and other Asian countries. It involved intensive training in academic writing and editing in China and, for editorial trainees, a subsequent internship in the United States or Canada.

The Intensive Course, running since 2008, is a 3- to 4-week residential summer training course at Texas A&M in which participants from Mexico, Asia, and Africa learn a step-by-step approach to manuscript writing. The residential program offers the benefit of full-time, focused learning and access to the university library resources.

Finally, AuthorAID (*www.authoraid.info*), established in 2007, aims to help researchers in developing countries to get published. The project involves onsite and online workshops, mentoring, grants, an e-mail discussion list, and free Web site resources, such as an active blog. Workshops, usually 2–5 days long, have been conducted in numerous developing countries in Africa, Asia, and Latin America and provide training in preparing manuscripts, presentations, and grant applications.

All those initiatives have such challenges as cultural differences and inconsistent commitment from participants, but they can be rewarding to both instructors and participants while serving the broader noble goal of empowering authors.

1. Ross JS et al. Effect of blinded peer review on abstract acceptance. JAMA 295(14):1675–80.

Scientific Podcasts: Why, When, What, Everywhere

Moderator:
Anna Jester
eJournalPress
Rockville, Maryland

Speakers:
Sue Silver
Ecological Society of America
Washington, DC

Christopher Lowe
American Gastroenterological
Association
Bethesda, Maryland

Sheehan Misko
American Association for Clinical
Chemistry
Washington, DC

Reporter:
Lindsey Buscher
Allen Press, Inc
Lawrence, Kansas

Podcasts are increasingly a staple of many people's daily lives. They can be entertaining, educational, informative, relaxing, and enjoyable, and as much as many of us may still be attached to print media, audio platforms can go where text cannot: in the car while one is driving, on the train or plane, or even at the gym if you're especially adept at multitasking. I know that my daily commute would not be half as enjoyable without my favorite podcasts. So how can the scientific and medical publishing community translate that popularity into a benefit for academic journals? Anna Jester, of eJournalPress, led an informative and interesting panel of three editors who discussed their experiences with starting up

and building on scientific podcasts for their journals.

Sue Silver, editor-in-chief of *Frontiers in Ecology and the Environment*, began the session by talking about the three podcasts produced by the Ecological Society of America (ESA): *Field Talk* and *The Ecologist Goes to Washington* are produced by the Public Affairs Department, and *Beyond the Frontier* is produced by *Frontiers* staff. She explained that two editorial assistants took it upon themselves to learn how to start the podcasts, and things launched from there. With the help of interns, the staff at ESA work the podcast production into their daily schedules, operating on virtually no budget; the latter brings its own set of challenges, but the results have been worth the effort. Journal staff members produce one podcast per issue of *Frontiers* in an effort to improve communication and to reach a wider array of audiences.

Silver; Christopher Lowe, managing editor of *Gastroenterology* and self-taught podcast producer for *Gastroenterology* and *Clinical Gastroenterology and Hepatology*; and Sheehan Misko, managing editor of *Clinical Chemistry*, together provided a comprehensive list of what goes into creating a podcast, including equipment, software, and preparation. Here is a sample list of the materials necessary or useful in creating a podcast:

o Hardware
  ▪ Computer with microphone.
  ▪ Headphones (mostly for editing).
o Software
  ▪ Skype (conducting interviews, free).
  ▪ Pamela (recording via Skype, free).
  ▪ "Podsafe" music (free or not free).
  ▪ Audacity (audio-editing software, free).

▪ Sound Forge (better audio editing software, not free).
▪ GarageBand (included in iLife suite for Mac).
▪ Google Analytics, iTunes, or other methods of obtaining use metrics.
▪ RSS in XML file (feed is customizable at feedburner.com).
▪ Bundles that include microphone, headphones, audio-editing software, and so on, are available for purchase.

All three panelists insisted that creating a podcast does not require expert knowledge of the process—in fact, there are not many experts, because this is still such a new platform. A few important things to consider and decide on in the beginning are who you want your audience to be (for example, professionals in the field, general public, or students), what the format will be (for example, Q&A session with the author of the "sexiest" article in each journal issue, an author telling background stories about the research, or an interview with students or experts in the field), and frequency of release (for example, when each journal issue is published). Lowe also noted that video podcasts are becoming more common.

The session wrapped up with the panelists offering some tips to keep in mind: Podcasts are recorded, so there is less pressure than in a live broadcast; the ideal length of a scientific podcast is about 10–15 minutes; advertising for a podcast associated with a journal article can be handled by using a headphone icon on a table of contents page, in print and online, or in a print ad or somewhere on the journal's or society's Web site; and it is a good idea to have a press release or social-media update to accompany each new podcast and announce its availability.

Informed Decisions: Sense About Science and Helping People Understand Evidence

Moderator:
Julie Nash
J&J Editorial, Inc
Cary, North Carolina

Speaker:
Leonor Sierra
University of Rochester
Rochester, New York

Reporter:
Alyssa Popowitch
Radiological Society of North America
Oak Brook, Illinois

"Are heavy metals in lipsticks linked to cancer?" "Is there a diet that can treat epilepsy?" "Can goats' blood help beat MS?"

With so many vivid, competing, scientific-sounding claims—often presented without context or background by the mass media—what is a layperson who wants to live healthfully to do? And how do we in the science-technical-medicine (STM) community help people to separate good science from pseudoscience? How do we help media professionals in their roles as communication middlemen? Well, Leonor Sierra, US coordinator of the charitable trust Sense About Science (SAS) *(www.senseaboutscience.org)* and press officer at the University of Rochester, would like people first to look for the scientific community's "Good Housekeeping Seal of Approval", the phrase *peer review*.

False, sensationalistic pseudoscientific claims not only can harm public health but can cost desperate people a great deal of money and offer false hope. SAS's mission is to work with scientists, media professionals, and the public to equip people to make sense of science and evidence. One recent successful SAS initiative is the pamphlet "I Don't Know What to Believe", a short educational guide to the peer-review concept. The phrase *peer review* in an article or television spot lets a reader or a viewer know that the science has been evaluated by experts in the field and has held up to their scrutiny. The phrase affirms for the layperson that there is evidence to support the scientific assertions being made.

The "I Don't Know What to Believe" guide has been a successful initiative for SAS: more than 500,000 have been distributed in the United Kingdom, and a US version was launched this past winter. Sierra reports, however, that there was surprising pushback from some of the scientists who were consulted about the guide. They were worried that the curtain was being drawn back on their work ("Why does the public need to know?"), and some confused the initiative with the push for open access. But people were hungry for a tool to help them know what to believe: Among the people and agencies that wanted copies of the guide were members of the news media and representatives of nongovern-ment organizations, medical charities, and libraries—even politicians!

It turns out that you *can* change the discussion. Before the guide came out, news articles in the UK would most often not mention the journal in which a study had been published, but now it is the reverse: most articles do cite the journal, and this gives the reader further evidence that the information in the article is worthy. In fact, in 2011, the BBC conducted a review of its processes for disseminating scientific information and determined that a report will include the name of the source journal whenever appropriate.

Another important SAS initiative is the "Ask For Evidence" campaign, in which laypersons and scientists contact companies that are making dubious claims about their products (for example, "This conditioner restores hair at a cellular level!") to ask for evidence for the claims. It turns out that many companies were shocked to be asked for evidence to support such claims—no one had ever done it before. In several cases, the companies wound up abandoning the claims.

We all benefit from a world in which companies do not profit from unproven claims, in which the mass media disseminate scientific information responsibly, and in which laypersons have the right tools to differentiate often-dangerous pseudoscience from valid research—in short, a world in which we make sense about science.

Viewing Social Media through Different Lenses

Moderator and Speaker:
Barbara Meyers Ford
Meyers Consulting Services
Mount Airy, Maryland

Speakers:
Darrell W Gunter
Gunter Media Group, Inc
South Orange, New Jersey

Bill Jackson
Medical College of Wisconsin
Milwaukee, Wisconsin

Reporter:
George Kendall
Anesthesiology
Phoenix, Arizona

This session highlighted different forms of social media. Barbara Meyers Ford moderated and presented the session. She began by underscoring the fact that social media include more than 190 social networks in addition to Facebook and Twitter. Another medium—social bookmarking—is growing in popularity. CiteUlike, which launched in 2004, focuses on the needs of researchers and is sponsored by Springer; BibSonomy, which aims to integrate the features of bookmarking systems, launched in 2006.

Ford noted that there are roughly two dozen online communities, such as Academia.edu, which began in 2008 and supports 2.5 million academics, and Yammer, a "freemium" social-network service that is used for private communication within or among organizations.

Data-sharing sites, such as DataCite, which formed in 2009, are also popular and not meant for the general public. Ford noted the online paper "Social Bookmarking in STM: Putting Services to the Acid Test"[1] as an excellent source for reviewing social media.

Darrell W Gunter, founder and CEO of the Gunter Media Group, focused on social media and the publishing cycle and how publishers can enhance social media for researchers. He highlighted three online communities—Mendeley, Academia.edu, and Research Gate—and showed how they assist researchers in creating partnerships with others in a network. Gunter advised publishers to work with authors and researchers in their own communities to create similar partnerships. As an example, Gunter discussed his experience with Biomedexperts.com, which launched in January 2009. Biomedexperts.com revealed the often complex relationships between authors and coauthors. The site created a network of author connections and aggregated and analyzed information (the site was later purchased by Elsevier).

Gunter closed by suggesting that publishers ask three questions regarding their social-media sites:

- Are you improving the researcher's productivity?
- Are you solving a problem for the researcher?
- Are you providing a new service to the researcher?

As a resource, Gunter suggested *The Digital Deca: 10 Management Truths of the Web Age.*[2]

Bill Jackson, a molecular biologist at the Medical College of Wisconsin, discussed social media and the molecular biologist. As a tool for researcher networking, Jackson noted that Facebook is inflexible and Twitter serves as an alerting system rather than a networking tool. Jackson does find Google+ useful because it is flexible, there are no length restrictions on posts, and it is a well-built social-media tool; however, Google+ has few users.

Jackson noted that research-sharing and data-sharing sites are plagued by the problem that many researchers do not want to share what they are reading with a larger group because they do not want competitors to guess their research directions through reading lists. In both explaining and promoting their work to others and in learning about work relevant to them, social media, in their current state, are markedly underused by the scientists that Jackson knows.

