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The Newsletter of The National Association of

ScienceWriters

FEATURES

NEWS

COLUMNS

A FIELD GUIDE FOR SCIENCE WRITERS SECOND EDITION

by Lynne Friedmann

NASW announces the release of *A Field Guide for Science Writers, Second Edition* (Oxford University Press, 2005). The new book improves on the classic first edition with a wider range of topics and an up-to-date exploration of the most stimulating and challenging issues in science. Editors Deborah Blum, Mary Knudson, and Robin Marantz Henig have assembled 45 stellar science writers to explain what they do and how to do it well (see *Field Guide* table of contents, page 3).

"While the purpose is the same—to help educate a new generation of professional science writers—most of the authors and many topics are new," said Mary Knudson.

Field Guide combines detailed and practical how-to advice with thoughtful discussions of the challenges of science journalism in the 21st century. It doesn't shy away from addressing such controversial matters as cloning, stem-cell research, eugenics, medical overtreatment, and questions of scientific honesty. Offering a comprehensive overview of the field of science writing, the second edition discusses a broad range of media and sources, from newspapers to broadcast journalism, and from corporations to government agencies. It also provides a detailed analysis of some of the hottest fields in science writing—ranging from mental health to human genetics—and covers a diverse array of writing styles, from "gee-whiz" to investigative.

"I want to thank everyone who has worked so hard and so well on the new edition," said NASW President Laura van Dam. "We are grateful for your significant help, both to our organization and the advancement of accurate, top-quality science writing."

Funding from Oxford University Press, Alfred P. Sloan Foundation, and Council for the Advancement of Science Writing made the book possible. Lending formidable organizational skills to this endeavor were NASW Executive Director Diane McGurgan and project assistant Mary Makarushka.

From trade book to classroom standard

Originally conceived and written as a "how-to" trade book, the 1997 edition of *Field Guide* has sold more than 10,000 copies and certainly lives up to its billing as *The Official Guide the National Association of Science Writers*. Its success is due in large part to the number of writing instructors

Lynne Friedmann is editor of ScienceWriters.

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SUBMISSION DEADLINES

Winter *Next Issue* . **December 1, 2005**
Spring . . . . . **March 1, 2006**
Summer . . . . . **June 1, 2006**
Fall . . . . . **September 1, 2006**

The 1997 and 2005 editions of *A Field Guild for Science Writers.*

around the country who have adopted the book for classroom use. Many consider it the best guide for teaching and learning effective science writing.

"I've used the *Field Guide* in my medical journalism courses at the University of North Carolina at Chapel Hill for the past seven years," said Tom Linden, M.D., Glaxo Wellcome Distinguished Professor of Medical Journalism. "I think the entire book gives aspiring medical and science journalists a real sense of the breadth of the field."

Some instructors make the book mandatory reading while others assign select chapters to prepare students for guest speakers.

"My students read the chapter on writing for museums before visiting a science exhibit, the chapter on colleges and universities before hearing a university relations writer, the chapter on technology writing before hearing a tech think-tank writer, etc.," said Kristen Alley Swain, William Allen White School of Journalism and Mass Communications, University of Kansas.

The book plays a special role for scientists-in-training with no previous news writing experience and no aspirations for a writing career.

For example, Kim McDonald, UC San Diego director of science communications, uses *Field Guide* in a Science and Environmental Writing class for science majors, the majority of whom plan to pursue graduate studies or professional schools.

"The course is part introduction to the news media and part teaching them the basic techniques of communicating more effectively with nonscientists," said McDonald. "I tell students the latter is something everyone in a technical field must do at some point. And the better they are at communicating with the public, the more opportunities for professional advancement they will have."

When Kelli Whitlock was at Ohio University, she taught a magazine writing course with an emphasis on science writing. None of her students had written about

A Field Guide*'s Table of Contents*

Where to buy
A Field Guide for ScienceWriters

A Field Guide for Science Writers (Second Edition) can be ordered online through **www.amazon.com** and **www.barnesandnoble.com**.

The paperback version (single copy orders only) is available to NASW members at the discount price of $18 (shipping and handling included) by sending a check, made payable to NASW, to Diane McGurgan at NASW, P.O. Box 890, Hedgesville, WV 25427.

NOTE: DIANE CANNOT FULFILL BULK SALE ORDERS. Instructors must work through their institution's book buyers to meet classroom needs.

science previously and because the class was on the quarter system there wasn't much time to teach fundamentals.

"Using the *Field Guide* allowed me to introduce my students to the foundation of science writing in a quick, but thorough fashion, while also giving them tips from some of the best science communicators in the business," she said.

The *Field Guide* has also proven helpful to institutions that don't have ready access to a large pool of local guest lecturers because they're located away from major media hubs.

…lives up to its billing as The Official Guide of the National Association of Science Writers.

"Rather than burden the same people by asking them to talk to my classes year after year, reading real-world stories through the writing in the *Field Guide* is especially helpful," said Bruce Lewenstein, associate professor of science communication, Cornell University.

The expert advice found in *Field Guide* has elevated it to a standard source of guidance.

"Recently I drafted something mentioning the *Field Guide* as a resource," said Barbara Gastel, M.D., MPH, Texas A&M University. "Now, I'll cite the new edition."

At the legendary science-writing program at UC Santa Cruz, instructor John Wilkes doesn't use the book as a text per se, but does ask those accepted into the program to read it during the summer before the start of fall classes.

"*A Field Guide for Science Writers* is the best single-volume introduction to the field of science writing available in English," said Wilkes. "We use it for orientation every year."

The publisher's perspective

The success of *Field Guide* has exceeded everyone's expectations including that of publisher Oxford University Press.

Originally done as a hardcover trade book, *Field Guide* quickly found a secondary audience, with the paperback edition, among teachers, students, and aspiring authors. This has contributed to the book's longevity and prompted the release of the second edition.

"Trade houses, as a rule, don't publish second editions," said Joan Bossert, associate publisher at Oxford University Press. "*A Field Guide for Science Writers* is a model of good writing and full of useful, on-the-ground ideas; not pie-in-the-sky ideas."

Like all trade books *Field Guide* has been challenging to market. "Getting it into college bookstores isn't hard," said Bossert. "The real challenge is to get it into the major bookstore chains where they are conservative with what they're stocking. The (chains) go for what's publicity driven, and field guides do not generate a lot of publicity."

Therefore, Oxford's strategy has been to capitalize on its enormous, built-in academic market through its catalogs, trade reps, and the house's presence as an exhibitor at major scientific meetings where the book can "ride along."

"That's how we sold it last time," Bossert said.

Bossert has even made *Field Guide* required reading for all science and medical editors at Oxford University Press. "And they all thank me for recommending it," she said.

Aside from its practicality as an instructional guide, Bossert is quick to seize on the importance *Field Guide* places on science literacy in a democratic society.

"This book fits the Oxford mission so well," she said. "The Dons at Oxford want us to disseminate truthful information to all possible audiences—to dig down and get to the young, lay audiences—and not just to preach to academics."

"The fourth estate is alive and well and has a huge role in bringing science to the public," said Bossert. "I'd say it's a very exciting time to be a science writer." ■

BOOK LAUNCH PARTY

A Field Guide for Science Writers, Second Edition
Sat., Oct. 22, 2005
NASW-CASW Meeting
Pittsburgh, Pa.

AS EVOLUTION RISES IN THE NEWS SCIENCE GETS LOST

by Chris Mooney and Matthew C. Nisbet

On March 14, 2005, the *Washington Post*'s Peter Slevin wrote a front-page story on the battle that is "intensifying across the nation" over the teaching of evolution in public-school science classes. Slevin's lengthy piece took a detailed look at the lobbying, fundraising, and communications tactics being deployed at the state and local level to undermine evolution. The article placed a particular emphasis on the burgeoning "intelligent design" movement, centered at Seattle's Discovery Institute, whose proponents claim that living things, in all their organized complexity, simply could not have arisen from a mindless and directionless process such as the one so famously described in 1859 by Charles Darwin in his classic, *The Origin of Species*.

Yet Slevin's article conspicuously failed to provide any background information on the theory of evolution, or why it's considered a bedrock of modern scientific knowledge among both scientists who believe in God and those who don't. Indeed, the few defenders of evolution quoted by Slevin were attached to advocacy groups, not research universities; most of the article's focus, meanwhile, was on anti-evolutionists and their strategies. Of the piece's 38 paragraphs, 21 were devoted to this "strategy" framing—an emphasis that, not surprisingly, rankled the *Post*'s science reporters.

"How is it that the *Washington Post* can run a feature-length A1 story about the battle over the facts of evolution and not devote a single paragraph to what the evidence is for the scientific view of evolution?" protested an internal memo from the paper's science desk that was copied to Michael Getler, the *Post*'s ombudsman. "We do our readers a grave disservice by not telling them. By turning this into a story of dueling talking heads, we add credence to the idea that this is simply a battle of beliefs." Though he called Slevin's piece "lengthy, smart, and very revealing," Getler assigned Slevin a grade of "incomplete" for his work.

Slevin's incomplete article probably foreshadows what we can expect as evolution continues its climb up the news agenda, driven by a rising number of newsworthy events. In May, for example, came a series of public hearings staged by evolution-theory opponents in Kansas. In Cobb County, Ga., a lawsuit is pending over anti-evolutionist textbook disclaimers (the case is before the U.S. Court of Appeals for the Eleventh Circuit). And now comes the introduction of intelligent design into the science curriculum of the Dover, Pa., school district, a move that has triggered a First Amendment lawsuit scheduled to be argued in September before a federal judge in Harrisburg. President Bush and Senator Bill Frist entered the fray in early August when both appeared to endorse the teaching of intelligent design in science classes.

As evolution, driven by such events, shifts out of scientific realms and into political and legal ones, it ceases to be covered by context-oriented science reporters and is instead bounced to political pages, opinion pages, and television news. And all these venues, in their various ways, tend to de-emphasize the strong scientific case in favor of evolution and instead lend credence to the notion that a growing "controversy" exists over evolutionary science. This notion may be politically convenient, but it is false.

Nothing in biology makes sense except in the light of evolution.

We reached our conclusions about press coverage after systematically reading through 17 months of evolution stories in the *New York Times* and the *Washington Post*; daily papers in the local areas embroiled in the evolution debate (including both papers covering Dover, Pa., the *Atlanta Journal-Constitution*, and the Topeka, Kan., *Capital-Journal*); and relevant broadcast and cable television news transcripts. Across this coverage, a clear pattern emerges when evolution is an issue: From reporting on newly discovered fossil records of feathered dinosaurs and three-foot humanoids to the latest ideas of theorists such as Richard Dawkins, science writers generally characterize evolution in terms that accurately reflect its firm acceptance in the scientific community. Political reporters, generalists, and TV news reporters and anchors, however, rarely provide their audiences with any real context about basic evolutionary science. Worse, they often provide a springboard for anti-evolutionist criticism of that science, allotting ample quotes and sound bites to Darwin's critics in a quest to achieve "balance." The science is only further distorted on the opinion pages of local newspapers.

Later this month, all of this will probably be on full display as the dramatic evolution trial begins in

Chris Mooney is Washington correspondent for Seed *magazine and author of* The Republican War on Science *(**www.waronscience.com**), due out this month from Basic Books. Matthew C. Nisbet, PhD, is an assistant professor in the School of Communication at Ohio State University, where his research focuses on the intersections between science, the media, and politics.*

Pennsylvania over intelligent design, or ID. The case, *Kitzmiller v. Dover Area School District*, will be the first ever to test the legality of introducing ID into public-school science classes. The suit was filed by the ACLU on behalf of concerned parents after the local school board voted 6-3 to endorse the following change to the biology curriculum: "Students will be made aware of gaps/problems in Darwin's Theory and of other theories of evolution including, but not limited to, Intelligent Design." The trial is likely to be a media circus. And, unfortunately, there's ample reason to expect that the spectacle will lend an entirely undeserved PR boost to the carefully honed issue-framing techniques employed by today's anti-evolutionists.

"Nothing in biology makes sense except in the light of evolution," the famed geneticist Theodosius Dobzhansky wrote in 1973. What Dobzhansky calls evolution, Charles Darwin himself often called "descent with modification," but the basic idea is the same—that the wide variety of organisms occupying the earth today share a common ancestry but have diversified greatly over time. The main force driving that process, Darwin postulated, was "natural selection." In brief, the theory works like this: Natural variations make some organisms better equipped than others for their various walks of life, and these variations are heritable. As a result, some organisms will be more likely to survive than others and will therefore pass on advantageous traits to their offspring—a process that, over vast stretches of geological time, can bring about division into species and, ultimately, the diversity of life itself.

Since Darwin's time, modern science has dramatically bolstered this theory with evidence from a wide range of fields. For example, advances in genetics and molecular biology have now shown how heredity actually works, as well as explained the nature of chance mutation (the source of the "variation" that Darwin noted). In fact, DNA now provides perhaps the single best piece of evidence supporting the theory of evolution. More closely related organisms turn out to have more DNA in common, meaning that the course of evolutionary change can actually be charted through genetic analysis.

As the National Academy of Sciences has noted, further evidence for evolutionary theory comes from such diverse arenas as the fossil record, comparative anatomy (which reveals structural similarities in related organisms, often called "homology"), species distribution (showing, for instance, that island species are often distinct from but closely related to mainland relatives), and embryology. With all of this interlocking evidence, the academy has declared the theory of evolution to be "the central unifying concept of biology."

Despite its firm foundation, however, evolution has long been challenged by some devout religious believers who find it incompatible with a literal interpretation of scripture and an assault on religion itself (even though many evolutionary scientists are themselves religious). Over nearly a century in the United States, the creationist movement has not only persisted but changed its form in reaction to legal and educational precedents. In the 1960s and 1970s, after the U.S. Supreme Court ruled that bans on the teaching of evolution were unconstitutional, creationists adopted the mantle of "creation science" or "scientific creationism," arguing, for instance, that Noah's flood caused geological phenomena like the Grand Canyon, and calling for "equal time" for their views in public schools.