1. Reher S, Haustein S. Social bookmarking in STM: Putting services to the acid test. Online: Exploring technology & resources for information professionals. 34(6). *http://www.questia.com/library/1G1-241280059/social-bookmarking-in-stm-putting-services-to-the*
2. Welchman L. The digital deca: 10 management truths of the Web age. WelchmanPierpoint. *http://bit.ly/131Ojdo*

Communicating through the Mass Media and Social Media: From Journal Page to Center Stage

Moderator:
Tamer Elbokl
Canadian Science Publishing
(NRC Research Press)
Ottawa, Ontario, Canada

Speakers:
Jim Handman
Canadian Broadcasting Corporation
Toronto, Ontario, Canada

Susan Murphy
Jester Creative Inc
Ottawa, Ontario, Canada

Reporter:
Erin Russell
Canadian Medical Association Journal
(CMAJ)
Ottawa, Ontario, Canada

Jim Handman, executive producer of "Quirks & Quarks" at the Canadian Broadcasting Corporation (CBC) and a member of the editorial advisory committee of the Science Media Centre (SMC) of Canada, and Susan Murphy, a partner and digital storyteller at Jester Creative Inc and part-time professor at Algonquin College in Ottawa, delivered tips and tricks on how publishers can successfully engage with both traditional and social media.

Handman spoke about engaging traditional media. He introduced the SMC, a valuable resource for science journalists and especially general-assignment reporters assigned to cover scientific stories. The SMC helps journalists by offering a weekly wire service, gathering expert comments on controversial topics, presenting Webinars and backgrounders, and providing a 24/7 telephone service. Handman explained the need for SMC as twofold: the recognition that science is in the news more than ever and the fact that journalism as we know it is currently under siege. He noted that staffing cuts and increased demands for copy have led to the development of "churnalism", defined as the act of churning out copy that is based mostly on press releases.

He then asked the big question: Why should scientists bother to engage with the news media? He gave two reasons: because all Canadian scientists receive public funding, they should be accountable to report their findings to the Canadian public, which sponsors their research; and scientists are the subject-matter experts, and their refusal to engage with the news media allows others the opportunity to set the agenda, as was the case with the Greenpeace movement against genetically modified organisms.

Handman provided some tips for what makes a good story:

- Make it really cool and/or really relevant.
- Apply the rule of three (three ideas in 5 minutes).
- Use analogies.

Murphy then turned our attention to social media. Scientists can learn a lot from Commander Chris Hadfield, she said. Described by Forbes as "perhaps the most social-media–savvy astronaut ever to leave the earth", Hadfield has mastered the use of Twitter (more than 930,000 Twitter followers as of May 2013), Reddit, Tumblr, and YouTube. Space is a subject of great interest, but it is difficult to understand fully without first-hand experience. Hadfield successfully shared with the world his experience as commander of the International Space Station, and he did not do so in a didactic manner. Instead of writing a scientific paper for publication in a peer-reviewed scholarly publication, he engaged with followers through social media.

"Listening is the most important thing that you can do with social media," Murphy told CSE members. "Listen more than you talk. Twitter and Facebook are not broadcast channels. They are conversational channels." For the Twitter averse, Murphy noted that it is possible to listen without joining by using Twitter.com/search. News-aggregating sites, such as feedly.com, were also suggested as a good way to see what's trending.

A 2013 commentary in *The Lancet* asked the question, What is the purpose of medical research? And it suggested that "most people would hopefully reply: to advance knowledge for the good of society." What better way to advance knowledge than to reach out to society through its media of choice, be it newspapers, radio, or social media? Thanks to the tips provided by Handman and Murphy, we should all feel a bit more comfortable in doing so.

The East–West Divide: Challenges Facing Eastern Authors and How a Global Perspective Can Bridge the Gap

Moderator:
Donald Samulack
Cactus Communications
Trevose, Pennsylvania

Speakers:
Philippa J Benson
PJB Consulting
Bethesda, Maryland

Boyana Konforti
Cell Reports
Cambridge, Massachusetts

Reporter:
Todd Hummel
BioMed Central
New York, New York

In this session, the speakers focused on bridging the perspectives of authors with those of journal editors.

Philippa J Benson, president and owner of PJB Consulting, began the session with a talk titled "Challenges Facing Chinese Authors". Benson lived in China for 2 years in the middle 1980s and has been traveling to China regularly since then. She began her talk with a description of the training of Chinese scientists at the undergraduate and graduate levels.

Benson said that at the undergraduate level, students often are assigned to both a specific school and a specific major within a field. China's national educational curriculum provides students with strong training in reading English, less rigorous training in listening comprehension, limited training in basic expository writing, and little or no training in technical and scientific writing.

At the graduate level, students are often assigned to specific programs. At that level, again, students develop strong skills in reading comprehension for scientific English, and there is less training in listening comprehension and almost none in technical and scientific writing or in topics related to STM publishing standards and practices. However, most doctoral candidates in China are required to publish at least one article in a journal indexed by Science Citation Index (SCI) to receive a degree, and many face the requirement of publishing more than one article or publishing in a journal highly ranked by SCI.

Benson discussed the findings of the report Knowledge, Networks, and Nations: Global Scientific Collaboration in the 21st Century[1] from The Royal Society of London, which identified China as the second-highest producer of research and showed that the number of submissions to scholarly journals from China will be increasing dramatically over the next decade. She also discussed the increased spending on scientific research and development in Brazil, Russia, and India (these countries and China are identified as the BRIC countries), which will probably result in increased submissions and citations from these countries.

Donald Samulack, president of US operations for Cactus Communications, described a "publication tsunami" coming from Asia. He presented data on two surveys that were conducted by Cactus Communications. The first was sent to authors in East Asia and the second to editors of English-language journals. The author survey was translated into Japanese, Mandarin, and Korean for dissemination in each country and distributed through social media, workshops, academic societies, research universities, science newspapers, and the Editage Web site. The editor survey was distributed via discussion groups of the European Association of Science Editors and the Association of Learned and Professional Society Publishers (ALPSP) listservs and the ALPSP blog.

Completed responses were received from 326 authors and 54 journal editors. Most respondents were in the biomedical sciences, fewer in the physical sciences.

On the basis of the survey findings, Samulack offered a few suggestions to journal editors, including these:

- Provide information on the journal's time to first decision, time to publication, and rejection rates and reasons.
- Encourage presubmission inquiries.
- Translate the journal's aims and scope into other languages.
- Provide clear author guidelines with FAQs and simplified processes.
- Develop standardized journal guidelines and offer easy access to sample articles.
- Provide a clear description of the journal's ethics check processes with case studies.

Boyana Konforti, editor of Cell Reports, was the final speaker in the session and reminded attendees of the importance of communication and of keeping communication simple and clear. She said that a journal is a collaboration—among authors, editors, reviewers, and editorial board—all with the same overall goals: to identify, recruit, improve, and publish the highest-quality work.

Konforti talked about Cell Reports, the 13th Cell Press journal, which was launched in 2012. Cell Reports has a number of unique features. It contains short, single-point papers, as well as a longer-article format. It also publishes a Resources section, which highlights important technical advances and major informational data sets. The journal is broad and covers the entire life-sciences spectrum. Cell Reports is open access and publishes papers online weekly. The journal has an active and engaged editorial board made up of scientists around the world.

With the launch of Cell Reports, Konforti was given an opportunity to design a unique and dynamic Web site—one that makes information easy for authors, for reviewers,

Evolution of the Standard Article

Moderator and Speaker:
Barbara Meyers Ford
Meyers Consulting Services
Mount Airy, Maryland

Speaker:
IJsbrand Jan Aalbersberg
Elsevier Science and Technology
Amsterdam, Netherlands

Reporter:
Carlotta M Shearson
Shearson Editorial Services
Cornwall, New York

Barbara Meyers Ford opened the session by reviewing the history of the scientific article. Before the 15th century, scientific information was communicated orally or via handwritten descriptive letters exchanged between scholars. Scientific communication was facilitated by the establishment of learned societies (starting in 1323) and by the invention of the printing press in 1450, although the first printed journals (*Journal des sçavans* and *Philosophical Transactions of the Royal Society*) did not appear until 1665. Those early journals, which were essentially collections of letters and essays, enabled scientists to share their findings with a wider group of colleagues. Over the next 2 centuries, science became institutionalized, and letter-based communication yielded to more structured formats: the first modern research institution was founded in 1809, and the IMRAD format was introduced in the late 1880s (and standardized in 1972 as ANSI Z39.19). In the 1980s, the development of the first full-text online database (by the American Chemical Society) and the World Wide Web brought scientific publishing into the digital age. However, although scientific articles are increasingly distributed on the Web, online articles generally do not differ substantially from their printed versions in either form or content. The use of digital technology to enhance those aspects is one goal of Elsevier's Article of the Future (AotF) project, which was announced in 2009.

IJsbrand Jan Aalbersberg, senior vice president of journal content and technology, Elsevier Science and Technology, discussed the development and current status of the AotF project. The primary goal is to address the loss of content that occurs when information-rich, multidimensional, digital scientific data are compressed onto the two-dimensional journal page, whether in print or in digital form. In the past, scientists had only pen and paper to record, process, store, and disseminate data, but a vast array of digital technologies are now available for these tasks. However, although journal publishers have embraced digital dissemination of scientific articles, they have been slower to use digital technology to enhance article content.

Elsevier began by evaluating existing article prototypes and conducting focus groups, both in person and online, first with life scientists and later with scientists in more than 10 additional disciplines. The initial work suggested that the AotF should retain the readability of a PDF but contain discipline-specific add-ons that enhance without being distracting. In 2011, Elsevier introduced prototype articles that had three panes: a left-hand navigation pane, a central PDF-style pane containing the article text, and a right-hand pane with discipline-specific content and context. General features of the prototypes include independent scrolling in each pane, an interactive crosshair functionality for extracting values from data plots, and clickable links for viewing reference abstracts without scrolling to the end of an article.

Usability testing of the AotF prototypes revealed that only 45% of users of a traditional-style article on Elsevier's ScienceDirect engaged extensively with the online HTML content, whereas the percentage was 80% for the AotF prototypes. More than half the users of the traditional-style article went immediately to the PDF after reading the abstract, whereas only 15%–20% of the prototype users felt the need to do so. User responses also indicated that the new design allowed scientists to evaluate an article's relevance to their research more quickly.

Since 2012, a stream of AotF discipline-specific content enrichments, all available from within the articles, have been implemented on ScienceDirect:

- Interactive protein viewer.
- Genome viewer.
- Links to data set repositories (such as PANGAEA).
- Molecule viewer for chemical structures.
- Interactive Google maps, generated from author-provided KML files, for geographic data.
- Interactive phylogenetic tree viewer.
- MATLAB figure viewer for data figures.
- Interactive viewer for three-dimensional archeologic models.
- Viewer for author-prepared Webinar-style presentations.
- Three-dimensional neuroimaging viewer for brain structures.

For examples of those enrichments, see *http://www.elsevier.com/about/content-innovation*. In addition, the original prototypes for the various disciplines and examples of other add-on features (including interactive Venn diagrams, statistical charts, tables, and plates) are still available at *http://www.articleofthefuture.com/*.

Copyediting in the 21st Century: Addressing Changing Conventions and Technology

Moderator and Speaker:
Ingrid Philibert
Journal of Graduate Medical Education
Chicago, Illinois

Speakers:
Jessica LaPointe
American Meteorological Society
Jamaica Plain, Massachusetts

Yvonne Blanco
Cell
Cambridge, Massachusetts

Reporter
Peter J Olson
Dartmouth Journal Services
Burlington, Vermont

This session emulated the theme of the 2013 CSE meeting ("Communicating Science *Effectively*") by offering different perspectives of a well-rounded panel regarding the challenges of providing clear, consistent, and concisely presented information to the scientific community in a changing technological landscape.

Jessica LaPointe, managing copyeditor of the American Meteorological Society, led off with an overview of the purpose and value of copyediting, noting that although the methods of communicating science continue to evolve, the copyeditor's role at its core has not changed. LaPointe presented several humorous examples that demonstrated how a lack of clarity can lead to confusion and can even be dangerous, depending on the message. She noted that the copyeditor is often charged with salvaging the credibility and integrity of a manuscript to prevent readers from asking themselves, If the writing is sloppy, is the science sloppy? and Why would I publish in this error-prone journal? Yet copyeditors must also perform a delicate balancing act:

they must avoid altering the author's intent while enforcing house style and improving the grammar and clarity of a poorly written manuscript.

LaPointe noted that although the copyeditor's role remains constant, it is not immune to progress. The advent of HTML, embedded links in online content, and mobile apps have had a trickle-down effect, requiring copyeditors to become familiar with the technical requirements for these new methods of scientific publishing.

Yvonne Blanco, senior scientific illustrator and designer at *Cell*, demonstrated that the work of a scientific illustrator is in many ways a form of editing scientific content for clarity. Using several examples of her own illustrations for Cell Press, she highlighted the importance of refining figures to communicate science clearly and explained how challenging this task can be, depending on the quality of the original artwork.

Blanco said that although most authors follow their publishers' imaging guidelines, the occasional author will not follow basic stylistic principles, design principles, or laws of simplicity in his or her original artwork; in such cases, the result is unclear science. She presented a comprehensive array of principles that she applies when modifying unclear illustrations, ranging from concepts as simple as font choice, line weight, and use of arrowheads to more complex considerations, such as color emphasis, typographical hierarchy, and Gestalt grouping theories (which involve, for example, proximity, similarity, and enclosure). In the end, however, Blanco stressed that scientific illustrators must consult the journal editors to ensure that their modifications have preserved the author's intent.

Ingrid Philibert, executive managing editor of the *Journal of Graduate Medical*

Education (*JGME*), rounded out the session by discussing the challenges that journal editors face in disseminating information to scientists in a fast-paced technological world. Such a task is especially difficult for journals like *JGME*, which, in stark contrast with *Cell*, is a text-heavy medical education journal with a dearth of eye-catching illustrations, graphic models, and other visual ways of communicating information.

Philibert noted that it is increasingly difficult for scientists to stay ahead of the literature, largely because of the combination of an overabundance of information and time deficiency. Readers have less time to assess the relevance, pertinence, and integrity of a study, and it has been shown that most scientists read only the article title and the abstract connected with a study. Consequently, journals must find ways to attract the eyes of their audiences and entice them to read full articles. Philibert cited various means of projecting and highlighting the key points of an article to draw readers in, including brief synopses and article sidebars that state the known and the new aspects of a study. She followed by stating that editors must be diligent in trimming the fat of an article, taking care to eliminate redundancy, such as tables whose results are given in the text, and details regarding study populations that are not relevant to study objectives or outcomes.

Philibert concluded the session by addressing the following questions to the attendees: What are your challenges in presenting information for publication? How have you overcome them? What are you still working on? These questions are more relevant now than ever before as we continue into the 21st century.

Managing Change in the Production Workflow

Moderator:
Jennifer Fleet
Aries Systems Corporation
North Andover, Massachusetts

Speakers:
Angela Cochran
American Society of Civil Engineers
Reston, Virginia

Brian Selzer
American Public Health Association
Washington, DC

Jon Munn
Plant Physiology
American Society of Plant Biologists
Rockville, Virginia

Reporter:
Debbie McClanahan
Cenveo Publisher Services
Columbia, Maryland

Postacceptance workflow continues to evolve, with increasing emphasis on speed, cost reduction, the online environment, and the introduction of new technology. During this session, the speakers presented the issues and challenges driving their decisions to move to new tracking systems, an alternative online publication model, or an alternative platform. In some cases, they changed vendors to serve their authors, editors, and readers better.

Angela Cochran noted that there are times when a publisher wants to initiate change in an organization, and there are other times when change is needed because of factors outside the publisher's control. The American Society of Civil Engineers (ASCE) was faced with several simultaneous changes: a move from one compositor to two (the size of the journal program required two vendors), a change to a new online platform provider, and the need to hire internal production editors. Critical and major changes needed to occur simultaneously without bringing the whole publication process to a halt.

ASCE made internal changes to reduce publication-processing time, increase staff knowledge, and push quality concerns back to vendors. After 2 years of staff re-education and forced workflow changes, ASCE has reduced its backlog and works with more knowledge, functionality, and collaboration, not only with its vendors but with its staff. ASCE is now starting new initiatives.

Some of the lessons that Cochran indicated having learned are

* Training new vendors is difficult.
* Moving to a new platform requires more maintenance by publisher staff; lots of "stuff" can break when you change platforms.
* We don't know what we don't know.
* Be prepared for anything—consolidation in the vendor marketplace may leave you scrambling.

Brian Selzer spoke about the American Public Health Association (APHA) goal of reducing time from acceptance to publication from over 1 year to 3 months. He presented the challenges that APHA faced with papers: many had to be entirely rewritten, there were multiple stages of correction, and lots of queries were encountered—all contributing to a long publication timeline. He described his approach to the needed changes as "taking the bull by the horns" with such desired targets as shorter proof turnaround times, faster proof generation, shorter turnaround times for copyediting and proofreading, and a reduced manuscript backlog.

Selzer stated the following as lessons that he learned during APHA's changes:

* Be open to process evaluations and change (having always done it this way is not a reason to maintain the current processes).
* Don't make a change when one isn't needed.
* Listen for common themes in author complaints.
* New processes and technologies can have a high upfront cost but may save money in the long run.
* Production is ever changing; it only appears static, so be ready to find new processes.

Jon Munn discussed changing production workflow to publish research in real time and some of the challenges that the American Society of Plant Biologists faced, including poor compliance by authors in adhering to journal style and the poor quality of figures.

Some of the questions that Munn suggested considering when making a workflow change were

* How will readers and authors respond to the change?
* Is the value of faster publication of research content greater than the value of the aesthetic quality of the journal articles?
* Is your staff prepared to handle the extra work that comes with making a major change in the production workflow?

Overall, the session provided helpful information for those who may be faced with similar workflow changes in their organizations.

Beyond the Impact Factor: New Measures of Journal Impact

Moderator:
Julie Nash
J&J Editorial
Apex, North Carolina

Speakers:
Peter Shepherd
COUNTER (Counting Online Usage of Networked Electronic Resources)
United Kingdom

Kevin A Roth
American Journal of Pathology
University of Alabama
Birmingham, Alabama

Cameron Neylon
Public Library of Science
Cambridge, United Kingdom

Reporter:
Devon Ritter
University of Chicago Press
Chicago, Illinois

The Impact Factor is losing its impact.

Long used as a standard measure of a journal's importance in its field, the Impact Factor (IF) was developed by Eugene Garfield, founder of the Institute for Scientific Information, before that institute became part of Thomson Reuters, and essentially counts a publication's average number of citations per article per year. Overall citation information is valuable in its simplicity and quantifiable nature, but the session's presenters believe that it does not give an accurate picture of importance—or impact.

Peter Shepherd, director of COUNTER, has heard "constant moaning" about the IF and its shortcomings. Critics take issue with a variety of flaws: it can distort author and publisher behavior; data are limited to the biomedical field; and citations typically understate the impact of an article and hence of a journal and say nothing of context. And the system can easily be gamed by publishing high-profile articles early in the year so that they have a longer time in which to accumulate citations.

The list of cons goes on, but the end point is clear, said Kevin A Roth, editor-in-chief of the *American Journal of Pathology*: "The Impact Factor does not present the whole story." Cameron Neylon, advocacy director at the Public Library of Science, agreed. He said that the IF provides neither the right data nor the correct information—and that it is, in fact, a poor predictor of any specific article's impact. "It is neither precise nor comprehensive nor current," he said. He, like the other presenters, said that there are different and better ways to measure.

One alternative metric gaining prominence in the field is altmetrics. Jason Priem, the author of *Altmetrics: A Manifesto*, was unable to attend the session, but Shepherd filled in on his behalf and gave his assessment of the emerging metric. He discussed the movement of scholars' work and conversations about their work to the Web; Web-centric tools—such as bookmarks, links, tweets, and blogs—offer better ways to filter the wider impact and influence of scholarly research.