More recently, Darwin's foes have taken up intelligent design, making the more limited—and far more sophisticated—claim that evolution alone cannot explain the stunning complexity of anatomical structures such as the eye, or, more basically, parts of the cell. The intelligent design movement, like the creation science movement before it, includes at least a few PhDs—for example, Lehigh University's Michael Behe, who argues that certain biochemical structures are "irreducibly complex," meaning that they could not have evolved in an unguided fashion and must instead have been designed by a superhuman intelligence. Behe's arguments have not successfully swayed the broader biological community, however.

If attacks on evolution aren't anything new in America, neither is the tendency of U.S. journalists to lend undue credibility to theological attacks that masquerade as being "scientific" in nature. During the early 1980s, for example, the mega-evolution trial *McLean v. Arkansas* pitted defenders of evolutionary science against so-called "scientific creationists." Today, few take the claims of these scientific creationists very seriously. At the time, however, proponents of creation science were treated quite seriously indeed by the national media, which had parachuted in for the trial. As media scholars have noted, reporters generally "balanced" the scientific-sounding claims of the scientific creationists against the arguments of evolutionary scientists. They also noted that religion and public-affairs reporters, rather than science writers, were generally assigned to cover the trial.

Now, history is repeating itself: Intelligent-design proponents, whose movement is a descendant of the creation-science movement of yore, are enjoying precisely the same kind of favorable media coverage in the run-up to another major evolution trial. This cyclical phenomenon carries with it an important lesson about the nature of political reporting when applied to scientific issues. In strategy-driven political coverage, reporters typically tout the claims of competing political camps without comment or knowledgeable analysis, leaving readers to fend for themselves.

For example, consider this perfectly balanced two-sentence summary of competing positions that appeared repeatedly in coverage of the Dover, Pa., evolution debate by *The York Dispatch*'s Heidi Bernhard-Bubb: "Intelligent design theory attributes the origin of life to an intelligent being. It counters the theory of evolution, which says that people evolved from less complex beings." This type of pairing fails in more ways than one. First, the statement about the "less complex beings" that supposedly preceded modern humans suggests a lackluster understanding of evolutionary theory. (Nothing in evolutionary theory suggests that an increase in complexity is inherent to the process. In fact, very simple bacteria continue to thrive on earth to this day.) Even worse, such "balance" is far from truly objective. The pairing of competing claims plays directly into the hands of intelligent-design proponents who have cleverly argued that they're mounting a *scientific* attack on evolution rather than a religiously driven one, and who paint themselves as maverick outsiders warring against a dogmatic scientific establishment.

…a full-fledged national debate has been reawakened over an issue that once seemed settled.

Political reporting in newspapers is just part of the problem. Television news reporting often makes the situation even worse, even in the most sophisticated of venues. Consider, for example, a March 28 report on *The NewsHour with Jim Lehrer*, in which the correspondent Jeffrey Brown characterized evolution's new opponents as follows: "Intelligent design's proponents carefully distinguish themselves from creation scientists. They use only the language of science, and avoid speaking of God as the ultimate designer." Brown appears oblivious to the scientific-sounding arguments employed by earlier creationists. Moreover, references to God and religion aren't particularly difficult to find among ID defenders if you know where to look. The pro-ID Discovery Institute's strategic Wedge Document, exposed on the Internet years ago and well known to those who follow the evolution issue, baldly stated the hope that intelligent design would "reverse the stifling dominance of the materialist worldview, and…replace it with a science consonant with Christian and theistic convictions."

[Evolution] ceased to be covered by context-oriented science reporters and is instead bounced to political pages, opinion pages, and television news.

In a kind of test run for the Dover trial, the national media decamped to Kansas in May to cover public hearings over the science curriculum staged by anti-evolutionists on the state school board (hearings that mainstream scientists themselves had boycotted). The event triggered repeated analogies to the Scopes trial (even though there was no actual trial), colorful storytelling themes that described the "battle" between the underdog of intelligent design and establishment science, and televised reporting and commentary that humored the carefully crafted framing devices and arguments of anti-evolutionists.

Even the best TV news reporters may be hard-pressed to cover evolution thoroughly and accurately on a medium that relies so heavily upon images, sound bites, drama, and conflict to keep audiences locked in. These are serious obstacles to conveying scientific complexity. And with its heavy emphasis on talk and debate, cable news is even worse. The adversarial format of most cable news talk shows inherently favors ID's attacks on evolution by making false journalistic "balance" nearly inescapable.

None of which is to say there aren't some journalists today who are doing a great job with their evolution coverage, and who can provide a helpful model. Cornelia Dean, a science writer at the *New York Times*, presents a leading example of how not only to report on but also how to contextualize the intelligent-design strategy. Consider a June 21 article in which, after featuring the arguments of an ID proponent who called for teaching about the alleged "controversy" over evolution in public schools, Dean wrote: "In theory, this position—'teach the controversy'—is one any scientist should support. But mainstream scientists say alternatives to evolution have repeatedly failed the tests of science, and the criticisms have been answered again and again. For scientists, there is no controversy."

Besides citing the overwhelming scientific consensus in support of evolution, journalists can also contextualize the claims of ID proponents by applying clear legal precedents. Instead of ritually likening the contemporary intelligent-design debate to the historic

Scopes "monkey trial" of 1925, journalists should ask the same questions about ID that more recent court decisions (especially the *McLean v. Arkansas* case) have leveled at previous challenges to evolution: First, is ID religiously motivated and does it feature religious content? In other words, would it violate the separation of church and state if covered in a public-school setting? Second, does ID meet the criteria of a scientific theory, and is there strong peer-reviewed evidence in support of it? In short, to better cover evolution, journalists don't merely have to think more like scientists (or science writers). As the evolution issue inevitably shifts into a legal context, they must think more like skeptical jurists.

And as evolution becomes politicized in state after state through trials and school board maneuverings, it rises to prominence on the opinion pages as well as in news stories. Here, competing arguments about evolution and intelligent design tend to be paired against one another in letters to the editor and sometimes in rival guest op-eds, providing a challenge to editors who want to give voice to alternative ideas yet provide an accurate sense of the state of scientific consensus. The mission of the opinion pages and a faithfulness to scientific accuracy can easily come into conflict.

How is it that the Washington Post can run a feature-length A1 story about the battle over the facts of evolution and not devote a single paragraph to what the evidence is for the scientific view of evolution?

In fact, these forums are quite easily hijacked by activists. Actors on both sides of the evolution debate, but especially pro-ID strategists, often recruit citizens to write letters and op-eds that emphasize the strategists' talking points and arguments. "You get an awful lot of canned comment on the creation side, which you just can't use," observes William Parkinson, editorial page editor of *The York Dispatch*, one of the two papers closely covering the Dover evolution controversy. Yet despite his awareness of this problem, Parkinson's paper did recently print at least one form letter modeled on a prepared text put out by the American Family Association of Pennsylvania, a Christian conservative group. Precrafted talking points included the following: "This is a science vs. science debate, not a science vs. religion debate—it is scientists looking at the same data and reaching different conclusions." *The York Dispatch*'s rival paper, the *York Daily Record*, printed two letters clearly based on the same talking points.

In our study of media coverage of recent evolution controversies, we homed in on local opinion pages, both because they represent a venue where it's easy to keep score of how the issue is being defined and because we suspected they would reflect a public that is largely misinformed about the scientific basis for the theory of evolution yet itching to fight about it. That's especially so since many opinion-page editors see their role not as gatekeepers of scientific content, but rather as enablers of debate within pluralistic communities—even over matters of science that are usually adjudicated in peer-reviewed journals. Both editorial-page editors of the York papers, for example, emphasized that they try to run every letter they receive that's "fit to print" (essentially meaning that it isn't too lengthy or outright false or libelous).

We wanted to measure the whole of opinion writing in these two papers. So for the period of January 2004 through May 2005, we recorded each letter, op-ed, opinion column, and in-house editorial that appeared (using Lexis-Nexis and Factiva databases). We scored the author's position both on the teaching of intelligent design or creationism in public schools and on the question of whether scientific evidence supports anti-evolutionist viewpoints. While this remains a somewhat subjective process, strict scoring rules were followed that would allow a different set of raters to arrive at roughly similar conclusions.

Rather stunningly, we found that the heated political debate in Dover, Pa., produced a massive response: 168 letters, op-eds, columns, and editorials appearing in the *York Daily Record* alone over the 17-month period analyzed (plus 98 in *The York Dispatch*). A slight plurality of opinion articles at the *Dispatch* (40.9 percent) and the *Daily Record* (45.3 percent) implicitly or explicitly favored teaching ID and/or "creation science" in some form in public schools, while 39.8 percent and 36.3 percent of opinion articles at those two papers favored teaching only evolution. On the question of scientific evidence, more than a third of opinion articles at the two papers contended or suggested that ID and/or "creation science" had scientific support.

In short, an entirely lopsided debate within the scientific community was transformed into an evenly divided one in the popular arena as local editorial-page editors printed every letter they received that they deemed "fit." At the *York Dispatch* this populism was partly counterbalanced by an editorial voice that took a firm stand in favor of teaching evolution and termed intelligent design the "same old creationist wine in new bottles." The *York Daily Record*, however, was considerably more sheepish in its editorial stance. The paper generally sought to minimize controversy and seemed more willing to criticize Dover school board members

who resigned over the decision to introduce intelligent design into the curriculum (asking why they didn't stay and fight) than to rebuke those board members who were responsible for attacking evolution in the first place. When the Dover school board instituted its ID policy in October 2004, the first *York Daily Record* editorial to respond to the development fretted about an "unnecessary and divisive distraction for a district that has other, more pressing educational issues to deal with," but didn't strongly denounce what had happened. "I think we've been highly critical of the personal behavior of some of the board members, but we've tried to be, you know, fair on the issue itself of whether ID should be taught in science class," says the editorial-page editor, Scott Fisher, who adds that the editorial board is "slightly divided" on the issue.

…forums are quite easily hijacked by activists.

Interestingly, however, not all local opinion pages fit the mold of the York papers. Given the turmoil in Cobb County, Ga., over the introduction of anti-evolutionist textbook disclaimers, the *Atlanta Journal-Constitution* also covered the debate heavily on its opinion pages. But the paper took a very firm stand on the issue, with the editorial-page editor, Cynthia Tucker, declaring in one pro-evolution column that "our science infrastructure is under attack from religious extremists." Tucker, along with the deputy editorial-page editor, Jay Bookman, also warned repeatedly of the severe negative economic consequences and national ridicule that anti-evolutionism might bring on the community. Meanwhile, a majority of printed letters, op-eds, and editorials in the *Journal-Constitution* (54.2 percent) favored teaching only evolution and argued that ID and/or creationism lacked scientific support (53.5 percent). This may suggest a community with different views than those in Dover, Pa., or it may suggest a stronger editorial role. (Tucker and Bookman did not respond to queries about whether they print letters according to the proportion of opinion that they receive or use other criteria.) Yet despite the strong stance of the *Journal-Constitution* editorial staff, the editors also actively worked to include at least some balance in perspectives, inviting guest op-eds that countered the strongly pro-evolution editorial position of the paper. Roughly 30 percent of the letters and op-eds to the paper featured pro-ID and/or creationist views.

At the other local paper we looked at, *The Topeka Capital-Journal*, the issue has not received nearly as thorough an airing, though the proportion of pro-evolution to pro-ID arguments was roughly similar to those in the *Atlanta Journal-Constitution*. Interestingly, the Topeka paper appears to have been somewhat reluctant to go beyond publishing letters on the topic, featuring only two guest op-eds (both in support of evolution) and no in-house editorials or columns. Silence is no way for an editorial page to respond to an evolution controversy in its backyard.

At two elite national papers, the *New York Times* and the *Washington Post*, the opinion pages sided heavily with evolution. But even there a false sense of scientific controversy was arguably abetted when the *New York Times* allowed Michael Behe, the prominent ID proponent, to write a full-length op-ed explaining why his is a "scientific" critique of evolution. And when *USA Today* took a strong stand for evolution on its editorial page on August 8 ('INTELLIGENT DESIGN' SMACKS OF CREATIONISM BY ANOTHER NAME), the paper, using its point-counterpoint editorial format, ran an anti-evolution piece with it (EVOLUTION LACKS FOSSIL LINK), written by a state senator from Utah, Chris Buttars (Dem.). It was filled with stark misinformation, such as the following sentence: "There is zero scientific fossil evidence that demonstrates organic evolutionary linkage between primates and man."

More recently, the *Times* delivered another coup for anti-evolutionists by printing a July 7 op-ed by the Roman Catholic Cardinal Christoph Schonborn making the case for the "overwhelming evidence for design in biology." Schonborn is a religious authority, not a scientific one, and while his opinion may have been newsworthy because it suggested a shifting of position on evolution within the Catholic Church, the "evidence" to which he referred is not recognized by mainstream evolutionary science. In fact, the *Times* science writer Cornelia Dean implied as much when, in covering the publication of Schonborn's article as a piece of news, she wrote in her seventh paragraph that "Darwinian evolution is the foundation of modern biology. While researchers may debate details of how the mechanism of evolution plays out, there is no credible scientific challenge to the underlying theory."

By turning this into a story of dueling talking heads, we add credence to the idea that this is simply a battle of beliefs.