Instead of evaluating the journal as a whole, Shepherd sees individual articles becoming the primary focus. In his role at COUNTER, he has helped to develop a use-based metric that focuses on online full-text single-article downloads. The use factor can count downloads anywhere an article appears online, from data reposi-tories and digital libraries to a publisher's or author's Web site. It produces immediate results, is independently audited, and covers all categories of publication—more than 15,000 journals compared with the IF's 9,000. COUNTER is in the third stage of its use-factor project, in which it is working to draft a code of practices. In its first two stages of testing, the model has proved robust.

Whereas COUNTER statistics examine numbers of article downloads, other methods go further to include additional Web-based information on consumption. Online users leave a trace online as a result of their research activities on the Web, and using these data, PLOS has helped to create metrics capable of evaluating a variety of users and activities related to scholarly information. Neylon discussed measuring an article's total online page views, PDF downloads, tweets, mentions on Facebook and Wikipedia, and so on. The resulting statistics can give a fuller picture of who is using a particular article, how people are using it, and what they are using it for, Neylon said; ultimately, we care about people using research, not only about citations of authors' works.

Roth said that perspective is important when it comes to measuring impact. Researchers, department chairs, and journal editors must ask, Are journal metrics helpful and important? Do they affect my decision making? Will the IF (or other metrics) play a role in the future? He answers each question in the affirmative, concluding that metrics, whatever they may be, are here to stay. They all—even the IF—have merit, and they provide different information to different people at different times.

New Standards in Science Publishing

Moderator:
Tony Alves
Aries Systems
Andover, Massachusetts

Speakers:
Jeffrey M Drazen
New England Journal of Medicine
Winchester, Massachusetts

Laurel Haak
ORCID
Bethesda, Maryland

Bruce Rosenblum
Inera
Belmont, Massachusetts

Carol Anne Meyer
CrossRef
Lynnfield, Massachusetts

Reporter:
Rachael Lammey
CrossRef
Oxford, United Kingdom

Several organizations—such as the International Committee of Medical Journal Editors (ICMJE), CrossRef, the National Library of Medicine (NLM), and the newly formed Open Researcher and Contributor ID (ORCID)—are putting forth ideas to standardize various aspects of scholarly publishing. This session gave an update on the initiatives.

Jeffrey M Drazen discussed events in the disclosure arena. In 2009, all ICMJE journal editors accepted a common form for their journals; an updated form is now available. The Physicians Payment Sunshine Act, effective this year, is changing things. It aims to ensure that physicians declare everything that they receive from companies. The ideal situation would be to have a central database to perform this adjudication on disparities between how much physicians declare that they have received and how much a company declares, but it does not currently exist.

Laurel Haak discussed how the research community has lacked the ability to link researchers and scholars with their professional activities. Embedding of ORCID identifiers provides a way to link existing researcher identifiers and research works to a persistent ID that can travel with a researcher throughout his or her career. ORCID provides a free registry of unique and persistent identifiers for researchers, more than 130,000 of whom have already registered at http://orcid.org. *Nature* will soon be publishing authors' ORCID IDs with their articles. In addition to the registry, ORCID provides a public and member application programmer interface to support interoperability. For ORCID to succeed, researchers need to register and use their identifiers, and organizations throughout the research community need to embed them into their systems and ensure that they become part of the metadata on articles and other research works.

Bruce Rosenblum summarized new metadata standards for publishers. JATS (Journal Article Tag Suite) is the new moniker for the National Library of Medicine (NLM) document type definition. It is now a National Information Standards Organization (NISO) standard; details can be found at *http://jats.nlm.nih.gov/index. html*. JATS provides support for contributor IDs similar to ORCID and author names in multiple scripts to support name alternatives. JATS is backward compatible with NLM 3.0, but publishers using earlier versions will need to talk to their vendors before migrating.

The Book Interchange Tag Suite (BITS) is a version of JATS that is designed to work with books and is a better structural model for them. It exists as a draft but contains useful information for publishers.

Publishers should also consider MathJax (*www.mathjax.org*), a new way to represent mathematics on the Web, and a NISO standard, PIE-J (Presentation & Identification of E-Journals). NISO has a document, *Recommended Practices for Online Supplemental Journal Article Materials (http:// www.niso.org/apps/group_public/download. php/10055/RP-15-2013_Supplemental_ Materials.pdf)*, to help journal editors to think about how they want to handle article supplemental materials.

Carol Anne Meyer presented FundRef, which was launched by CrossRef in May 2013. FundRef addresses the concern that funder information is required in journal articles but is difficult to find consistently. Funding agencies are under pressure to be able to accurately report that funder information is included in the articles.

FundRef is a funder–publisher collaboration that will provide a standard way to capture funding data by using a controlled taxonomy and depositing the data with CrossRef in a standard format; there will be no charge to deposit these data. Funding metadata will be freely available through all the methods that CrossRef uses to distribute metadata, and publishers can also display this information through the CrossMark system. Publishers can see the FundRef workflow, sign up for a Webinar, and get more information at *www.crossref. org/fundref*. ◑

Editorial Decision Making

Moderator and Speaker:
Peter D Adams
Physical Review B
American Physical Society
Ridge, New York

Speakers:
Leslie Sage
Physical Sciences at *Nature*
Washington, DC

Emma Veitch
PLOS Medicine
Cambridge, United Kingdom

Reporter:
Michelle Lyons
Western North American Naturalist
Provo, Utah

The central discussion of this session focused on the different methods behind accepting and rejecting manuscripts. The method used depends on the purpose or goal of a journal, so it varies from organization to organization.

Peter D Adams, editor at the American Physical Society (APS), and Leslie Sage, senior editor at *Nature*, both described how their journals' goal is to publish recent research that substantially affects their journals' fields. Their submission-evaluation process is rigorous, and they invest time only in papers that they think will probably be accepted. In-house editors make the preliminary decision to reject or accept a manuscript. Only after a manuscript has passed that initial evaluation does it proceed to peer review. Adams noted that, depending on the particular journal, APS rejects about half the number of submitted papers after the initial internal evalua-

tion compared with the number of papers rejected that are subjected to external review. The internal rejections are somewhat arbitrary, but few of the rejections are challenged.

Sage detailed how the chief editors of each science team at *Nature* read all the abstracts of papers submitted in their fields, reject all the obviously inappropriate submissions, and assign the remaining papers to the appropriate scientific editors. Those editors evaluate whether the subject of a manuscript is interesting, the science is sound, and the research advances the field; they also check for duplicate submissions or plagiarism. A manuscript that passes those tests undergoes peer review. *Nature* rejects roughly 75% of its submissions without external review, and, as at APS, few of the rejections are challenged. Both APS and *Nature* also reject manuscripts after peer review. Accepted papers go through both developmental editing and copyediting.

Emma Veitch, senior editor at *PLOS ONE*, described a different approach to manuscript evaluation. The *PLOS ONE* approach is to accept all papers that deserve to be published; to that end, *PLOS ONE* has tightly applied criteria for accepting manuscripts. If the reporting is clear, the science is sound, and the conclusions support the data, *PLOS ONE* will publish the manuscript. The editors do not ask how important the paper's contribution to the field is or what the relevant audience is. Their goal is to provide a database in which all research—whether the findings were positive, negative, mixed, or replications of results of previous research—is available for

others to review. Accordingly, *PLOS ONE* rejection figures are low. After a manuscript has gone through peer review and is accepted, it is given minimal copyediting and then is published at the authors' or research funders' expense.

Adams, Sage, and Veitch all stated that each journal should have a clear vision and accept papers that fit that vision. Editors do not need to have criteria for rejection that are set in stone but they do need to be consistent in their choices and be able to justify their decisions as upholding the journal's vision.

In addition, Sage discussed *Nature*'s views on the selection of referees. People with whom the authors are collaborating were declared poor choices, as was anyone academically related to any of the authors. Sage cautioned that this can be a tricky question in that not all connections among people are obvious. People cited in acknowledgments are sometimes acceptable as referees, but editors should generally avoid them as well. The best referees are postdoctoral scholars who completed their doctoral work 2–5 years previously and are working on the same topic, especially ones that the author did not cite in the manuscript.

Veitch also discussed *PLOS ONE*'s specialized metrics. Rather than using the standard impact factor, *PLOS ONE* evaluates impact on an article basis via custom markers and statistics. It tracks sharing of articles through social media; the actual number of published citations that an article receives; and use, which is measured against its own sites and PubMed sites through downloads, views, and academic bookmarks.

The Separation of Church and State: Navigating the Journal–Society Relationship

Moderator:
Mary K Billingsly
Journal of the American Academy of
Child and Adolescent Psychiatry
Washington, DC

Speakers:
Alison Denby
Psychiatry
Oxford University Press
New York, New York

Jason Roberts
Origin Editorial
Boston, Massachusetts

Pamela Liao
University of British Columbia Medical
Journal
Vancouver, British Columbia

Reporter:
Duncan A MacRae
Neurosurgery
Atlanta, Georgia

This session looked at the complex and sometimes difficult relationship that exists between a journal and its sponsoring society. It focused on potential conflicts, the benefits of the journal–society relationship that should not be overlooked, and the increasing role of academic organizations in developing the next generation of society members and journal authors and editors.

Alison Denby, editorial director of Oxford University Press's *Psychiatry*, opened the discussion with an examination of the journal–society relationship. Potential conflicts abound, as societies and editorial offices contend with increasingly diverse membership bases, financial and oversight concerns, conflicting goals, and the effect of society leadership changes. However, there is much to be gained from a favorable collaborative relationship. For example, the organizational structure of a society can provide the editorial office with administrative structure, such as personnel expertise that would otherwise have to be provided entirely by the journal. Likewise, the membership of the society actively provides authors, reviewers, and editors, necessary elements if a journal is to sustain its mission.

Jason Roberts, senior partner of Origin Editorial, further examined the types of journal–society relationships and subjects of tension that can arise, including editorial freedom, commercial content, the balance between highly cited and widely read content, and the structure of the editorial staff.

Roberts stressed the value of publications committees, which can act as both liaison and independent arbiter of journal–society conflicts. Often composed of senior society members, a publications committee can advise the editor on staffing and financial matters, providing counsel while shielding the editor from conflict. And the society benefits from having a governing body that can vet requests from the editorial office and review budgets before approval, lessening the opportunities for conflict to arise. Because the staffing structure of the editorial office itself can be a source of tension, a publications committee can act as an important intermediary to counter either disengaged or overbearing society leaders.