In early August, on the heels of Cardinal Schonborn's newsmaking op-ed, Americans received another confusing signal about the scientific merits of intelligent design, this time from President Bush. During a roundtable discussion with reporters from five Texas newspapers, Bush said of the teaching of ID, "I

think that part of education is to expose people to different schools of thought…. You're asking me whether or not people ought to be exposed to different ideas and the answer is yes." That day an AP article on the president's remarks reported his statements without context—no response from a scientist, no mention of the scientific basis for evolution. The *Houston Chronicle*, one of the five Texas papers at the roundtable, reflected on Bush's statement uncritically in its story, noting only that intelligent design and creationism "are at odds with a Darwinian evolution theory, which holds that humans evolved over time from other species." The *Chronicle* also quoted a board member of Americans United for Separation of Church and State, observing that Bush was playing to his conservative Christian base. In their reporting, the political correspondents Elisabeth Bumiller at the *New York Times* and Peter Baker and Peter Slevin at the *Washington Post* did at least contextualize Bush's remarks with responses from pro-evolution advocacy groups, but they also referred to ID as a "theory," lending an implicit sense of scientific legitimacy to a religiously motivated political movement.

…political reporting, television news, and opinion pages are all generally fanning the flames of a "controversy" over evolution.

At the end of August, the *Times* weighed in with a three-part series on the evolution "controversy," drawing from its deep well of expertise. On Sunday, Aug. 21, reporter Jodi Wilgoren provided background on the history, funding, and tactics of the Discovery Institute. On Monday, science writer Kenneth Chang tackled the science, giving considerable space to an explanation of evolutionary theory. Cornelia Dean broke new ground on Tuesday with a piece about how scientists, including devout Christian scientists, view religion.

The series was nuanced and comprehensive, and will likely boost even higher the profile of evolution in the news. Still, the unintended consequence may be that increased media attention only helps proponents present intelligent design as a contest between scientific theories rather than what it actually is—a sophisticated religious challenge to an overwhelming scientific consensus. As the Discovery Institute's vice president, Jay Richards, put it on *Larry King Live* the day of the final *Times* story: "We think teachers should be free to talk about intelligent design, and frankly, I don't think that it can be suppressed. It's now very much a public discussion, evidenced by the fact that you're talking about it on your show tonight."

Without a doubt, then, political reporting, television news, and opinion pages are all generally fanning the flames of a "controversy" over evolution. Not surprisingly, in light of this coverage, we simultaneously find that the public is deeply confused about evolution.

In a November 2004 Gallup poll, respondents were asked: "Just your opinion, do you think that Charles Darwin's theory of evolution is: a scientific theory that has been well supported by evidence, or just one of many theories and one that has not been well-supported by evidence, or don't you know enough to say?" Only 35 percent of Americans answered a scientific theory supported by evidence, whereas another 35 percent indicated that evolution was just one among many theories, and 29 percent answered that they didn't know. Meanwhile, a national survey this spring (conducted by Matthew Nisbet, one of the authors of this article, in collaboration with the Survey Research Institute at Cornell University), found similar public confusion about the scientific basis for intelligent design. A bare majority of adult Americans (56.3 percent) agreed that evolution is supported by an overwhelming body of scientific evidence; a sizeable proportion (44.2 percent) thought precisely the same thing of intelligent design.

At the very least, the flaws in the journalistic presentation of evolution by political reporters, TV news, and op-ed pages aren't clarifying the issues. Perhaps journalists should consider that unlike other social controversies—over abortion or gay marriage, for instance—the evolution debate is not solely a matter of subjective morality or political opinion. Rather, a definitive standard has been set by the scientific community on the science of evolution, and can easily be used to evaluate competing claims. Scientific societies, including the National Academy of Sciences and the American Association for the Advancement of Science, have taken strong stances affirming that evolution is the bedrock of modern biology. In such a situation, journalistic coverage that helps fan the flames of a nonexistent scientific controversy (and misrepresents what's actually known) simply isn't appropriate.

So what is a good editor to do about the very real collision between a scientific consensus and a pseudoscientific movement that opposes the basis of that consensus? At the very least, newspaper editors should think twice about assigning reporters who are fresh to the evolution issue and allowing them to default to the typical strategy frame, carefully balancing "both sides" of the issue in order to file a story on time and get around sorting through the legitimacy of the competing claims. As journalism programs across the country systematically review their curriculums and training methods, the evolution "controversy" provides strong evidence in support of the contention that specialization in journalism education can benefit not only public under-

standing, but also the integrity of the media. For example, at Ohio State, beyond basic skill training in reporting and editing, students focusing on public-affairs journalism are required to take an introductory course in scientific reasoning. Students can then specialize further by taking advanced courses covering the relationships between science, the media, and society. They are also encouraged to minor in a science-related field.

…newspaper editors should think twice about assigning reporters who are fresh to the evolution issue…

With training in covering science-related policy disputes on issues ranging from intelligent design to stem-cell research to climate change, journalists are better equipped to make solid independent judgments about credibility and then pass these interpretations on to readers. The intelligent-design debate is one among a growing number of controversies in which technical complexity, with disputes over "facts," data, and expertise, has altered the political battleground. The traditional generalist correspondent will be hard-pressed to cover these topics in any other format than the strategy frame, balancing arguments while narrowly focusing on the implications for who's ahead and who's behind in the contest to decide policy. If news editors fail to recognize the growing demand for journalists with specialized expertise and backgrounds who can get beyond this form of writing, the news media risk losing their ability to serve as important watchdogs over society's institutions.

When it comes to opinion pages, meanwhile, there's certainly more room for dissent because of the nature of the forum—but that doesn't mean editorial-page editors can't act as responsible gatekeepers. Unlike the timidity of the *York Daily Record* and *The Topeka Capital-Journal*, *The York Dispatch* and *The Atlanta Journal-Constitution* serve as examples of how papers can inform their readers about authoritative scientific opinion without stifling the voices of anti-evolutionists.

One thing, above all, is clear: A full-fledged national debate has been reawakened over an issue that once seemed settled. This new fight may not simmer down again until the U.S. Supreme Court is forced (for the third time) to weigh in. In these circumstances, the media have a profound responsibility—to the public, and to knowledge itself. ■

"Undoing Darwin," reprinted from Columbia Journalism Review, *September/October 2005.*

DID A PRIME MINISTER MEAN TO MUZZLE A KING?

by Mike Martin

Scientist "gagged" by No 10 after warning of global warming threat

Scientist muzzled over global warming

Blair "Gags Chief Adviser On Global Warming"

Cooler Heads on Climate Change: Internal memos show British science adviser seeking to calm controversy

One of these headlines doesn't belong with the others.

If you haven't guessed which, it's the fourth—the calmer caption of my original news story for *Science* about a signed memo from Prime Minister Blair's principal private secretary, Ivan Rogers, to U.K. Chief Science Adviser Sir David King.

I discovered the memo on an unmarked floppy disk left on top of a computer in the pressroom at the 2004 American Association for the Advancement of Science (AAAS) conference, in Seattle.

Depending on which story you read, the memo either "asked" or "ordered" Sir David to avoid interviews with major media outlets during his visit to the AAAS conference.

Independent reporting?

Rogers' missive—which begins with an exuberantly handwritten "Dear David"—referenced King's earlier comments in *Science* that nearly sparked an international incident.

"Climate change," Sir David wrote in January 2004, "is the most severe problem we are facing today—more serious even than the threat of terrorism."

Apparently, the memo's aim was to avoid a repeat eruption.

My story about it—published by *Science* in late February 2004—touched off a different controversy, but only after U.K.'s *The Independent* newspaper editors Steven Connor and Andrew Grice rewrote the story, rephrasing their primary source: not the memo itself, but a draft for *Science* that I also wrote.

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The Independent's story—"Scientist 'gagged' by No 10 after warning of global warming threat"—provoked denials from Sir David, a reproach from Liberal Democrat environmental spokesperson Norman Baker, and a worldwide series of follow-up articles that accused Prime Minister Blair of "muzzling" one of his top advisers.

Based on the original memo, my *Science* story drew no response from King and no great interest from other media, with the exception of *The Independent*.

Between the lines, Connor could see a controversial little gem with ramifications he thought an American reporter would not understand.

"I really think there is a bigger story here than you can imagine and relates to [Sir David's] role as science adviser/academic," Connor, *The Independent*'s science editor, wrote me in an e-mail. "But for me to proceed, I'd really like to see the precise wording of the memo," Connor added. "I really need to see the memo."

Connor reiterated his position in several telephone calls to me in the States from his London office.

A previous agreement with Sir David's press secretary, Lucy Brunt-Jenner, prevented me from obliging him.

Brunt-Jenner authenticated the diskette—which contained several other confidential communications—and the memo.

"Obviously, that disk was private and not meant to be in anyone's hands but mine," Brunt-Jenner told me. "But now you have it and I don't so we have to go from there."

"Going from there" meant that I would not provide the disk or memo to other reporters in exchange for Brunt-Jenner's on-the-record comments—a fair bargain, I believed, for what could have been "no comment" and no story. *Science* editors would not run the article without high-level verification.

There is a huge different between "asked" and "ordered"…

"You've handled this matter professionally—not forwarding the memo because of your agreement with King's press secretary not to distribute it in exchange for the authentication," said Jeffrey McCall, a U.S.-based broadcast journalism and communication science professor from Indiana's Depauw University

To end the daily telephone exchanges and e-mails, I sent Connor a draft version of my *Science* story that contained additional information—an act Dr. McCall also labeled "an appropriate professional courtesy."

From the draft—but without the memo he "really needed to see" for its "precise wording"—Connor scripted a different version of events.

Qualifiers such as "may have" in the *Science* story:

> **The British Prime Minister's office may have tried to "muzzle" U.K. Chief Science Advisor Sir David King….**

vanished in *The Independent*'s version:

> **Downing Street tried to muzzle the Government's top scientific adviser….**

"The removal of qualifiers most definitely changes the tone and direction of the reporting," Depauw's McCall told me. "Leaving out qualifiers leaves the story less accurate."

Secondly, "asked" in the *Science* story:

> **U.K. Principal Private Secretary Ivan Rogers asked King to "decline" interview requests from "the U.K. or U.S. national media."**

becomes "ordered" in *The Independent*:

> **In a leaked memo, Mr. Rogers ordered Sir David…to decline any interview requests from British and American newspapers and BBC Radio 4's "Today."**

"There is a huge difference between 'asked' and 'ordered,'" McCall said.

But based on cultural or professional nuance, other experts say "asked" and "ordered" may mean the same thing.

"It doesn't seem unreasonable to read a 'request' made by one's superior as an 'order' to be followed on pain of consequences," said University of Missouri-Columbia (MU) journalism professor and former newspaper editor George Kennedy. "The politesse of high-level British discourse probably forbids the use of terms as harsh as 'order' even when that is the intent," added Kennedy, a longtime student of British journalism and one-time Fulbright scholar in New Zealand.

Connor and Grice made a similar assumption.

"When you get a letter from the Prime Minister's principal private secretary and you are the science adviser to the Prime Minister, it is a fair interpretation to say that it is a command rather than a gentlemanly request," Connor told me.

To Depauw's McCall, however, *The Independent* made another assumption without enough evidence.

"Some superiors euphemistically 'ask' when they really mean 'order,' but such a conclusion cannot be inferred in the absence of other strong evidence," he explained.

A more controversial issue is the "leaked" label Connor twice affixed to the memo. "Leaked" is never used in either the draft or published *Science* stories, which instead characterize the diskette as "inadvertently left" behind.

"In this case, it seems clear that the British journalist exaggerated, whether out of misunderstanding or an intent to mislead," MU's Kennedy explained.

Indeed, I explained to Connor that I found the memo by accident.

"Leak means 'an accidental escape,'" Connor told me. "Look at the dictionary and see how 'leak' is defined."

> **Journalistic definitions of "leak" include "to tell anonymously" or "an unauthorized (especially deliberate) disclosure of confidential information."**

"A leak would suggest that the 'leaker' had some purpose in providing the information, and there seems to be no indication at all that Brunt-Jenner intentionally left the diskette out for the media to grab," McCall said. "I believe that reporting something as 'leaked' when it isn't is misleading to the public."

In fact, Brunt-Jenner told me that she "did not plant the diskette. I left it there by mistake."

The Independent's summary of the memo's discovery, Connor told me, "describes how the leak occurred. Any intelligent person would read it that way—sorry you are not up to it."

Conclusion Confusion?

Connor reached his conclusions despite my written admonition that "other evidence on the diskette supports the idea King was prepared to answer questions if asked."

The "other evidence" on the diskette included rehearsed answers to 136 mock questions, several about the global warming-terrorism comparison.

"The fact that King was prepared, if needed, to answer press questions indicates to me that he did not consider himself gagged, even if he did intend to be more cautious in his media contacts," McCall explained.

Despite another written request, Connor did not acknowledge that his information was second-hand, from a copyrighted *Science* story.

"This is, I think, sadly typical of British journalism—even at the higher levels," said Cambridge University professor Peter Mandler, a British cultural and political history expert.

Too often, British journalists "take other people's stories and publish them without attribution, and with adornments," said Mandler, who authored *The English National Character: The History of an Idea from Burke to Blair* (Oxford University Press, 2005).

Connor does credit me, however, for finding the "leaked" memo.

"I do think Steven Connor could and should have been more transparent about the source of his information," MU's Kennedy told me. "To be fair, though, he does explain how the material came to be known, crediting you by name, which not every journalist would do."

While other media outlets credit *The Independent* for the memo news, *Telegraph* science editor Roger Highfield acknowledges *Science* exclusively and uses not "ordered" but "advised":

> ***Science* reports that…Mr. Blair's private secretary, Ivan Rogers [sent] Sir David a memo …advising him to "decline [interview requests from] the U.K. or U.S. national media."**

Perhaps Highfield credited *Science* instead of *The Independent* for reasons of competition, but Depauw University's McCall believes the *Telegraph* editor was simply being more precise.