Given that transitional periods between editors can be particularly unsettling, the publications committee can help to lead the selection of a new editor and manage expectations of the changeover.

Pamela Liao, founding coeditor of the *University of British Columbia Medical Journal*, introduced a third party to the journal–society relationship. Universities have traditionally played an important role both in producing the future members of societies and in the training of future authors, reviewers, and editors. Student-run journals, more than 40 of which exist globally, produce better trained and more experienced graduates, who are more engaged in their academic community. University-provided workshops can introduce the importance of study guidelines and critical literature review. Liao's personal experience in launching the *University of British Columbia Medical Journal* highlighted the part that a university can play in exposing students to facets of scientific life that would otherwise go unaddressed.

Journals are a highly valued benefit of membership and help to sustain membership numbers and advance the educational aims of a society. Likewise, societies can mobilize members for the creation and promotion of journal content via live meetings, patient-education materials, and society social-media channels. Neither a journal nor a society should dismiss the ways in which they support one another, and putting into place a structure for recognizing and managing the potential conflicts is essential for the journal–society relationship.

Improving Review Quality and Referee Engagement

Moderator:
Glenn Landis
American Society of Clinical Oncology
Alexandria, Virginia

Speakers:
Emma Pfordresher-Shumeyko
American Society of Clinical Oncology
Alexandria, Virginia

Mary Beth Schaeffer
Annals of Internal Medicine
Philadelphia, Pennsylvania

Reporter:
Karen Strenski
Neurosurgery
Atlanta, Georgia

"By increasing the quality of reviews, you will spend less time waiting for unhelpful reviews," stated Emma Pfordresher-Shumeyko, senior program coordinator of the American Society of Clinical Oncology. Pfordresher-Shumeyko and Mary Beth Schaeffer, managing editor of *Annals of Internal Medicine*, discussed the key factors in obtaining high-quality reviews. The three main factors, as stated by Pfordresher-Shumeyko, are high-quality submissions, enthusiastic editors, and engaged referees.

Pfordresher-Shumeyko stated that in 2007, Thomson Reuters' *Journal Citation Reports* listed 132 journals in the oncology category. By 2011, that number had increased to 196; 64 new oncology journals were recognized by Thomson Reuters in just 4 years. "More journals and increasing demands on a specialist's time make having a pool of referees who are dedicated and excited to review for your journal enormously helpful," she said.

The American Society of Clinical Oncology, Pfordresher-Shumeyko said, is beginning to see a larger gap between the number of reviews that it needs to solicit and the number that are being completed each year. The number of reviews completed rose by 40% from 2005 to 2012, but the number that it needed to solicit rose by 62% in the same period. She suggested that a journal should encourage newer professionals to review through a referee-training program that allows a veteran referee to choose fellows or residents to share in reviews. The editor of the journal can then provide comments to the veteran on the quality of the newer professionals' review and decide whether a new fellow or resident can be added to the reviewer pool. That method will help to establish loyalty to the journal.

Pfordresher-Shumeyko stated that "issues with referee availability will probably be seen in more specialties as professionals older than 50 years gradually move into retirement and fewer people are available to replace them. With this upcoming workforce shift, it's more important than ever for a journal to secure an engaged pool of referees." She also said that ease of reviewing can help to improve review quality. A referee should be given clear expectations by the journal, and it should be easy to accept a review assignment and submit a review through the journal's submission Web site. Referee enticements, such as acknowledgments in the journal, can also help to obtain reviewers.

Schaeffer stated that her editorial office sends letters to referees from the editor-in-chief, thanking them for taking the time to review. She outlined the components of a high-quality review. They include timeliness, constructive and concise recommendations, and substantiated comments about the strengths and weaknesses of a paper. Reviews for *Annals of Internal Medicine* must adhere to review guidelines, including the expectation that a potential reviewer will decline to review if there is a conflict of interest. She stated that a good review should include ways to improve a paper even if it is not accepted.

She said that one incentive for referees to accept reviewer invitations is getting continuing-medical-education (CME) credit for completing on time a review that receives a high score on the basis of its quality. Referees are told about the possibility of CME credit when asked to review, according to Schaeffer. CME credit is granted for reviewing original research articles and reviews but not humanities pieces or editorials.

Schaeffer stated that in the last year, *Annals of Internal Medicine* received 80% of its reviews on time, 93% within 7 days of the due date, and 98% within 10 days of the due date. In closing, she discussed some ways to increase the pool of reviewers: reaching out to attendees of subspecialty meetings, e-mailing existing reviewers, and allowing junior faculty to assist with reviews.

Culture Shock: Managing Changes in Publishing

Moderator:
Tamer El Bokl
Canadian Science Publishing
Ottawa, Ontario, Canada

Speakers:
Richard Akerman
National Research Council of Canada
Ottawa, Ontario, Canada

Cameron Macdonald
Canadian Science Publishing
Ottawa, Ontario, Canada

Reporter:
Amanda Ferguson
Institute of Food Technologists
Portland, Oregon

Many of us are experiencing culture shock in just trying to keep up with the pace of technological innovation. The first speaker in this session, Richard Akerman, an innovation officer with National Research Council of Canada, started off with a review of recent change drivers in our world and in scholarly publishing—the digitization and mobility of data and devices that keep us continuously connected and networked to an extent that we've never been before—that cause our perception of how things should work to evolve.

In our new universe, humans interact with machines that can interact with other machines. Data are easy to copy accurately. There's an expectation of openness in sharing information, as seen in the shift toward open data and open access. Akerman discussed how we now spend so much time in reacting that we are stuck in the present

and can't worry about the future. The complexity of our environment means that we must accept and integrate.

A key point that Akerman made is that the information that we channel should be not just *on* the Web but *of* the Web. He urged, "Don't just take a physical process and make it digital." Scientific publishers should apply scientific methods to improve their scientific publications. When NRC Research Press changed from a government agency to the not-for-profit Canadian Science Publishing, the transition process gave staff the opportunity to step back, rethink their processes, and design new solutions intentionally.

Other ways in which Akerman advocated culture change include making studies easier to replicate and easier to report on when not replicable, being more transparent about retractions, clearly identifying authority of content to make it easier to distinguish what is reputable, and integrating ourselves into larger networks beyond our disciplines. We need to connect with our communities and show that science is real, dynamic, *human* work.

Cameron Macdonald then spoke about his experiences as executive director in the change of NRC Research Press to Canadian Science Publishing in 2010. For 80 years, NRC Research Press operated as part of the National Research Council of Canada (NRC). By 2009, NRC was publishing 15 of its own journals and 10 client journals and monographs. NRC handled production in house and relied on

a government-based support system. Then, the federal government decided to quit the journal-publishing business and gave the staff of NRC Research Press a year to incorporate as a nonprofit.

When the initial shock and anger wore off, staff led the massive change in the culture and business of the press. In a year, they had to replace information-technology infrastructure, software, and processes; rebrand; reallocate resources; and develop new business plans. Most staff remained and were faced with adapting to the rapidly evolving digital communication of research amid intense competition. Macdonald walked attendees through the giant steps and occasional pitfalls that he and his staff took in the transition process, starting with moving to new platforms, embracing the latest technologies, and developing content. They took risks to develop a culture of innovation, continuous change, and improvement. They were also faced with persuading old clients to stay with them while attracting societies and researchers through new and improved offerings, such as open-access options, faster turnaround times, a cutting-edge publishing platform, and video abstracts. During this organizational culture shift, the employee-led transition depended on re-engaging staff with strong internal communication, team building, new opportunities, and idea generation.

Suggested reading: Rushkoff D. Present Shock: When Everything Happens Now. 2013. Current. 256 p. ISBN 9781591844761

Getting the Most from Scholarly-Publishing Vendors

Moderator:
Richard Wynne
Aries Systems
Boston, Massachusetts

Speakers:
Lisa McLaughlin
American Institute of Physics
College Park, Maryland

Barry Davis
The Sheridan Group
Hanover, Pennsylvania

Brian Selzer
American Public Health Association
Washington, DC

Reporter:
Barbara Biemeck
Dartmouth Journal Services
Waterbury, Vermont

In this session, science–technology–medicine (STM) vendor representatives teamed with publishers to highlight best practices and tips for managing and maximizing vendor services in an era of tightening margins and increased demands. The session began with some challenging questions from Richard Wynne, vice president of sales and marketing at Aries Systems, who asked, Why are we so uptight in our industry? Why the "no-mistakes culture"?

One clear theme emerged as the panelists presented their remarks: partnership. Publisher and vendor must value and respect their relationship. It takes work by both parties, and good communication is critical for success.

Lisa McLaughlin, director of publishing operations of the American Institute of Physics Publishing, noted these lessons that were learned during a major 5-year changeover in her organization that included outsourcing all production:

- Keep vendors in the loop and provide honest communication.
- Set realistic expectations and ensure universal understanding of the work's scope and complexity.
- Provide complete documentation and specific examples.

- Test vendors and your own internal processes with a pilot.
- Make sure your own staff members understand the relationship.
- Be sensitive to cultural differences if vendors are offshore.
- Mix it up a little—use e-mail, telecom, videoconferencing, and in-person meetings.

She emphasized the value of streamlining and standardizing of internal processes before any transition. Then, in working with vendors, "make sure that you understand the root cause of a problem and any role that you play in it." She added that it is important to help vendors to set priorities, especially early in the process. McLaughlin also offered her wish list for vendors:

- Diversify beyond product and service offerings.
- Establish relationships.
- Listen better.
- Don't overpromise!

Barry Davis, sales representative for STM Journals, The Sheridan Group, quipped that "even bad relationships are probably reasonably good in STM." On a more serious note, he acknowledged that "vendors are entrusted with content that is crucial to authors, editors, and societies."

He stressed the dos and don'ts of the request-for-proposals (RFP) process, problem resolution, and measuring success. To summarize:

- Be clear, not ambiguous. Specifically, What does the society intend to change or improve via the RFP?
- What happens when you report a problem to your vendor? Expect AARP—acknowledgment, apology, report, and promise.
- Plan for periodic supplier reviews to measure your partnership's success. Establish the reviews as a scheduled part of your process.

Davis challenged session attendees to communicate in specifics and not just accept vendor claims. "Has anyone ever *not* claimed 'excellent customer service'?" And he reminded them to focus on the transition after the transition: seek out a specific transition plan and timeline to address concerns that emerge in live production.

To that end, Brian Selzer, publications editor with the American Public Health Association, noted the importance of distinguishing mistakes from continuing, systemic problems with vendor services. "Don't let problems fester," he advised. In his experience, "managing vendors is like managing staff. Learn the behaviors and personalities; vendors are extended staff."

On the topic of those critical communications, he noted that "sometimes the language you speak is not what the vendor speaks. Clarify anything vague and establish good communication."

Entering into a new relationship with a vendor is a process, and it takes time, he said. He offered this three-step advice to STM vendors:

- Remember language barriers.
- Provide a clear and concise timeline for implementation.
- Be available.

"Accountability is not a four-letter word," Selzer said. "Neither is no." Selzer appreciates vendors who are focused on "communal growth" and are willing to tell him no and investigate changes and alternatives.

A Q&A with session attendees brought up a point of friction in publisher–vendor relationships when Wynne asked, "How should innovations in our industry be financed?" Audience response highlighted that publishers should not pay for the development of systems that other publishers benefit from as well. Why not set up joint financial support? Focus quickly returned to important communication in the Q&A in which Wynne noted, "Pay attention to the balance of vendor and customer in RFP meetings and discussions. Balance is key in those discussions."

Recognize, Respond to, and Prevent the Publication of Research Misconduct

Moderator:
Christine Casey
Morbidity and Mortality Weekly Report
Centers for Disease Control and Prevention
Atlanta, Georgia

Speakers:
Susan Garfinkel
Office of Research Integrity
Rockville, Maryland

Thomas Gerber
Mayo Clinic Proceedings
Rochester, Minnesota

Christina Bennett
American Physiological Society
Bethesda, Maryland

Reporter:
Remya Nambiar
Center of Excellence for Molecular Biology
Cactus Communications
Mumbai, India

Editors influence many fields through careful selection, review, and timely publication of high-quality journal articles, so they must be able to recognize, respond to, and prevent research misconduct (RM), which is defined as fabrication, falsification, and plagiarism (FFP). In this session, the speakers shared views, findings, and useful resources for achieving those goals.

In the Office of Research Integrity (ORI), Susan Garfinkel, acting director of the Division of Investigative Oversight (DIO), participates in responding to and investigating RM allegations. She presented an overview of ORI responsibilities and discussed its role in retractions and the tools that ORI uses to detect manipulated images.

ORI's authority is limited to FFP allegations related to Public Health Service–funded research. The administrative action depends on the seriousness of the misconduct and is often imposed for 3 years but can range from 1 year to lifetime. ORI relies on the host institution to implement administrative actions. The time to a verdict can be long because allegations need to be verified before findings are published. ORI cannot disclose details of an allegation or an active investigation. Once RM is confirmed, an expression of concern, correction notice, or retraction can be published. However, retractions do not necessarily mean RM. ORI publishes its findings in the *Federal Register* and links them with the retractions, if any are made, in PubMed.

Thomas Gerber, associate editor of *Mayo Clinic Proceedings*, focused on the role of editors in identifying and preventing publication of work in which RM has occurred. He outlined the consequences of RM, including waste and misallocation of intellectual and financial resources, unfair career advancement, and ineffective and harmful uses of the flawed work by researchers and physicians. RM can be prevented or recognized before submission, before publication, and before and after peer review.

Ithenticate is a detection software that produces similarity reports for manuscripts; however, it is not foolproof and cannot supplant editor judgment in detecting plagiarism. Gerber discussed methods used by authors to circumvent automated plagiarism-detection software.

Christina Bennett, manager of publication ethics for the American Physiological Society (APS), addresses ethical concerns for journals published by the society. Her responsibilities span the entire publication life cycle. During submission and production, she facilitates the query process, updates and revises ethics policies, and promotes best practices in publication ethics. After publication, she addresses concerns raised by readers, authors, whistle blowers, or anonymous persons.

Before publication, APS conducts incorporated reviews of all digital images in accepted manuscripts. Images that seem edited or have extreme contrast adjustment are returned for correction. APS runs plagiarism checks on submitted review articles. When self-plagiarism is detected, authors are encouraged to revise their articles. Bennett assesses the ethical issues, recommends next steps, seeks clarification from authors, and evaluates their responses to reach a resolution. Her experience substantiates the findings of ORI that image manipulation is the most common type of RM. However, most image manipulation that is identified does not constitute RM and can be easily corrected. Some useful forensic tools for detecting image manipulation are available at *http://www.ori.dhhs. gov/actions*.

To reduce the number of publications that have ethical errors, Bennett recommends the following: increase interaction with associations, such as the Committee on Publication Ethics (COPE); determine the necessity of prepublication ethical reviews; update ethical policies in journal guidelines; and set standard processes for assessing and addressing ethical concerns.

The responsibility for avoiding RM lies with the entire scientific community, from the laboratory staff, mentors, and institutions to the journals and ORI. Journals should promote author awareness regarding RM. Their awareness can be heightened by explicit statements of a journal's policy about RM in author guidelines.

Looking Ahead: Advances in Publishing Technology from Author to Content Delivery

Moderator:
Mike Friedman
American Meteorological Society
Boston, Massachusetts

Speakers:
Laura Stemmle
Rubriq
Durham, North Carolina

Mike Hepp
Dartmouth Journal Services
Waterbury, Vermont

Cory Klinkenberg
Canadian Science Publishing
Ottawa, Ontario, Canada

Reporter:
Angela Cochran
American Society of Civil Engineers
Reston, Virginia

As scholarly publishing becomes more affected by available technology and tools, companies are becoming more experimental in providing tools and services for authors, publishers, and readers. It can be difficult to keep up with all the changes. This standing-room–only session at the 2013 CSE annual meeting in Montreal provided a peek into three new technology services.

Laura Stemmle, director of product management at Rubriq, presented a new service for authors that aims to decrease the amount of redundant peer review. Stemmle reported that millions of papers are submitted to journals every year, of which almost 40% are rejected after review. Rejected papers are often submitted to other journals.

Rubriq, owned by Research Square, promises independent standardized peer review decoupled from specific journals. Authors in biomedical fields submit a paper to be reviewed by paid reviewers who are invited by Rubriq. Authors receive a standardized scorecard that addresses the quality of research, the quality of the presentation, and novelty. They also receive summary comments and key points. The basic service costs $500. Additional services are available, such as CrossCheck reports and a list of recommended journals ($600). Starting in summer 2013, authors can pay $700 to receive these services and the ability to broadcast their papers to participating journals and extract their scorecards to send to journals in the Rubriq network. Stemmle also reported that Rubriq is providing peer-review services for at least one journal. The company hopes to expand this "outsource" service to more titles.

Mike Hepp, director of technology strategy at Dartmouth Journal Services (DJS), also spoke of new tools for authors but at the opposite end of the spectrum. DJS provides editorial and composition services to publishers and will be rolling out a new Web-based author-proofreading system that allows authors, publishers, and production editors to edit an HTML version of an article directly while maintaining the underlying structure of the XML content.

"With the flexibility of HTML and the focus on XML typesetting, why is the production workflow still based on print and the PDF? Why is it still a PDF-centric workflow?" Hepp asked. He reported that at the end of 2013, DJS will be offering ProofExpress, which moves the workflow from PDF to HTML. Sending PDF proofs to authors or editors is labor intensive and conducive to errors. ProofExpress allows authors to make changes in the HTML interface instead of annotating a PDF. ProofExpress is an online editing tool with structured sections and tracked changes that records all touch points (copyeditor, editor, and author). Authors' papers appear in the Web form with author queries and in a widget with form fields for entering comments. In addition, structured elements—such as citations, references, and author lines—will be edited by using forms to keep the XML tags reliable.

Cory Klinkenberg, technology innovation and implementation specialist at Canadian Science Publishing, talked about the growing field of data management. He demonstrated the evolution of the Web and declared that we are now in Web 3.0, in which data are used to personalize user experiences. "Web 3.0 is the place where computers can read data on the Web—an intelligently linked set of databases," Klinkenberg said.

Semantic tagging now links content to databases. The value is in choosing the correct databases that are relevant to the content and valuable to the user. Klinkenberg discussed the importance of giving users such options as pop-ups on tagged terms, which lets them choose the databases that they want to explore next.

Klinkenberg also argued that publishers and society database managers should consider including links to databases or content to serve the general public. The user-friendly links to, for example, images, news articles, or such general-information sites as the Encyclopedia of Life will add context for users of content who are not scientists or experts in the field. None of this is easy, Klinkenberg said. Disciplines are different, databases are not standard, and there is a lot of duplication and overlap in available databases.

"Publishing technology" is definitely the new buzzword in scholarly publishing. Innovations that promise to make publishing scholarly content easier, faster, and better are emerging rapidly. The panelists in this session showed three excellent examples of how technology can enhance or simplify the experience for authors, publishers, and end users.

Look Before You Leap: The Transition from Self-Publishing to Contract Publishing

Moderator and Speaker:
Judy Connors
DIA *Therapeutic Innovation &*
Regulatory Science
Horsham, Pennsylvania

Speakers:
Tanda Jaipean
Journal of Histochemistry and
Cytochemistry
Seattle, Washington

Courtney Pugh
SAGE
Thousand Oaks, California

Reporter:
Tim Cross
Allen Press, Inc
Lawrence, Kansas

This session covered the transition to contract publishing from self-publishing and commercial publishing.

Judy Connors, associate director of editorial services for DIA *Therapeutic Innovation & Regulatory Science*, opened the session by providing some history to describe the position in which DIA, a neutral, nonprofit, global membership-driven association, and its peer-reviewed journal, the *Drug Information Journal (DIJ)*, found themselves in June 2011. Six of the nine employees associated with the journal were due to retire, there was a backlog of 175 manuscripts, the journal had just hired a new editor-in-chief, and a technology upgrade was overdue without the resources and skill set available to achieve it. For DIA, this "perfect storm" made the decision to contract with a commercial publisher a logical move.