"Connor's report did seem to suggest to readers that *The Independent* had reviewed the memo on which the story was based," McCall told me. "It would have been more helpful to the readers, not to mention accurate, to have simply indicated in the story that the information was gathered from both draft and published work in *Science*."

Connor disagrees.

"I used information in the public domain which I properly attributed," Connor explained. "We did not say that we had seen the memo and we told our readers exactly how it came to light."

Gagged, muzzled, or rebuked?

Opinions about *The Independent*'s lead—which generated other reports that the Rogers memo gagged, muzzled, or as UPI claimed, "rebuked" Sir David—are mixed and go to the nature of British journalism.

"Having studied British newspapers, I would suggest that they are generally more outspoken, more adversarial toward government and—on occasion—less concerned with literal accuracy than American journalists," MU's Kennedy explained. "As an example of professional and cultural differences between the two styles, Steven Connor's conclusions do not strike me as unreasonable."

In 2002, NASA-U.S. astronomer David Morrison had a run-in with several British newspapers over what he characterized as "dramatic and exaggerated" reporting of a "possible asteroid impact" that for some U.K. reporters suddenly turned "imminent."

"Other cases have involved the U.K. press attributing opinions and ideas to scientists without bothering to interview them to verify accuracy," Morrison told me.

Stephen Connor, however, believes his account about the King memo was accurate.

"The memo was clearly an attempt to gag or muzzle Sir David King," he said. ■

TECHNOLOGY REVIEW: ONLINE PRESENCE OVERSHADOWS PRINT

by Hiawatha Bray

R. Bruce Journey is stepping down as publisher of *Technology Review* amid a strategic overhaul that will cut back publication of the magazine's print edition from 11 times a year to six while enhancing its Internet presence.

Journey will be replaced by Jason Pontin, who will also continue in his current role as editor-in-chief.

Technology Review was founded in 1899 as the alumni magazine of the Massachusetts Institute of Technology. In 1996, when school officials rebelled at the cost of operating the magazine, Journey was brought in from *Fortune* magazine, where he had served as New England advertising director. Journey set out to transform *Technology Review* into a mass-market publication that could compete with magazines such as *Wired* and *Scientific American*, and thus pay its own way.

During Journey's tenure, *Technology Review*'s circulation rose from 90,000 to 315,000. But the latest circulation audit found that paid subscriptions have fallen to 291,000. Meanwhile, the magazine's Internet site has seen strong growth. Between August 2004 and July 2005, the site attracted 3.4 million unique visitors, and advertising impressions grew by 23 percent in the first six months of 2005, compared with the previous year.

…specialized technology magazines in general are on shaky ground these days…

Ann J. Wolpert, who chairs the magazine's board of directors, said that Journey was leaving the publication to pursue other interests. "We've had an incredibly successful strategy for the past ten years," Wolpert said of Journey's tenure. "*Technology Review* did everything we hoped it would do."

But Wolpert said that Journey's departure coincides with a shift of the magazine's audience from the printed edition to the online version. "With this change of leadership," Wolpert said, "it seemed to us we also had a fine opportunity to rethink the distribution model."

If you cannot sustain being in print, you can't have a viable Internet site.

Under the new strategy unveiled by Wolpert, the Internet will become a much more important venue for *'Technology Review*. "A redesigned technologyreview.com will be launched in November that will feature news analysis, daily commentary, audio and video feeds, blogs, podcasts, and 'webinars' about the impact of emerging technologies," Wolpert said. The print edition will focus on longer articles, and will be published every other month.

Samir Husni, chairman of the journalism department at the University of Mississippi and an analyst of magazine publishing, wasn't impressed by the strategy. "If you cannot sustain being in print, you can't have a viable Internet site," Husni said. He added that specialized technology magazines in general are on shaky ground these days since most general-interest newspapers and magazines provide similar coverage. "Any time a specialty becomes part of the mainstream," Husni said, "those magazines start losing their usefulness."

Although Pontin declined to comment for this story, *Technology Review*'s strategy echoes ideas published by Pontin in July on his personal Weblog. "While there may still be demand for print publications from readers…publishers will have to find a much larger proportion of their revenues from online advertising and subscriptions," he wrote. "All this will mean more online publishing, and fewer print publications." ■

"MIT Tech Journal Getting New Publisher, Overhaul," Boston Globe*, Aug. 30, 2005.*

"[Scientists] are people who by definition live outside the norm, …floating in zones that had never been reached before, … people with strong egos an God complexes. That sounds like rock 'n' roll to me."

—Publisher Bob Guccione Jr., founder of Spin *and soon-to-be owner of* Discover *magazine, comparing the worlds of music and science.*

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CURL UP WITH A GOOD SCIENCE BOOK

by Tim Radford

Science is not a little thing, a narrow field: It encompasses or confronts all that ever was, is, or shall be, the whole bag of tricks, from a universe 13 billion light years across, to the subatomic world.

How curious, then, that the science book remains a sub-genre, occupying a set of shelves somewhere in non-fiction, usually near the back of the shop; and how curious that it remains separate from literature, as if science writing was not the same as good writing; and as if facts about the world were somehow less thrilling than fictions about it. Novelists observe and describe. But so do naturalists. Poets celebrate, but so do physicists. Historians explain, but so do chemists.

The choice is arbitrary—no Richard Dawkins, no Richard Fortey, no Steven Rose, no Paul Davies, no Jared Diamond or Stephen Jay Gould?—and on another weekend, I might have chosen another list. But if you aspire to any understanding of the world around you, these 10 books offer wider horizons and deeper perceptions, and a chance to revel in the power of language. They were chosen from a pool of books written more than 10 years ago, a test of their staying power—how many of today's new science works will last a decade or more?

…the science book remains a sub-genre, occupying a set of shelves somewhere in non-fiction, usually near the back of the shop…

1. *The Periodic Table* by Primo Levi (1985)

What it says: "One must distrust the almost-the-same (sodium is almost the same as potassium, but with sodium nothing would have happened), the practically identical, the approximate, the or-even, all surrogates and all patchwork. The differences can be small, but they can lead to radically different consequences, like a railroad's switchpoints; the chemist's trade consists in good part in being aware of these differences, knowing them close up, and foreseeing their effects. And not only the chemist's trade."

What it's about: The young Primo Levi nearly burns down a laboratory when he tries to purify benzene with potassium, rather than sodium.

Why you must read it: Forget the soubriquet "science writer:" Primo Levi's testament from Auschwitz is unforgettable, and works such as *If This Is A Man*, and *Moments of Reprieve* have guaranteed that he will endure. In *The Periodic Table*—based on his life as an industrial chemist—he shows, as nobody else can, the link between knowing and being, between the palpable world and the human experience, between obdurate reality and human ingenuity. Read him on the chemistry of mine tailings, or the impurities that catalyse reactions, or his desperate attempts—with the rip-off merchandise of postwar Italy—to extract the "Max Factor" factor from chickenshit. Read this book and change your perceptions. As a bonus, lip gloss, industrial varnish and lampblack will never seem the same again.

2. *Possible Worlds* by JBS Haldane (1927)

What it says: "You can drop a mouse down a thousand-yard mineshaft, and on arriving at the bottom, it gets a slight shock and walks away. A rat would probably be killed, though it can fall safely from the 11th story of a building; a man is killed, a horse splashes. For the resistance presented to movement by air is proportional to the surface of the moving object. Divide an animal's length, breadth and height each by 10; its weight is reduced to a thousandth, but its surface only to a hundredth. So the resistance to falling in the case of the small animal is relatively 10 times greater than the driving force."

What it's about: A great socialist scientist on why you could never have a 50-foot woman, why an insect caught in the bath is in deep trouble, and why a man has 100 square yards of lung.

Why you must read it: Haldane was one of the early eugenicists, whose thinking was carried to its cruel, logical conclusion by the Nazis. He was also one of the great explainers, and a startling number of his essays remain not just readable but compelling even across a divide of almost 80 years. That may be because Haldane understood that knowledge had no purpose unless it was shared, and share it he did: in 300 essays for the communist paper the *Daily Worker*. He migrated to India, and died an Indian citizen, announcing his own death from cancer with a ballad that opened with the unforgettable couplet "I wish I had the voice of Homer/To sing of rectal carcinoma."

3. *Gaia: A New Look at Life on Earth* by James Lovelock (1979)

What it says: "For as far back as we can measure, the Earth has been close to its present state of chemical neutrality. Mars and Venus, on the other hand, appear very acid in their composition, far too acid for life as it

Tim Radford is science editor at The Guardian.

has evolved on our planet. At the present time the biosphere produces up to 1,000 megatons of ammonia each year worldwide. This quantity is close to the amount required to neutralize the strong sulphuric and nitric acids produced by the natural oxidation of sulphur and nitrogen compounds: a coincidence perhaps, but possibly another link in the chain of circumstantial evidence for Gaia's existence."

What it's about: Atmospheric chemist and freelance scientist on how life manages to keep itself in order on a not necessarily helpful planet.

Why you must read it: Some books really do change the world: this may be one of them. Its influence among the eco-warriors and New Agers has been immense, but so has its influence on many geologists, biochemists, geographers and oceanographers. Gaia is only a metaphor—Lovelock is not promoting Bronze Age religion and Earth-mother worship—but it is a powerful one: an image that illuminates the intricate connection between all living things and the ground they must live upon. In this sense, Lovelock argues, the planet itself is alive, and so sustains life on Earth.

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4. *A Fire on the Moon* by Norman Mailer (1970)

What it says: "But for the moment, the spaceship does not move. Four giant hold-down arms large as flying buttresses hold to a ring at the base of Saturn V while the thrust of the motors builds up in nine seconds, reaches a power in thrust equal to the weight of the rocket. Does the rocket weigh 6,484,280lb? Now the thrust goes up, the flames pour out, now the thrust is 4m, 5m, 6m pounds, an extra million pounds of thrust each instant as those thousands of gallons of fuel rush each instant to the motors, now it balances at 6,484,280lb. The bulk of Apollo-Saturn is in balance on the pad. Come, you could levitate it with the lift of a finger, but for the hold-down arms."

What it's about: Great American novelist is cleared for take-off with Apollo 11 at Cape Kennedy, 1969.

Why you must read it: There have been many books about Apollo, a high proportion by the contestants in the race to the moon. Mailer was a mere commissioned spectator, and this book was condemned for its literary conceit (the novelist calls himself Aquarius throughout) and its self-indulgence (all that guff about angst and existentialism). But Mailer graduated as an aeronautical engineer, and he wrote what seems now by far the most thrilling account of one of mankind's great adventures.

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5. *The Double Helix* by James Watson (1968)

What it says: "As the clock went past midnight, I was becoming more and more pleased. There had been far too many days when Francis and I worried that the DNA structure might turn out to be superficially very dull, suggesting nothing about either its replication or its function in controlling cell biochemistry. But now, to my delight and amazement, the structure was turning out to be profoundly interesting. For over two hours, I lay awake with pairs of adenine residues whirling in front of my closed eyes. Only for brief moments did the fear shoot through me that an idea this good could be wrong."

What it's about: Young American in Cambridge in 1953 prepares to stun the world with the secret of life. Even though his great idea was—in that case—wrong, Watson went on to share the Nobel prize in 1962 with Francis Crick and Maurice Wilkins, for the structure of DNA.

Why you must read it: Some hated it, some loved it. Some even said he should not have written it. But *The Double Helix* remains a compelling account of ruthless science and naked ambition, by a writer honest enough to reveal himself as quite dislikable, but also very effective. Watson always had a gift for putting the great questions of science very simply and clearly: that may in part be why he was then able to provide some of the great answers.

They were chosen from a pool of books written more than 10 years ago, a test of their staying power…

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6. *The Diversity of Life* by Edward O Wilson (1993)

What it says: "Day after day, the driver ants scythe through the animal life around their bivouac. They reduce its biomass and change the proportions of species. The most active flying insects escape. So do invertebrate animals too small to be noticed by the ants, particularly roundworms, mites and spring tails. Other insects and invertebrates are hard hit. One driver ant colony, comprising as many as 20m workers—all daughters of a single mother queen—is a heavy burden for the ecosystem to bear. Even the insectivorous birds must fly to a different spot to find food. It has become clear that an elite group of species exercises an influence on biological diversity out of all proportion to its numbers."

What it's about: Ant man Wilson, a member of the biology elite, on just who gets to be king of the jungle, and the wider problems of co-existence in a crowded world.

Why you must read it: Biologists call this age the "sixth great extinction." The quiet disappearance of creatures great and small may be even more damaging in the long run than either climate change or global terrorism. But you wouldn't necessarily know that from the political debate. Wilson, the one-eyed visionary who

launched the idea of "sociobiology"—that all human behavior could be explained as an evolutionary outcome—has provided one of the best introductions to the richness and interdependence of all life on Earth.

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7. *The Language Instinct* by Steven Pinker (1994)

What it says: "Word learning generally begins around the age of 12 months. Therefore, high school graduates, who have been at it for about 17 years, must have been learning an average of 10 new words a day, continuously since their first birthday, or about a new word every 90 waking minutes. Using similar techniques, we can estimate that an average six-year-old commands about 13,000 words (notwithstanding those dull, dull *Dick and Jane* primers, which were based on ridiculously lowball estimates). A bit of arithmetic shows that preliterate children, who are limited to ambient speech, must be lexical vacuum cleaners, inhaling a new word every waking two hours, day in, day out."

What it's about: The average US high school graduate knows 60,000 words. Shakespeare used only 15,000 in the entire Avon catalogue. A psychologist addresses some of the enigmas of language.

Why you must read it: In the beginning was the word, followed rapidly by a sense of word order that seems to be innate, at least in young children. Where do the rules of language come from? How do we know what sentences mean? Pinker's questions are not new, and his answers are not always convincing, but this is an almost heroic attempt to encompass the unique creation of the human mind. With its use of newspaper headlines such as "Drunk gets six months in violin case" or "Iraqi head seeks arms," it is also the wittiest.

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8. *Profiles of the Future* by Arthur C Clarke (1982)

What it says: "When you fall freely under Earth's gravity, you are increasing speed at 22 mph every second—but you do not feel anything at all. This would be true no matter how intense the gravity field; if you were dropped toward Jupiter, you would accelerate at 60 mph every second, for Jupiter's gravity is two and a half times Earth's. Near the sun you would increase speed at the rate of 600 mph each second, but you would feel no force acting upon you. There are stars—white dwarfs—with gravity fields more than a thousand times as strong as Jupiter's; in the vicinity of such a star you might add 100,000 mph to your speed every second without the slightest discomfort—until, of course, it was time to pull out."

What it's about: The sage of Sri Lanka tackles the challenges of traveling at light speed, teleportation, gravity control, time, space, invisibility and the sheer difficulty of foretelling the future. Second revised edition.

Why you must read it: Arthur C Clarke, who proposed telecommunications satellites a decade before Sputnik 1, has been effervescing about the possibilities of science for six decades. Sometimes he seems to be writing the same books, again and again. But maybe that's because they were such good books in the first place, that they could survive updating every decade or so. This one is as neat a demonstration of the Arthurian cycle as any book in the Clarke canon, and as stimulating.

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9. *The Language of the Genes* by Steve Jones (1993)

What it says: "All populations outside Africa, from Britain to Tahiti, share a few common sequences of DNA. Within Africa, there is a different pattern of distribution. Just like the names of the Johannesburg telephone book, compared to that of Amsterdam, the shift in the pattern from the ancestral continent to its descendants may be a relic of a population bottleneck at the time of migration—this time, from, rather than to, Africa. We can do some statistics (and make quite a lot of guesses) to work out the size of this hundred-thousand-year-old event. They show that the whole of the world's population outside Africa may descend from a group of less than 100 emigrants. If this is true, non-Africans were once an endangered species."

What it's about: Snail-loving geneticist turns to the telephone book for evidence of genetic origins, and starts to find some missing numbers in the great story of human descent.

Why you must read it: The revolution begun by Crick and Watson has ended with a new way of reading human history: and not only human history. In one of the fastest-moving fields of science, Jones' book still seems up to date, and this must be one of the best introductions to the subject, by someone with a keen sense of human variety (on one page opened at random, you can find George Eliot's Daniel Deronda, Shakespeare's Caliban, and Johann Sebastian Bach.

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10. *The Making of the Atomic Bomb* by Richard Rhodes (1986)

What it says: "The calculations Serber reported indicated a critical mass for metallic U235 tamped with a thick shell of ordinary uranium of 15 kg (33 pounds). For plutonium similarly tamped the critical mass might be 5 kilograms (11 pounds). The heart of their atomic bomb would then be a cantaloupe of U235 or an orange of Pu239 surrounded by a watermelon of ordinary uranium tamper, the combined diameter of the two nested spheres about 18 inches. Shaped of such heavy metal the tamper would weigh about a ton."

What it's about: The Manhattan Project was born out of a nightmare in Europe and it ended with warheads

that dominated history for the next six decades. Rhodes's book is a story of metal, men and mastery of the atom.

Why you must read it: Like the moon landings, the Manhattan Project was big science: a drama on three continents, decades in the making, its last act embracing just a few hectic years and a mushroom-shaped cloud that signaled a new age to a horrified world. This is another great book about how science happens, and why, and about the regrets and anxieties, too, of the men and women who make it happen. This is an epic, with a cast of thousands, but it reads with the pace of a thriller. ■

"Shelf Life: Escape the Winter Gloom with Tim Radford's Essential Science Library," Guardian Unlimited*, Jan. 27, 2005." © Guardian Newspapers Unlimited 2005.*

NASW MEMBER GIVEN A STATE DEPARTMENT DESK

by Lynne Friedmann

Like many faculty members, Bill Hammack, professor of chemical and biomolecular engineering at the University of Illinois, took a long view when it came to planning. That changed dramatically this summer when the U.S. State Department appointed him a Jefferson Science Fellow assigned to the Korea Desk, in the Bureau of East Asia and Pacific Affairs.

"There is no typical day here," said Hammack. "We meet every morning and respond to what's happening."

Hammack is one of five tenured research scientists and engineers chosen to work for one year alongside senior diplomats and policymakers in Washington, D.C. Candidates for Jefferson Fellowships are selected based on their scientific achievements, communication skills, and ability to describe scientific topics accurately for non-expert audiences. They must also be interested in the intersection of science, diplomacy, and foreign policy issues.

The application process began late last year. Hammack recalls walking into a room and facing an interview panel of 21 people. He later learned that it was his "science writing credential that closed the deal."

Hammack is the only engineering professor in the country tenured for his outreach work to the public. For nearly ten years, he has produced *Engineering and Life*, weekly radio essays that tell the stories behind the material stuff that surrounds us – skyscrapers, plastic bottles, Tupperware®—helping listeners understand how technology affects their lives. He's earned a slew of honors for his efforts including the NASW Science-in-Society Awards.

Hammack describes the State Department as a place where "you just start to work." For example, on his first day someone handed him a FOIA and said, "Bill, you go through this and determine if we can reveal this."

"I thought, 'Oh my god. I'm now on the inside,'" he said.

"My first day they handed me a FOIA and said 'Bill, you go through this and determine if we can reveal this.'"

Hammack is enjoying the fast pace and more operational nature of his new assignment.

"I chose this on purpose because it's so different than university life," he said. "Any time you can get experience like this, it's an education."

Hammack expects his new job will involve travel, but it's not clear where.

"People seem to disappear routinely from this office," he said. "You later learn they went to Beijing—or Kansas." ■

PHOTO COURTESY OF EUGENE ARTHURS

Secretary of State Condoleezza Rice introduces Bill Hammack at a State Department ceremony. Hammack will serve at the State Department as a Jefferson Science Fellow helping to shape the Nation's science policy as it pertains to foreign relations.

Lynne Friedmann is editor of ScienceWriters.

AWARD-WINNING WRITERS LOSE UNDER TAX LAWS

As part of its unending quest for tax fairness, Congress keeps overhauling the Internal Revenue Code. One of the sneakier consequences of those efforts was evisceration of a long-standing break for outstanding American writers, photographers, artists and other individuals who receive prizes and awards that honor their accomplishments.

By way of background, the law authorizes the Internal Revenue Service to exact taxes from individuals who receive prizes from lucky number drawings, television or radio quiz programs, beauty contests and similar events, just as the agency gets to tax employees who are the recipients of bonuses and other awards from employers for outstanding work or suggestions.

…the law includes some fine print that you ignore at your peril.

Prior law, however, carved out an exception for writers, artists and photographers, among others. They are exempted from paying taxes on awards that are bestowed primarily in recognition of their past achievements in literature, photography and art, among other cultural endeavors. The best-known example of big-bucks awards that were undiminished by taxes: the Nobel Prizes, which are worth several million dollars.

In governmentalese, this kind of largess is what is known as an "exclusion" from taxable income; writers and others need not list the awards on their 1040 forms. However, the exclusion was available only for recipients who are able to pass a two-step test. The first requirement was that you were named the winner *without any action on your part*—that is, you did not specifically *apply* for the award by, say, entering the contest or proceeding. The second stipulation was that you are not obligated, as a condition of receiving the award, to perform substantial future services, such as teaching or writing.

How does current law blue-pencil the tax break for writers and others? What it does is to retain the not-personally-seeking and no-future-services prerequisites and supplement them with a third one. As a practical matter, the third requirement makes the break meaningless.

The law now grants tax relief for your award *only* if you assign it away from yourself to a charity. Specifically, you must "designate"—that is, instruct the award-conferring organization to turn the proceeds over to one or more governmental agencies (at federal, state or local levels) or to certain charities, such as schools or churches. Unsurprisingly, the list of qualifying designees includes everyone's favorite, the IRS.

Also predictable is that the law includes some fine print that you ignore at your peril. The key condition is that there is a deadline for the designation. If you fail to meet the deadline, you disqualify yourself for the exclusion and have to count the award as reportable income.

To stay in the good graces of the IRS, your designation and the awarding organization's fulfillment of that designation must occur *before* any prohibited use by you of the money or other property awarded. In the case of a cash award, the designation/fulfillment has to take place before you spend, deposit, or otherwise invest the funds. Moreover, you run afoul of the prohibited-use rule and become liable for taxes if you allow use of the property by someone else, such as a family member, in advance of the designation/fulfillment.

Ah, but wait: Can you convert what is supposed to be a restriction into a double break by combining tax-free treatment of the award with a charitable deduction for assigning the proceeds to, for example, your Uncle Sam or your alma mater? Not surprisingly, the feds anticipated that maneuver. The law specifically instructs the tax gatherers to disallow a charitable write-off for an assigned award.

TIP. To avoid paying self-employment taxes (line 57 of the 1040 form for 2004) on awards, report the awards on the line for "other income" on Form 1040 (line 21 of the 1040 form for 2004), not on Form 1040's Schedule C. As the source of the income, specify "award" in the box to the left of where you enter the amount on line 21.

Julian Block is an attorney who has been cited by the New York Times *as "a leading tax professional" and by the* Wall Street Journal *as an "accomplished writer on taxes." This article is excerpted from his* Tax Tips For Small Businesses: Savvy Ways For Writers, Photographers, Artists And Other Freelancers To Trim Taxes To The Legal Minimum. *Contact him at julianblock@yahoo.com.*

"[Several news accounts] on an apparent rise in the surface of 'eastern Antarctica,' due to increased snow and ice accumulation, as predicted by climate models. But which side is 'eastern' Antarctica? Clearly, every side of Antarctica must be 'northern' Antarctica."

—Robert L. Park, What's New?, *May 20, 2005*

CYBERBEAT

by Russell Clemings

One of the best journalism Web site designers in the business has began work on a long-anticipated revamp of the NASW Web site.

Andrew DeVigal, who has worked with the Poynter Institute and numerous other journalism organizations and publications, started in mid-August and hopes to have preliminary designs ready in time for the NASW annual membership meeting Oct. 22 in Pittsburgh. For a look at some of his previous work, visit **www.devigal.com**.

The Internet Committee meanwhile has been working on a plan for the new site's content. One key feature will be a revamped member database. When it's finished, you'll be able to retrieve a lost password, update your contact information, and designate what (if any) of your information you want to be available to the public. We're also planning an overhaul of the listserv archives and other improvements to make our Web site better organized and easier to use.

nasw-talk

The *New York Times* reported on May 28 that, in return for a $16,000 contribution, the Smithsonian Institution would host a screening of "The Privileged Planet: The Search for Purpose in the Universe," a film by the Seattle-based Discovery Institute that promotes the "intelligent design" theory. It didn't take long for nasw-talk subscribers to react.

"Frankly, I'm appalled that one of the leading scientific institutions in the world is selling its credibility for little more than 30 pieces of gold," Virginia freelancer David M. Lawrence wrote.

Deborah Frisch, a Tucson decision scientist, disagreed: "I commend the Smithsonian for being brave enough to take intelligent design seriously. From a rational, scientific perspective, even if you were 100 percent sure intelligent design was 100 percent hogwash, shouldn't you be happy there is a film that exposes how silly it is?"

Subscribers spent the next three days debating ID and how it can or can't co-exist with science.

Colorado freelance Matt Bille held the middle ground. "If ID is weaker than any of its competitors, then it will eventually lose out and fade away. But the notion that ID can never be raised is the antithesis of scientific thinking.

"This brings back the 'Invisible Gardener' argument, which I believe Martin Gardner developed. If an orderly garden is found in uninhabited forest, and the gardener cannot be detected by any means we possess, then such an invisible, undetectable, insubstantial gardener is the same as no gardener at all. The fallacy in Gardner's argument is this: The existence of the garden still must be explained."

But the consensus of the list, not surprising, sided with science.

Mike Lemonick of *Time* magazine: "I guess the problem I have with ID is that it amounts to a declaration that we can stop investigating because there's no point. … In short, ID today is based on the simple observation that we can't figure out how certain things could have happened, and extrapolates that to the assertion that we never will."

One of the best journalism Web-site designers in the business has begun work on the long-anticipated revamp of the NASW Web site.

On June 2, Washington freelancer and NASW board member Beryl Benderly provided this coda to the discussion: "The *Washington Post* reports this morning that the Smithsonian has withdrawn co-sponsorship of the film and turned down the $16K rental money."

nasw-freelance

The practicalities of the freelance life dominated nasw-freelance discussions in late June.

"How do you manage your time, and divide it up between projects?" Washington freelancer Kim Krieger asked.

"Recently I've been lucky enough to find myself with four assigned feature stories, plus my monthly quota of news stories. As exciting as it is to have lots of assignments, I'm finding that switching mental gears between stories is quite difficult."

Ohian Faith Reidenbach replied: "Good preparation for managing a busy freelance workload is to attempt to train a cat to come when it's called. It's not actually possible, but some days I have the illusion that I succeeded."

Then she offered her list of tips: A four-month calendar on a dry-erase board, "a file for everything and every file in its place," and a lot of notes: "I don't try to keep anything in my head. I write down every thought and question that occurs to me about a project and keep lots of cheat sheets."

From Michigan, Catherine Shaffer recommended using Google's Gmail to organize messages: "With 2333

Russell Clemings is NASW's cybrarian and a reporter for the Fresno Bee. *Drop him a note at cybrarian@nasw.org or rclemings@gmail.com.*

Mb of storage space and growing, I'll never need to delete anything. Gmail organizes correspondance by conversation, you can search topics or search within text. I'm anticipating this will free up a lot more brain space for me."

nasw-pr

A pet peeve of PIOs sparked spirited discussion on nasw-pr.