The process began with an analysis of which tasks were being performed by in-house staff and which could be offloaded to or provided by a new partner. Things to think about were resources, personnel, ease of manuscript processing, revenue sources,

turnaround time, record maintenance, and the migration from paper to digital content. Benefits included more functionality with fewer people, an increase in manuscript submissions from 121 in 2011 to 190 in 2012, a decrease in acceptance rate from 95% in 2011 to 67% in 2012, a reduction in the time from submission to final decision, and the change from a manual workflow to a fully electronic system. Organizing the editorial office and establishing a work process to accommodate the move took 6 months. In January 2012, the *DIJ* changed from a 47-year-old self-published journal to a commercially published one with an in-house staff of two. A successful first-year partnership resulted in the launch of a new journal, *Therapeutic Innovation & Regulatory Science*, in January 2013.

A similar case study with some notable differences was related by Tanda Jaipean. She described the *Journal of Histochemistry and Cytochemistry* (*JHC*), for which she serves as managing editor, as a society-owned, self-published niche journal that has 200–300 submissions per year and an established electronic workflow.

After the switch to a commercial publisher, *JHC* retained control of content, instructions to authors, production fees, layout, and issue approval. There was a decrease in office staff and a big change in office workflow and structure. Jaipean pointed out that the publisher took on many tasks formerly performed by journal staff members, but retained staff members became responsible for exercising diligent oversight. She recommends keeping existing staff for 6–12 months after such a change. She also recommends that a journal keep its manuscript-submission and peer-review systems if they are meeting all current needs and the contract permits doing so. Time-consuming aspects of the transition included data transfer, reconfiguring the peer-review system, and implementing a new style guide.

JHC gave up control over workflow and flexibility in schedule deadlines but was able to optimize the commercial publisher's in-house staff and offload copyediting, issue layout, and author billing and to leverage new technology.

In marketing, gains were made in global support for the brand, corporate efficiencies in handling data, and access to professional marketing staff; there were concerns about ensuring the journal brand and measuring success. In sales, there were gains in global support for sales, increased visibility to consortia and stand-alone institutions, and access to corporate libraries; and there were concerns about access to sales and subscription revenue data and about having the commercial publisher determine pricing.

The session wrapped up with Courtney Pugh, publishing editor at SAGE, covering what both parties should expect during a transition. For starters, the expectation should be responsiveness and good communication, followed by strategic vision, vigorous trouble shooting, and managing needs versus desires. Commercial publishers' responsibilities are typically editorial management support, production, online hosting, marketing, public relations, fulfillment, renewals, reporting, sales, industry knowledge and contacts, and education about trends in the industry. Pugh recommended signing contracts in time to use the next year's price list (publisher timeframes may vary) and added that it will take a full year or volume for things to "settle in". Most importantly, she noted that it is important to remain calm throughout the process and "take a breath"—new relationships, workflows, and personalities are big changes for both parties.

This was a valuable session for those interested in learning about the situational decision making that goes into moving from self-publishing to contract publishing.

Improving Statistical and Methodological Reviews with Automation

Moderator:
George Kendall
Anesthesiology
Raleigh-Durham, North Carolina

Speakers:
Timothy Houle
Wake Forest School of Medicine
Winston-Salem, North Carolina

Chad Devoss
Next Digital Publishing, LLC
Madison, Wisconsin

Dana Turner
Wake Forest School of Medicine
Winston-Salem, North Carolina

Reporter:
Renee D Pessin
RDP Editorial Consulting, Inc
New York, New York

As an introduction to this session, like any good scientist, Timothy Houle, associate professor in the Departments of Anesthesiology and Neurology of Wake Forest School of Medicine, first identified a problem: statistics in biomedical research is a problem because most biomedical researchers are not statisticians and therefore do not have the expertise to evaluate their approach to study design or data analysis critically. Similarly, most peer reviewers, despite their best intentions, are not qualified to critique methods or statistical analyses adequately. In fact, the quality of statistical review is a growing concern for readers of the medical literature to the extent that the poor quality of much published medical research has been labeled as a "scandal". Several publications reported that low statistical power and skewed or biased findings are prevalent in the literature.[1-5] Unfortunately, only a small percentage of journals use a professional statistician as part of the standard review process. As Houle stated, "thus, despite the best intentions of all involved, the peer-review system is not particularly well suited to providing high-quality criticism of the statistical methods of reviewed manuscripts."[6]

StatReviewer, the software described in this informative session, was created to solve many problems related to statistical review. StatReviewer "looks for" for critical elements in biomedical manuscripts. Those elements include a statement about the standardized reporting guidelines in use for the particular study (such as CONSORT or STROBE), use of uniform requirements for medical journals, and appropriate use and reporting of P values. The process starts as the software scans the manuscript (which had been cut and pasted into fields on the software site) and parses the document into sections. It runs thousands of algorithms for each section, checking to see whether required reporting elements are provided. Next, the user sees a numbered list of criticisms organized by section that can be inserted into the critique or simply e-mailed to the author. The presenters noted that StatReviewer is in beta testing, and they encouraged attendees to try it out.

Chad Devoss, founder of Next Digital Publishing, followed Houle's presentation to explain more about the software itself. StatReviewer is Web based and works with iterative algorithms equating to tens of thousands of checks per manuscript.

Limitations at the time of this presentation include the following: StatReviewer accepts input of manuscript sections rather than instant document import, StatReviewer augments statistical review but cannot take its place, and further comments are needed to perfect the system. Future enhancements to the system will include new built-in statistical checks, machine learning to result eventually in 99% accuracy, and the ability to integrate into manuscript-system workflows with journal-specific elements.

Dana Turner, project manager at Wake Forest School of Medicine, provided examples of three published manuscripts to demonstrate that the output of software analysis is a numbered list of "suggested improvements". Audience response was enthusiastic, and most attendees seemed pleased that there was some help on the horizon to augment statistical review of peer-reviewed manuscripts.

1. Dupuy A, Simon RM Critical review of published microarray studies for cancer outcome and guidelines on statistical analysis and reporting. J Natl Cancer Inst. 99:147–157.
2. Ioannidis JP Molecular bias. Eur J Epidemiol. 20:739–745.
3. Ioannidis JP Why most published research findings are false. PLoS Med. 2:e124.
4. Ioannidis JP Contradicted and initially stronger effects in highly cited clinical research. JAMA. 294:218–228.
5. Ioannidis JP Large scale evidence and replication: insights from rheumatology and beyond. Ann Rheum Dis. 64:345–346.
6. Horrobin DF Something rotten at the core of science? Trends Pharm Sci. 22:51–52.

Opinions on "Predatory" Open-Access Publishers

Kristi Overgaard, Ethical Editor

For this issue, we asked three thought leaders for their opinions on the following:

Regarding Beall's list of predatory publishers, what do you see as the ramifications of the proliferation of open-access publishers in business to collect available funder fees without doing appropriate peer review? How does such proliferation affect, for example, article quality, journal credibility, or tenure evaluations?

Here is what they said.

Rachel Burley
Vice President and Director,
Open Access, Wiley

Jeffrey Beall's database of predatory open-access (OA) publishers lists more than 300 publishers and journals—a 10-fold increase in just a year—and has attracted plenty of attention. It includes publishers that use deceptive practices, such as excessive e-mail spam to solicit manuscripts or reviewers, adding researchers to editorial boards without explicit permission, and hiding information about author fees.

The rapid growth of OA has created opportunities for new entrants to exploit the OA model. Setting up an OA journal is operationally less challenging than launching a subscription-model journal. Collecting multiple publication charges for individual papers is less complex than developing the infrastructure and operations required for the sales and support of content collections. And there is not the same need for a reliable flow of papers: an OA journal can in theory launch with a single article, because there is no requirement for a critical mass of content to justify a subscription fee.

As with any market, emerging opportunities attract new entrants ready to make a grab for market share. Startups typically emerge to serve the lower end of the market with the goal of building scale and ultimately competing with market incumbents. In scholarly publishing, predatory or unscrupulous publishers present a particular problem in that they can discredit the OA model at a time when the industry is moving to expand its uptake.

But predatory OA publishers also harm the markets that they claim to serve, creating more work for an already overburdened research and author community. For some authors, new OA policies may create additional work, for example, in verifying journal compliance, requesting funds for article-publication fees, and depositing papers in institutional or subject repositories. Add the effort required to vet an increasing number of requests to join editorial boards or review inappropriate manuscripts for questionable journals, and researchers will be spending more time than ever on the publication process rather than on the valuable process of research.

Credible publishers build their reputations on using ethical practices and stringent quality control and are fiercely protective of their reputations, which, in turn, ensure continued focus on ethical practices. That comes at a cost—viewed as too high by some in an "information wants to be free" era—but it does give authors the assurance that their research will appear in publications that use proper practices and that their names will be associated with trusted brands.

Beall has created a tool to help authors to identify journals to avoid. Ethical publishers will continue to apply rigor to their practices so that authors can be confident that they are putting their research and reputations in good hands when they choose to publish in these journals.

Michael Clarke
Clarke Publishing Group

It is perhaps inevitable that the so-called gold open-access (OA) publishing model has led to predatory publishing schemes. To understand why, it is important to consider the costs inherent in developing a traditional, subscription-based publication. To launch a new subscription journal, a publisher typically incurs losses for 4–7 years while the publication slowly develops a base of subscribers sufficient to cover costs. The typical journal might break even in terms of its operating budget in that period, but it can be many years beyond this before the publisher recoups its initial investment. Launching a traditional subscription journal is a long-term investment that is not likely to produce a return to the publisher for 10 years or longer.

Contrast that high barrier to entry with that of a gold OA journal. The only fixed costs that an OA publisher must cover up front are those associated with staff salaries, an online hosting platform, marketing, and a peer-review system. Most other costs are variable: they are incurred only when a new article is published. They include costs of copyediting (if any), composition (if not automated), and XML markup (if full-text HTML is provided). Given the low fixed costs, a publisher can recoup its expenses *much* faster with an OA publishing model than it can with a subscription model. If a publisher is particularly successful in recruiting papers and in holding down costs, it is possible to recoup all investments and return a profit in the first year or two.

Given the attractive economics of starting an OA journal, more and more publishers are doing so. Because the barriers to entry are so low, the rush to OA is not limited to the established publishers. Many new entrants have launched journals in recent years. Some, such as *eLife* and *PeerJ*, have been launched by well-known agencies and investors with experienced staff who have long histories in scholarly publishing. Others have been launched by less reputable people whose sole purpose is to make a quick buck and who have no intention of providing the review and infrastructure (such as DOI deposit, legacy archiving, and abstracting and indexing) that is expected of scholarly publishers.

That second category of publishers is taking advantage of the increased volume

continued

of scholarly output that must find a home and of the proliferation of gold OA publications, many of which are reputable. Many OA journals are of recent vintage, so they do not always have impact factors or other indicators of quality. A disreputable publisher can launch a family of journals that have titles similar to those of more reputable publishers, list well-known scholars on their mastheads without informing them, and send out invitations to other scholars to submit their work. By the time the scholarly community figures out the ruse, the publisher can simply close up shop, bank its proceeds, rename its company, and repeat.

Subscription publishers do not have a monopoly on integrity (see Robert Maxwell), but the barriers to entry for this model are such that a publisher will see a return only if a publication maintains a good reputation and meets relevant performance metrics over a decade or longer. And although there are many reputable OA publishers that are producing high-quality publications, the barrier to entry is low enough for less reputable organizations to flourish—at least for a time. As the gold rush slows and additional performance metrics are brought to bear (as well as such resources as Beall's list), the claim jumpers will be easier to separate from those who have more legitimate interests.

Kent R Anderson
Chief Executive Officer
and Publisher, JBJS, Inc

The predatory open-access (OA) publishers that Beall identifies reveal to me what can happen when there are lower barriers to entry in scientific publishing. To reduce the barriers to entry, many OA publishers have redefined peer review. In addition, the OA business model eliminates the need to build expensive and complicated user-facing systems. Both approaches make it easier for predatory publishers to get into the market.

The term *peer review* has been appropriated by some OA publishers as though what they practice is equivalent to full peer review. But what they practice often has fewer safeguards and less rigorous practices than full peer review. Eliminating editors-in-chief is one way that megajournals have lowered the bar for themselves. Senior editors and outside peer reviewers validate that material is appropriate for a journal's audience and sufficiently important to merit attention. In many cases, fewer than half the manuscripts received at a journal that has strong peer review are sent to outside reviewers. Other processes can be sidestepped: for instance, checking for conflicts of interest, running antiplagiarism software, and securing author attestation forms. Predatory publishers have been shown to eschew even the more lenient practices, further lowering the barrier of entry.

It is also easier for predatory OA publishers to emerge because they do not have to build complex access-control systems and create and maintain customer databases and fulfillment systems. There are benefits to systems that capture information about users; scaling them up is integral to building a community. The systems and the data that they house are akin to the footprint of the community of readers and interested parties. Authors want to reach the relevant audience, and fulfillment systems and registration and access systems naturally gather such data. The OA model has no such capacity. One major megajournal has admitted that it does a poor job of getting its papers to a relevant audience. Because their journals are less technically demanding to launch, OA publishers can scale publishing platforms at a lower cost and faster because they do not have the barrier to entry that the above systems represent. That makes it possible for dozens of journals to be launched at once in the OA space, further encouraging predatory publishers.

It is not surprising that extreme practitioners of the OA model have emerged, especially given the lower barriers to entry that OA has created. The question for scientists and those who care about science is this: Are we better off having lower barriers to entry around information outlets that we all depend on?

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continued *(from page 89)*

and for advisory and editorial board members to find. The Web site also includes FAQs, which are updated often.

Konforti suggested that editors

- Go to meetings and visit laboratories—get to know the scientific community.
- Give talks on how to get work published.
- Interact with their editorial boards about standards in their fields of expertise.
- Take telephone calls from authors, reviewers, and editorial board members.

Konforti said that *Cell Reports* helps authors to prepare their manuscripts by providing

accurate and updated author guidelines and videos of the editorial process.[2]

She suggested that authors

- Talk to colleagues about their work (to test ideas and get opinions).
- Look for opportunities to present their work.
- Give their papers to colleagues outside their fields.
- Contact a journal editor (presubmission inquiry).
- Use the cover letter to sell their story.

Finally, she highlighted some of the things that she seeks when considering a paper:

Does it include logically designed experiments? Does it provide definitive support for the conclusions? Is the work conceptually important? Does it change how we think? Does it open new avenues of research?

1. *http://royalsociety.org/uploadedFiles/Royal_Society_Content/policy/publications/2011/4294976134.pdf.*

2. *http://www.youtube.com/watch?v=0a89-pdpXFY&feature=player_embedded&list=PL9EB609F6381FB2C2.*

Writing Science in Plain English

Anne E Greene's new book, *Writing Science in Plain English*, is a light volume, weighing in at just 124 pages, 32 of them belonging to appendices. But light is not the same thing as lightweight. In these 124 brisk pages, Greene manages to deliver a series of practical, hands-on lessons to make scientific prose more lucid, more direct, more immediately comprehensible, and, yes, more concise. In fact, had Greene explicated her lessons at too great length, she would have risked negating her message by the example of her own prose.

Greene's book is the latest in the University of Chicago Press series on writing, editing, and publishing. It draws heavily on an earlier book in the same series, *Style: Toward Clarity and Grace* by Joseph Williams. Greene openly admits her debt to her predecessor: "Williams's principles and their linguistic history are at the heart of this book" (p 3).

Another way of putting that is to say that Greene gutted Williams's book and repackaged it in condensed form with the omission of "grace". Yet to call this book derivative does not mean that it doesn't deserve publication. Few scientists are likely to come across Williams's book or, if they do, think that it has anything to say to them, so Greene has taken the core of Williams's text, balled it up, and bowled it straight at the audience least likely to get hit with it.

One reason that this audience needs nuts-and-bolts instruction on writing science plainly is that training in writing for scientists is seldom formal and explicit. Most scientists-in-training learn to write by approximating the research literature that they read. By learning tacit norms through journeyman imitation, scientists tend to perpetuate the existing prose style of their fields. Greene wants to break through this imitative

learning by making the tacit explicit with a series of lessons that raise writers' awareness of how the construction of sentences, grammatically and syntactically, can impede or improve communication with readers.

The book is organized into 11 short chapters and two appendices. Each chapter presents one or more related lessons with interspersed exercises that invite readers to apply the lessons to sentences or paragraphs of real-life prose. Suggested answers to the exercises are supplied in the second appendix. The lessons are concerned with writing at a local level—on the scale of sentences and paragraphs. Greene uses some grammatical terms in teaching her lessons, but she keeps the technicalities to a minimum.

What kinds of lessons does Greene teach? Perhaps the best way to preview her method is by illustration. Below are two sentences lifted (but masked by word substitutions) from a manuscript I copyedited recently. The manuscript editor who worked on this article before me tracked her changes in Word, hence the formatting: insertions are underlined, deletions struck through, and plain text unchanged.

> Surgery ~~ical treatment for X-Resistant Disease~~ is an effective treatment <u>for X-Resistant Disease</u>. <u>Surgery reduced seizures for</u> ~~Seizure freedom is~~ approximately 50% <u>of patients with Condition Y and Condition Z</u> ~~for patients operated on who present with Condition Y in the setting of Condition Z~~.

This editor was working with no knowledge of Greene's book, but her editing illustrates four of its lessons. Take, for instance, the first sentence. Notice how the edited subject "surgery" directly precedes the verb "is" (struck are the intervening words of the original). The change illustrates Greene's lesson to "place subjects and verbs close together." The idea behind that rule is that a reader's working memory is taxed when the reader has to wade through too

many words before pairing subject with verb. Notice, too, that "surgery" replaces "surgical treatment". In another of her lessons, Greene urges readers, in the interest of concision, to swap a phrase for a single word when the two are interchangeable.

Notice how the second sentence begins with the inserted subject "surgery", the same subject as the first edited sentence. That illustrates two more of Greene's lessons. The first is "old information first, followed by new information". A reader, says Greene, finds it easier to assimilate new information when it comes near the end of the sentence, on the heels of what the reader already knows. In the original sentence, new information—"seizure freedom"—begins the sentence rather than following the old information. The final lesson that this sentence illustrates is to "keep terms the same." Greene cautions against introducing synonyms for the sake of vocabulary variety; the risk is that readers might forget that the synonyms refer to the same thing. Beginning both sentences with "surgery" keeps the terminology identical.

The ideal audience for Greene's book is scientists-in-training when they are learning to write for publication. But, as was acknowledged above, novice scientists rarely receive explicit, formal training in writing and are far more likely to learn mostly through imitating existing literature. That being the case, those in a position to give editorial assistance to working scientists might put this book to use to the extent that they can manage to work some instruction into their editor-to-writer correspondence. My illustration of Greene's lessons by using an editor's tracked changes suggests that there are moments—teaching moments—in which editors can fold mini-lessons into the feedback that they give to writers. Such an idea suggests a twist on an old adage: Edit a scientist's paper and you help her communicate once; teach a scientist to write and you help her communicate over a career.

—*Robert Brown*

Robert Brown *is a copyeditor with the* Journal of Neurosurgery *Publishing Group in Charlottesville, Virginia.*

Calendar

2013

1–6 November **Association of American Medical Colleges annual meeting**. Philadelphia PA. *www.aamc.org.*

6 November **BELS (Board of Editors in the Life Sciences) examination**. Columbus OH. Registration deadline is 16 October. *www.bels.org.*

6–9 November **American Translators Association annual conference & exhibition**. San Antonio TX. *www.atanet.org.*

7–9 November **American Medical Writers Association annual meeting**. Columbus OH. *www.amwa.org.*

2014

13–17 February **American Association for the Advancement of Science annual meeting**. Chicago IL. *www.aaas.org.*

26–29 April **Association of Clinical Research Professionals annual conference**. San Antonio TX. *www.acrpnet.org.*

30 April–3 May **American Society for Indexing annual conference**. Charleston SC. *www.asindexing.org.*

2–5 May **Council of Science Editors annual meeting**. San Antonio Marriott Rivercenter, San Antonio TX. Contact: CSE: 10200 W 44th Ave, Suite 304, Wheat Ridge CO 80033; (720)881-6046; *www.CouncilScienceEditors.org.*

3 May **BELS (Board of Editors in the Life Sciences) examination**. San Antonio TX. Registration deadline is 12 April. *www.bels.org.*

6–8 June **Editors' Association of Canada annual meeting**. Toronto ON. *www.editors.ca.*

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- Submit material in the style recommended by *Scientific Style and Format*, with references in the order of citation.
- Submitted materials are subject to editing by the appropriate editors and copyeditor.

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