"What do you do with a reporter who picks and chooses which facts to use, and highlight, to support a 'conclusion' that he is determined to prove?" asked Tom Rickey, senior science writer at the University of Rochester Medical Center.

"Suppose a reporter were determined to show that a stream's water quality is terrible, just terrible. So he writes that on three days—June 10, July 15, Aug. 17—the stream's water did not meet state standards for being high-quality water. But he neglects to mention that the water was tested 10 times a day for the last year, so that out of 3,650 readings, only three came back 'not meeting state standards.'"

The suggestions came fast and furious:

From Lenexa, Kan., came this from Geni Wren, editor of *Bovine Veterinarian Magazine*: "What about contacting his editor or publisher with your concerns? Or asking the editor/publisher to include a letter-to-the-editor from your or your colleagues in the same or following issue that the article is in, with the points that you disagree with?"

Jim Barlow, life sciences editor at the University of Illinois at Urbana-Champaign, counseled a more aggressive response—tongue in cheek, one must hope: "First, shoot the reporter. Then move and leave no forwarding address. Or, more politically correct and less criminal, provide the reporter with the numbers and explanation. Copy what you send to the reporter's city editor and/or managing editor. If that goes nowhere, send a tightly worded letter to the editor from one of your experts providing the context of those three dastardly days that the stream posed a threat to the world at large."

An alternative approach was proposed by Joanna Downer at Johns Hopkins: "In addition to trying your best to get the reporter to correct the story, I would suggest having your account of the facts posted on your own Web site."

But whether any such action would work struck Maryland freelancer Alan Wachter as doubtful: "Not the answer you want to hear, Tom, but there's nothing you can do except write a letter to the editor and, as an earlier post suggests, get an expert to author or co-author it if you can. From an investigative reporter's point of view, hundreds of daily reports that show good water quality are negated by one, two, or three that show poor water quality. ■

THE FREE LANCE

by Tabitha M. Powledge

Not long ago, I gave a talk about freelancing to scientists who are budding science writers. Science writing seems to be attracting working scientists, or at least people who have trained for research careers. I got to wondering what the differences were between science writers with that kind of background and those of us who have always been observers rather than practitioners.

So I consulted experts, namely NASW freelances who have been scientists. As someone who has on occasion struggled to understand a paper I was supposed to be writing about, I have often envied those whose technical background makes it possible not only to understand the paper, but to understand how it dovetails with other research. So I was surprised when, during a listserv discussion, NASW scientist-members said they sometimes found their backgrounds handicapping.

Several spoke of working to rid themselves of the journal mode of expression, learning to use the active voice, put main points up front, and even, oh the shame of it, to risk oversimplifying. "Scientists who wish to become science writers tend to overestimate the importance of scientific knowledge and underestimate the importance of writing well. That's a mistake," wrote Dan Ferber. Dan was a microbiologist before turning to full-time freelancing and now chairs NASW's Freelance Committee.

Another stumbling block turns out to be interviewing. Paul Muhlrad, previously a molecular biologist, says he has to keep himself from talking like a scientist in interviews because it will generate so much unusable material—and the source will talk tech instead of giving simple explanations.

It's not a problem for some of us nonscientists, but former scientists have a horror of asking dumb questions. "I think it's the culture in science, but for some reason scientists have trouble asking them. I know I did at first—until I realized that it was the best way to get great quotes and explanations from my sources," Ferber said.

Bill Thomasson, a former biochemist, who specializes in meeting coverage and ghosting papers for research publications, reported that he wishes he had known before starting out that there were outlets for paid writing besides consumer publications.

That's a critical piece of information for all of us, scientists or non. Few science writers can support themselves decently writing only for slick magazines. Well-paid magazine assignments don't come along that often for most of us. Even when you land one, the negotiating and endless editing process usually gobbles up an enor-

Tabitha Powledge can be reached at tam@nasw.org.

mous amount of time, to say nothing of depleting your stamina. The result may be a fat check all right, but a low per-hour rate for the time spent.

Fortunately, especially for those of us who write about the life sciences and medicine, there are lots of other places to find work. Most aren't glamorous, but a few are gratifyingly wellpaid. The list includes trade publications, journals, meeting coverage, opinion pieces (op-eds, book reviews, and these days even blogs), public relations work (press releases, brochures, Web content), continuing medical education materials, grant proposals, report writing, and various kinds of ghosting.

…talking like a scientist in interviews…will generate so much unusable material…

Most controversial is the ghosting of scientific papers, but the fact is that it is a fact. Yes, even at top-level journals. Said Mignon Fogarty, who trained as a developmental biologist, "I was a scientist in academia and when I switched to writing I was 'amazed' to find out that scientists at companies usually hire outside writers to write their journal articles and produce their conference posters. It's quite a lucrative area for someone with deep technical expertise and who can also write."

Describing one of his recent projects, a law journal article in part about the pharmaceutical industry, Jim Cook, who trained as a molecular biologist, wrote, "Ghosting is everywhere, and that's a good thing for writers."

How do you find such work? The same way you find any other kind of writing work. Network, network, network. It can't be said too often. Join writers' organizations—NASW of course, but also others. Dues are generally reasonable, and memberships usually confer benefits such as the ability to get into scientific meetings free. Most important, being a joiner can put you in touch with fellow writers who are often willing to share information about how to get certain sorts of work.

Rabiya Tuma, another former molecular biologist, says she is glad she didn't know that freelancing was supposed to be so hard before she leapt into it. But she also benefited from internships, writing workshops, NASW meetings, and counsel from other writers. The advice she offers to scientists who want to become writers applies to all of us: "I'd suggest anyone who is really interested invest in such opportunities, find out who their colleagues might be and what they are doing."

Business not quite as usual

While we are talking business: I've just been experimenting with a free online invoicing service. It's called Blinksale (**www.blinksale.com**), and it seems to be working fine—although no checks have arrived yet, the real test.

On signing up, you think up a name for your URL in the blinksale.com domain, and use that URL to access your password-protected account. Fill in client information, which is kept at the site for all those future invoices you'll be sending. The site provides different forms depending on whether you want to bill for your time or a project. Fill in the information to be entered on a particular invoice, add a personal note if you like, click Send, and your bill is on its way.

If you've already got a template for e-mailing invoices, Blinksale probably won't save you a ton of time, although at least it completes the arithmetic for you. But it does keep track of everything in one place, points out when an invoice is past due, and provides a way of sending reminders and thank yous. Because it's online, your billing records are accessible even when you're away from your desktop and traveling. That's handy, but of course you will want to keep copies in your office too—digital ones at least and perhaps paper if you can't get enough of filing.

The free service allows three invoices per month. Invoice templates provided with the free service are a bit bare-bones, although they do come in a choice of tasteful pale colors, and you can add a company logo. Several customizable templates—or your own if you prefer—are available if you sign on for the paid service. It's $6 per month for up to 20 invoices. If you send more invoices than that in a month, they are to be had for extra money. But if you send more than 20 invoices a month, I hope you'll share your metabolism secret with the rest of us.

More business online

Since its inception a couple of years ago, Google's free Gmail was to be had only by invitation from somebody who already was enrolled. Not that invitations are hard to get. Just ask—me, for example (tam@nasw.org). Now Google has opened Gmail signups also to people with mobile phones that can handle text messaging. Go to **www.google.com/accounts/SmsMailSignup1**, enter your mobile number, and Google will text you a signup code.

Opening the Gmailbox more widely may rob the service of some snob appeal, but Gmail has something even better than cachet. It has more than 2.5 gigabytes of constantly growing free online storage space for each address. Since nobody gets that much mail except Britney Spears, the geeks have been figuring out ways to fill those vast empty spaces.

One free program, Gmail Drive (**www.viksoe.dk/code/Gmail.htm**), turns your Gmailbox into a virtual drive. Drag files to the drivename on your computer and they get sent to your Gmail account as attachments. Gmail Drive works with Internet Explorer only, and in

addition to that limitation suffers from a huge hassle completely out of its control: Google itself. Every so often changes made to Gmail break Gmail Drive. It happened again just as I write this. As the developer warns, "I cannot guarantee that files stored in this manner will be accessible in the future." Oops.

Chances are good that Gmail Drive will be working again by the time you read this. But there's a simpler, less risky way to achieve the same end, and you don't need new software to do it. Just mail files to your Gmail address as attachments. If you don't want them cluttering up your Gmail Inbox, filter them automagically into your Gmail archive to await your pleasure.

Gmail is quite a good e-mail program, nice to have even if you use other addresses. It has a growing list of features, including forwarding, and is remarkably free of spam. IMHO, the ability to store an immense amount of stuff online easily at no cost makes Gmail a must. You already keep backups of important files on your desktop and/or an external drive and/or CDs. Of course you do, but why not also stash copies of crucial manuscripts and other documents online? If your hard drive is crammed, send photos and music files to live in cyberspace. When you travel, ship files you'll need on the road to your Gmail account for attention wherever you can get online. You might not even have to lug along your laptop. ■

PIO FORUM

by Earle Holland

PHOTO BY JO MCGUILTY, OHIO STATE UNIVERSITY

"Why in the world would you want to piss off ABC News?"

That was the infinitely logical question posed to me by one of my senior PIO colleagues at Ohio State University after reading the draft of a news release I was lobbying vigorously for us to distribute.

"Because they screwed up!" I answered, "And we ought to call them on it!"

After nearly 28 years doing science communications at OSU, and five years before that at Auburn University in Alabama, one of the few perks I'm allowed is a rather crusty attitude and this seemed like a good chance to display it. Younger PIOs might see this as politically unwise but then again, I never did really understand politics.

Earle Holland is senior director of research communications at Ohio State University where he also taught science journalism for 20 years. He also writes a weekly column distributed by the New York Times Syndicate.

The debated draft release grew from the news that the network was planning an expose on university research reactors and ours was one of the targets in their sights.

As senior science writer on campus, crisis communications about radiation safety, along with a half-dozen other areas of so-called "research risks," were my responsibility. And while we've historically been successful in getting fair and accurate reporting regarding our research, a program such as what the network seemed to be planning was anything but good news.

As I understand it, there are 52 "research" reactors in America. At least two dozen of those reside at some of the nation's colleges and universities. Most of them serve two basic purposes—to teach students from elementary school to college the basics of nuclear engineering, and to conduct research involving radioactive elements and isotopes. For the most part—especially at public universities—these operations are considered "open," as are other research facilities on campus. Obviously, they are more secure than classroom buildings but few are armed fortresses. On average, ours sees at least one tour group traipsing through it weekly during a normal year.

Two bright-eyed coeds rang the bell at the door to our reactor facility one morning this June. When a staffer answered, the pair explained that they were touring the campus, had noticed the building's "reactor" sign, were curious, and asked for a tour. They were signed in to the facility, their IDs checked and copied, and their bags searched, according to protocol.

At the very start of that impromptu tour, the two male staffers accompanying them grew suspicious. The girls' questions suggested they knew more than they let on. And when one tried to swipe a bomb threat alert card posted on a wall, the staffers' concerns were confirmed and they cut the tour short, signing the visitors out of the building. Five minutes later, one staffer looked out the door and saw a coed shooting videotape of the outside of the building. They sped off as the staffer walked outside to confront them. Campus police were called and they informed the FBI which, in turn, informed officials with Homeland Security.

My office is only a couple of blocks from the reactor, so if there are problems, I can normally be on the scene in a few minutes. But this time, I was 650 miles away, vacationing in Alabama. Nevertheless, in less than an hour, the reactor staff had tracked me down and brought me up to speed on events.

And this is lesson No. 1: The staff at research facilities need to know who to call for public information support. They don't merely need to have a contact name and number—they need to know the person well, have worked with him/her before, and feel comfortable in the partnership that is needed at such times. That also goes for animal facilities, biosafety labs, environmental safe-

ty offices, etc.—wherever research "problems" might arise. And that call needs to be made immediately, not as a late afterthought to events.

As we quickly learned in this case, the two coeds were summer interns, part of a program sponsored by the Carnegie Corporation to put college students in training positions at ABC News, specifically their documentary/investigative group. Googling the names from the coeds' IDs confirmed that, as did Web pages on the Carnegie site (which were later removed).

Immediately, our staff e-mailed other reactor operators and within a day, it was clear that our experience wasn't unique, that these two students, as well as several other pairs, had tried to con their way into other reactors at perhaps a dozen campuses. Information from the Carnegie Web site suggested that the interns were working on a project testing the security of potential terrorist targets and clearly they saw university reactors as unsecured prizes ready for the picking.

…students were used by the network and they lied to gain access.

As more and more information emerged, I got more aggravated. First off, our reactor—which had operated since the 1960s—wasn't a real high-security facility. That is, while we scrupulously exceeded security requirements, visitors were welcome. Ours was one of the first facilities to switch to low-enriched fuel—a fact that made our core a useless target for bomb material. And secondly—and without divulging secure information—anyone trying to salvage core material would be killed by the process.

What really irked me was that students were used by the network and that they lied to gain access. Personally, I support journalists using deception to get information when it is otherwise unobtainable. But in this case, if the interns had said they were reporters, they would have gotten much more info than they did. So deception wasn't necessary. The norms of the profession required them to identify themselves as journalists at the start.

What angered me more was that the network placed the students in a position where they couldn't refuse their assignment. The balance of power between the students and their mentors was vastly tilted in the network's favor. Mentors are obligated to teach students the best of the profession and that didn't happen in this instance.

We knew from talking with other reactor operators that several weeks after their visit, the students were calling visited reactor facilities and asking questions as reporters, so when one called at Ohio State, our staffers routed the call to me. I explained that our faculty didn't want to talk to the students/reporters but that I would be happy to, within the constraints of security.

About 20 minutes into the conversation, she asked another question (I honestly don't remember what it was but I had decided it was time to shift the balance) and I responded saying, "I'm surprised you asked that. Wasn't it apparent when you and your colleague visited our facility on June 22?"

That was followed by a suitable period of silence before she said, "Well, yes we were there and . . . " and I jumped in and started saying "We know you were here," and pointed out what she was wearing and how they behaved and how they retreated afterwards when they were approached. I expressed an appropriate amount of indignation that they would do that and pointed out that by using deception to gain entry that they had violated the Ohio Revised Code and they were lucky they weren't arrested for it. (O.R.C. 2921.13 basically says it is illegal to mislead a public official who is performing his official duties and in Ohio, public university staff are considered public officials.)

Lesson No. 2 for PIOs is to not refrain from using the techniques that might be used against you. The student/reporter didn't lay her cards on the table when she visited, or later during the call, so I didn't feel compelled to do so either. The rest of the conversation surprisingly proved useful. The student discovered that the university was well aware of what was going on and I was able to make specific points on our operations I probably wouldn't have otherwise.

And when the student's producer called a week or so later, while I wouldn't call the conversation cordial, it was at least more evenly balanced. Lesson No. 3, I guess, would be that whenever possible, PIOs need to firmly stand their ground. Knowing that you're probably a target for the network's "20/20" show can be unnerving for anyone but we still needed to get our points across.

We learned, through counterparts at the federal Nuclear Regulatory Commission, that the program was slated to precede the anniversary of September 11, but at the last minute, the blanketed coverage of Hurricane Katrina bumped it off the schedule. The last we heard is that it is set for early October, and university reactor operators, as well as university PIOs, are worried that it will be a hatchet job.

We never sent out that news release, unfortunately. I wanted to react like Khrushchev pounding his shoe on the table at the United Nations in 1960, but cooler heads prevailed. An op-ed was done and several interviews with national reporters who got wind of the story gave us a chance to make our points that university reactors were lousy targets for terrorists. And those interviews included discussions of the ethics of using

deception to get information, when that is called for and when it isn't.

University PIOs need to remember that the main job at our institutions is to teach. In this case, I think those two interns had a great learning experience—much more than they—or the network—had intended. We'll just have to wait and see how the story ends. ■

NEWS FROM AFAR

by James Cornell

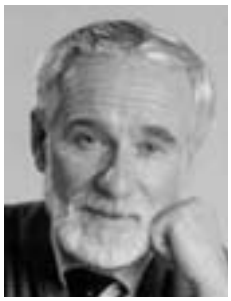

PHOTO COURTESY OF THE SMITHSONIAN INSTITUTION

As the standing-room-only attendance at the annual NASW professional development workshops testify, U.S. science writers, as a group seem to have an insatiable desire for advanced training and education.

But American scribes should realize that this yearning for learning is really universal and, in fact, may be even keener outside the United States, especially in those parts of the world where science journalism is not usually a part of traditional academic programs.

Fortunately, a number of institutions, both public and private worldwide, have responded with ambitious training programs designed to meet the needs of young journalists. Of course, such programs may also meet the needs of those nations where public understanding of science and technology is vital to development.

[A workshop] developed in response to the increasingly important role of biotechnology in Latin American life and economy…

One such program is the Jack Ealy Workshop on Science Communication for Latin American journalists held at the Institute of the Americans at the University of California San Diego, in La Jolla. The program, named for prime sponsor, Juan Francisco "Jack" Ealy, director of a major media combine that includes the Mexico City daily newspaper *El Universal*, marked its second successful year this past July. Some 20 journalists from countries across Latin America came to La Jolla for a week's worth of lectures by scientists in fields ranging from nanotechnology to infectious diseases and field trips to UCSD labs and associated research organizations such as the Salk Institute.

This year's program included a second, special workshop on "Biotechnology: GMOs and Other Issues" developed in response to the increasingly important role of biotechnology in Latin American life and economy, and covered topics ranging from stem cell research to bioethics.

In both sessions, the science presentations were complemented by practical workshops on reporting and editing led by experienced science journalists. And those journalists included several NASW members, Jon Christensen, Jon Cohen, Lynne Friedmann, and myself. However, the real driving force behind the workshops, suggesting both scientific and journalistic speakers, and then organizing and coordinating their appearances, was Kim McDonald, UCSD's director of science communications.

This year, as last, I was struck by the enthusiasm, exuberance, and optimism of these writers, perhaps

Jim Cornell is president of the International Science Writers Association. Send items of interest—international programs, conferences, events, etc.—to cornelljc@earthlink.net.

Upcoming international meetings

March 1-3, 2006, African Science Communication Conference, Port Elizabeth, South Africa. This meeting will explore ways of sharing science with African communities both through traditional news media and innovative approaches based on unique African issues and concerns, such as biodiversity and conservation, human origins, indigenous knowledge, and HIV/AIDS. For more information visit **www.saasta.ac.za**.

May 17-20, 2006, PCST-9 (The 9th International Conference of the Public Communication of Science and Technology), Seoul, Korea. The broad conference theme of "Scientific Culture for Global Citizenship" should allow plenty of latitude for the largely academic crowd expected at this major meeting of science communication professionals and research specialists (**www.pcst2006.org/main.asp**).

July 15-19, 2006 EuroScience Open Forum (ESOF), Munich, Germany. The second edition of this AAAS-like, pan-European scientific meeting is shaping up as a major event for scientists, public policy mavens, and media. A preliminary program is expected in January. Check it out at **www.esof2006.org**.

April 17-19, 2007 5th World Conference of Science Journalists, Melbourne, Australia. More information at **www.scienceinmelbourne2007.org**.

understandable given their youth. But I was also impressed with their dedication and commitment; almost all of the reporters saw the public communication of science and technology as vital to the future of their home countries.

Sadly, all this interest—and this talent—in science journalism could easily go to waste. It is ironic that at a time when the world could most use good critical writing on the intelligent uses of science and technology, the media industry seems intent on providing the public with a mindless mix of sex, sin, and celebrity.

While these trends have reached epic proportions in the United States, the media in much of the rest of the world seems to be following a similar path. The Latin American journalists attending these workshops certainly could cite similar problems in their home countries.

Still, it is hopeful that some media executives—in Mexico, Germany, and even the U.S.—think science journalism important enough to support the preparation of a new generation of writers.

NASW members who share this hope can find many opportunities to help as teachers and trainers in similar programs offered by a variety of organizations at home and abroad, including the Institute of the Americas (**www.iamericas.org**), the Poynter Institute's "News University" (**www.newsu.org**), the International Center for Journalists (**www.icfj.org**), and the Science and Development Network (**www.SciDev.net**).

Or, you may prefer to serve as an e-mail mentor for a colleague in the developing world through a program about to be launched by the World Federation of Science Journalists (WFSJ). If you'd like to participate, contact the WFSJ's Executive Director Jean-Marc Fleury at jfleury@idrc.ca.

The AAAS Science Journalism Awards program has received 378 entries this year, with 60 of those submissions in the new category for children's science news reporting. The new category opened the annual competition to international reporters for the first time since the award program's inception in 1945. As a result, AAAS received 26 entries from writers in France, Brazil, Mexico, Spain, Australia, and other countries.

American journalists often look to the National Science Foundation's biennial surveys of "Science and Engineering Indicators" for emerging trends in science and technology, including public understanding of and attitudes toward the same. Those looking for trends elsewhere should be aware that the European Union is now conducting similar surveys among the citizens of its member nations—and getting similar results.

The most recent "Eurobarometer" report, based on face-to-face interviews conducted in people's homes earlier this year, revealed "a very positive and optimistic perception of what science and technology can actually do for humanity in terms of medical research, improvement of the quality of life, as well as opportunities for future generations." Indeed, 87 percent of respondents thought science and technology had improved their lives, and 77 percent believed that it would continue to do so. Nearly 60 percent thought the EU should spend more on research.

Less positive, however, was the finding that many Europeans considered themselves poorly informed on scientific issues. Not surprisingly, the survey found a direct connection between the lack of information and low levels of interest in a topic or issue.

You can find the Eurobarometer reports at **europa.eu.int/comm/public_opinion/index_en.htm**. Particularly interesting are European attitudes toward human genetic research. ■

LARGEST JOURNALISM PRIZE TO RECOGNIZE ENVIRONMENTAL REPORTING

The largest journalism prize in North America has been created to honor outstanding reporting on the environment in the United States and Canada. The Grantham Prize for Excellence in Reporting on the Environment (GPERE) will provide an annual $75,000 cash award.

The prize is to be awarded annually to an individual journalist or team of journalists in print, broadcast, or books, whose work helps lead to constructive social changes. The deadline for entries is March 24, 2006, with the winner(s) announced in July 2006. An independent jury of journalists will make the final decision on an award winner. Award criteria and other information on the Grantham Prize are available online at **www.metcalfinstitute.org**.

"We are living in a world that tragically underestimates environmental problems. Nothing offers a better hope in this regard than independent and accurate journalism. We hope that this prize will highlight the need for insightful coverage and the awareness such reporting can bring about," said Jeremy and Hannelore Grantham, founders of the Grantham Foundation. "The public deserves ready access to the kind of information and news that only outstanding independent journalism can provide. This is one way to give that kind of reporting the honor, respect, and visibility it needs."

The Grantham Prize will be administered by the Metcalf Institute for Marine and Environmental Reporting, at the University of Rhode Island's Graduate School of Oceanography. Funding for the prize is provided

by The Grantham Foundation for Protection of the Environment.

The Grantham family founded The Grantham Foundation for the Protection of the Environment. The foundation funds environmental projects that support natural resource conservation and specific conservation programs both in the United States and internationally. Jeremy Grantham is a Boston-based investment strategist, and Hannelore Grantham is the director of the Grantham Foundation. ■

(Source: News release)

METCALF INSITUTE EXPANDS ENVIRONMENTAL TRAINING FOR MINORITY JOURNALISTS

The Metcalf Institute for Marine and Environmental Reporting, at the University of Rhode Island, has been awarded a grant of $856,479 by the National Science Foundation to expand its environmental reporting fellowship program for minority journalists.

For five years beginning in 2006, the Metcalf Institute will offer six working journalists—four more than in previous years—a 42-week paid fellowship to learn basic science, connect science-to-public-policy issues and ideas, and work as an environmental reporter applying their new knowledge.

The fellowship begins with a three-day science immersion workshop integrating science with environmental-justice issues, followed by four weeks of independent study at the university, working in cooperation with scientists at the Graduate School of Oceanography. Following this independent study, the fellows will work for 37 weeks reporting on science and the environment for one of six media outlets including NOVA Science Television/ NOVA Online, *Talk of the Nation: Science Friday*, *The Providence Journal*, or public radio station WBUR.

The fellowship has been funded by The Providence Journal Charitable Foundation. Other Funding has included the Sharpe Family Foundation, the New York Times Foundation, the Rhode Island Foundation, the Telaka Foundation, and private donations.

The Metcalf Institute for Marine and Environmental Reporting was established in 1997 with funding from the Belo Corporation, The Providence Journal Foundation, the *Washington Post*'s Philip L. Graham Fund, and the Telaka Foundation. The Metcalf Institute was named in honor of the late publisher of *The Providence Journal*, Michael P. Metcalf.

For additional information, contact Jackleen de La Harpe at 401-874-6211 or jack@gso.uri.edu. ■

(Source: News release)

NASW TRAVELING FELLOWSHIPS

Ten science writers have been chosen to receive NASW Traveling Fellowships to the NASW Workshop, Oct. 22-23 in Pittsburgh, Pa.

Milly Dawson, Maitlind, Fla.
Catherine Dold, Boulder, Colo.
Rachael Moeller Gorman, Tucson, Ariz.
Tim Friend, Alexandria, Va.
Nadja Geipert, West Hollywood, Calif.
Hannah Hoag, Montreal, Quebec, Canada
Daniel Keller, Glenside, Pa.
Leslie O'Hanlon, Albuquerque, N.Mex.
Kendall Powell, Broomfield, Colo.
Jennifer Wettlaufer, East Aurora, N.Y.

The fellowships, totaling $7,500, were made possible through Authors Coalition funds received by NASW. ■

2005 RENNIE TAYLOR/ ALTON BLAKESLEE FELLOWS ANNOUNCED

The Council for the Advancement of Science Writing (CASW) has announced the recipients of this year's Rennie Taylor/Alton Blakeslee Graduate Studies Fellowships. The fellowships provide up to $2,000 for the academic year to both professional journalists and students of outstanding ability who have been accepted into graduate-level programs in science writing. The recipients are:

Alicia M. Clarke, a graduate of the University of Tennesee, who will continue her studies at Michigan State University;

Philip R. McKenna, a freelance writer for *San Francisco Chronicle*, *Monterery Herald,* and the *Monterey County Weekly*, who has been accepted at MIT.

Chandra Shekhar, a former researcher/scientist at the University of Maryland, who will attend the Science Communication Program at UC Santa Cruz.

Elisabeth S. Solchik, a graduate of Purdue, who will continue her studies at Indiana University.

The fellowships honor the memory of Rennie Taylor, a science writer for the Associated Press, whose estate provided funds for the establishment of American Tentative Society (ATS), and Alton Blakeslee, AP science editor, who served as long-time president of ATS. Support for the fellowships derive largely from a special bequest made to CASW by the ATS, which, for three decades, played an important role in promoting public understanding of science and the scientific process.

Deadline for next year's fellowships is July 1, 2006. Application and eligibility requirements can be found at **www.casw.org/applicat.htm**. ■

NOTICES FROM DIANE

by Diane McGurgan


PHOTO BY ANDREW SKOLNICK

Dues renewal

Watch the mail for the end-of-the-year mailing containing your dues renewal.

Authors Coalition

The end-of-the-year mailing will also include the Authors Coalition Survey form. So far this year NASW has received $63,000 based on the survey information submitted in 2004. It's a requirement that a new survey form be submitted each and every year (even if your information hasn't changed). Rules is rules. The more surveys on file the larger percentage of funds disbursed to NASW.

NOTE: NASW has a deadline of 60 percent membership compliance in returning the surveys. Failure to do this could drastically reduce future payouts. Therefore, it's imperative each and every NASW member does his/her part.

It's hoped that including the form in the year-end mailing will make it convenient to fill out, sign, and return. The only way to keep this influx of money coming (and supporting programs that benefit NASW members) is to return your annual survey. Please help NASW help you.

Wherefore art thou?

NASW sends out regular announcements of association news through nasw-announce. If you are not receiving these, then your e-mail address on file is incorrect (or missing). Please contact Diane (diane@nasw.org) if your record needs updating.

Seeking older ScienceWriters *issues*

An archive of NASW newsletters is kept at the Carl Kroch Library at Cornell University. It would be helpful, however, if the NASW office had an equally complete set for reference. Therefore, if you have copies of *ScienceWriters* (dated prior to 1978) in your garage, attic, or basement that you'd like to donate to the cause, please send them to P.O. Box 890, Hedgesville, WV 25427. Thanking you in advance.

Hunting for history

CASW is compiling a list of those who were awarded Nate Haseltine Fellowships in the 1980s and 90s. Our records are fairly complete with the exception of the years 1980, 1981, 1982, and 1991. So if you were one of the honored recipients during one of those years, please contact Diane (diane@nasw.org) so your name can join the roll posted on the CASW Web site. ■

OUR GANG

by Jeff Grabmeier


PHOTO BY JO McNULTY, OHIO STATE

An Evolving Career. Adding international intrigue to NASW is **Richard Stone**, who is returning to the staff of *Science* as its Asia news editor. He and his family will be based in Bangkok. Richard comes to the position after spending time in Kazakhstan on two fellowships—a Fulbright and a Guggenheim—to report on the mystics and epic balladeers of Central Asia. "After that flight of fancy, I'll be keeping my feet firmly on the ground, at least for awhile, in southeast Asia," he reports. Richard welcomes pitches from freelancers across Asia and the Pacific (who are familiar with *Science*, of course!) to rstone@aaas.org.

Not Just By Chance. **Andrew Fraknoi**, NASW freelancer and astronomy instructor at Foothill College, in California, has been recognized for his efforts to teach physics to non-science students. Andrew received the 2005 Innovation of the Year Award from the League for Innovation in the Community College. He received the award for a Physics for Poets course he designed that teaches some of the strangest and most abstract ideas of modern physics—such as relativity, quantum mechanics, and thermodynamics—at the nonscience major level, without math but with humor, analogies, and thought experiments. Andrew is at fraknoi@fhda.edu.

Naturally Selected for Honor. The College on Problems of Drug Dependence has given its 2005 Media Award to **Brian Vastag**, a freelancer from Washington, D.C. The award is presented annually to a person who uses the media to educate the public about the science of drug addiction. The CPDD is the largest and oldest organization for the scientific study of drug dependence and addictions. Brian was honored "for his many news articles published in major medical and scientific journals discussing current issues in substance abuse research and treatment." Congratulate Brian at vastag@nasw.org.

Designing an Intelligent Story. From north of the

Jeff Grabmeier is assistant director of research communications at Ohio State University in Columbus, OH. Send news about your life to Jeff at Grabmeier@nasw.org.

border comes word that the Geological Association of Canada has awarded **Peter Calamai**, science reporter for the *Toronto Star*, the organization's 2005 Yves Fortier Earth Science Award. The Yves Fortier Award, which comes with a $1,000 prize, is presented for excellence in journalistic treatment of earth science. Peter's winning article, "Earth Moves in Mysterious Ways," was published in the *Star* on Aug. 22, 2004, and describes geological forces at work in the Cascadia Subduction Zone off the west coast of North America. Scientists believe this area is the site of a major earthquake about every 500 years or so. Peter is at pcalamai@thestar.ca.

Move Not Just Theoretical. After nearly five years in New York City, **Rabiya Tuma** has returned to the West Coast. She is now located in Berkeley, where she will continue her freelancing career. Rabiya says she is "looking for new local contacts, stories, and cool people to hang out with. So if anyone is in the neighborhood or knows something I should know, I'd love to hear from them." Get in touch with Rabiya at rabiya@nasw.org.

Mutating into an Oregonian. In a case of parallel evolution, **Nick Houtman** is also moving west. Nick is now the director of research communications at Oregon State University at Corvallis, where one of his main tasks will be to develop a new research magazine covering the sciences, humanities, engineering, and the arts. The magazine will publish three times a year and be sent to legislators, local governing boards, businesses, and news media. Nick was previously at the University of Maine, where he wrote about science and engineering for 16 years. His new mailbox can be found at nick.houtman@oregonstate.edu.

Finding a New Ecological Niche. Science writers can also prosper by moving east. Case in point: **Jim Hathaway**, who moved from the dry heat of Tempe, AZ, where he worked at Arizona State University, to the very humid summers of Charlotte, NC., where he is now a science writer at the University of North Carolina at Charlotte. Jim's new coordinates are jbhathaw@uncc.edu.

Showing Career Diversity. Some move east, some move west, some evolve right where they are. **Jenny Cutraro** has done that by making a long-awaited career change. The former science writer for Purdue University has taken the plunge into full-time freelance science writing and welcomes your contacts, congratulations, and employment opportunities. She's just an e-mail away at jenny@nasw.org.

She Has a Natural Advantage. EndPoint Creative, a Washington-based communications company led by NASW member **Kathryn Brown**, has added The Institute for Genomic Research (TIGR) to its growing client roster. This year, TIGR celebrates the 10th anniversary of its sequencing work. To date, the nonprofit has deciphered the genomes of more than 50 organisms or microbial strains. Kathryn can be found at kbrown@endpointcreative.biz.

Creation of a New Opportunity. From across the ocean, freelancer **Sandra Katzman** has found a new gig teaching two classes at Temple University, in Japan. Sandra will be teaching a magazine writing class, as well as an English composition course at Temple's Tokyo campus. She can be reached at s.katzman@stanfordalumni.org.

The Missing Link in His Education. NASWers seem to always be evolving by learning new things. Take **Dave Dooling**, an education and public outreach officer at the National Solar Observatory in Sunspot, NM. Dave graduated with an M.S. in space studies from the University of North Dakota in August. Send your graduation e-card to dooling@nso.edu.

Survival of the Fittest Stories. Freelancer **Vivien Marx** was a finalist for the Jesse H. Neal National Business Journalism Award for an article she wrote on the lack of medications geared toward children. The article, "Kids & Drugs: Pharmacogenomics Shapes Pediatrics' Future," appeared in *Genomics & Proteomics* magazine. Established in 1955, the Neal Award recognizes and rewards editorial excellence in business-to-business publications. Congratulate Vivien at vmarx@nasw.org.

A Successful Species. Brit freelancer **David Bradley**, who lives and works in Cambridge, England, reports that his *Spectral Lines* Webzine, which he produces for the Wiley portal, hit issue 50 in September. The Webzine provides entertaining and informative science news with a general link to the scientific field of spectroscopy. It's aimed at a wide and technically aware audience, but written at a level accessible to nearly everyone. You can read more of David's spectrally tuned words through his personal Web site **www.sciencebase.com**. ■

REGIONAL GROUPS

by Suzanne Clancy

New England


PHOTO BY MARC LIEBERMAN

The traditional summer social meeting of the New England Science Writers took place at a Harvard Square restaurant, in August. Veterans in the field were on hand, as well as newcomers including Joerg Blech, the first-ever Boston correspondent for Der Spiegel magazine, who will cover technology, science, and health. Also attending their first NESW meeting were a contingent from *Cell Press*, whose marketing communications manager, Heidi Hardman, co-organized the event.

Suzanne Clancy is a science journalist and communications consultant in San Diego, Calif. Send information about regional meetings and events to sclancyphd@yahoo.com.

San Diego

In late June, San Diego Science Writers were off and running at a breakfast meeting hosted by the Del Mar Thoroughbred Club. With the early-morning workout on the racetrack as a backdrop, SANDSWA members heard from experts about advances in veterinary science and surface management that are making racing safer for horses and jockeys.

Rick Arthur, DVM, an attending veterinarian at Del Mar, described how nuclear scintigraphy, which detects stress-induced bone remodeling, is being used to ward off fractures and catastrophic injury. Chemist Scott Stanley, PhD, head of the Equine Analytical Lab at UC Davis, discussed the extensive drug-testing protocols put in place over the past decade, by the state, to protect the betting public. Leif Dickinson, who oversees Del Mar's turf course, and Steve Wood, manager of the dirt track, described the steps taken to provide a level, consistent running surface, including the selection of grass species, irrigation protocols, fertilizers and surfactants, and the recent development of synthetic materials for race courses. And Geoff Waxler, who operates Del Mar's photo finish camera, explained the technology and history of this unique camera and photographic process, invented in 1937 by a famed cinematographer at Paramount Studios at the behest of Del Mar track founder Bing Crosby. ■

LETTERS

Our family is deeply grateful to the many NASW members who wrote, called, or gave up part of their holiday weekend to swell the crowd at the memorial service for Howard Lewis last Thanksgiving, at the Cosmos Club. We especially appreciate the friends and colleagues who did so much to keep Howard's spirits up during the final months of his life. NASW (and ISWA) gave Howard so much pleasure and companionship during his long editorship of the newsletter. Your generous donations in his memory have been distributed among his favorite charities, including CARE, Amnesty International, the Southern Poverty Law Center, and Doctors Without Borders. Howard would be so happy to know that you haven't forgotten him.

JoAnn Lewis
Bethesda, MD

The new issue just arrived. It's wonderful. It's a rare issue of ANY publication that makes me feel that way. This mix of articles really demonstrates what the profession (to the extent that science writing can be thought of as a distinct profession) can be at its best. Nice job!

Marc Abrahams, Editor
Annals of Improbable Research

I must compliment you on the summer 2005 issue of the NASW newsletter. Every article was interesting and useful. I am honored to be a member of an association of such dedicated and productive people.

Linda Billings, Research Associate
SETI Institute

Letters to the Editor must include a daytime telephone number and e-mail address. Letters may be edited. Letters submitted may be used in print or digital form by NASW. Send to Editor, ScienceWriters*, P.O. Box 1725 Solana Beach, CA 92075, fax 858-793-1144, or e-mail lfriedmann@nasw.org.*

IN MEMORIAM

PHOTO COURTESY OF DUSHECK FAMILY

George Dusheck

Took Pride in Asking Stupid Questions

George Dusheck, one of the early science writers in this country, died at his home in rural Albion, Calif., on June 2. He was 91. He joined NASW in 1945 shortly after the U.S. dropped the bomb on Hiroshima. According to Dusheck, every newspaper in the nation ran a banner headline about the dropping of the atomic bomb—except the *San Francisco News* which ran "Hiram Johnson Dies." The following day, Dusheck's editor told him he never wanted to be embarrassed like that again. He made Dusheck the paper's first science writer.

Earlier this year when Dusheck knew "death is imminent, but it's not that imminent," he spoke about his long, illustrious career in San Francisco.

He said he spent his life asking stupid questions of scientists until he understood and could explain difficult concepts to his readers and later to his TV viewers once he switched from print to public broadcasting.

Dusheck worked for numerous San Francisco newspapers, including *The San Francisco Examiner,* before moving to KQED TV's newsroom, also in San Francisco, where he became their science writer and a well-known if cantankerous personality. He retired in 1979, when he said management was talking about put-

ting reporters in blazers with the station logo on the pocket, "like a hotel worker," he fumed. He moved up to Albion, where he continued to read science journals, enjoyed listening to classical music, and watched ballet. While in retirement, he was appointed by California Govenor Edmund Brown Jr., to the state forestry board, where he served for eight years. Initially, Dusheck had some reservations about his new assignment. He told the governor he barely knew the difference between an oak and a redwood. Unconcerned, the governor said, "Just do what you do. Ask embarrassing questions."

In the mid-1950s, Dusheck recalled attending a weeklong workshop on cosmic rays at Caltech following the opening of the telescope at the Palomar Observatory. When it was over, Dr. Robert Oppenheimer stood before the assembled scientists and without notes gave a 40-minute summary of the week's proceedings. No one challenged him. "But of course I challenged him," Dusheck said with a twinkle in his eye. He told Oppenheimer that he had given a wonderful summary but that "it was too thick for me. Can you produce a seven-minute summary?" And he did. "'Now do you understand Mr. Dusheck?'" the great scientist asked. "He could tell by the look on my face that I didn't," Dusheck recalled. Oppenheimer said, "'Mr. Dusheck, if you were my student, I would flunk you. But in as much as this is going to appear in the newspaper, I will try once more.'" At that point," Dusheck said, "I understood the power of the press."

Seven or eight years before James Crick and Francis Watson made their discovery of the structure of DNA, Dusheck and other local science reporters attended a press conference on deoxyribonucleic acid, called by a Japanese biologist. "This was a new word that had something to do with life and something to do with genetics," Dusheck said. "I pounced on him and wanted to know what it was. He made an explanation. I followed up and pounced on him again." As Dusheck dominated the press conference, his friend and colleague David Perlman, science writer for the *San Francisco Chronicle*, asked, "George can't you get your education elsewhere? Some of us have deadlines and stories to get." Dusheck explained, "I just happened to be ten minutes more curious that day than he was."

Although he tried to write plainly, sometimes Dusheck's reporting was too esoteric for his editors. He once wrote a piece about thoracic surgeons who were holding a conference in San Francisco. Across the newsroom his editor shouted, "What the hell is a thoracic surgeon?" "A chest physician," George responded. "Would you mind using English?" the editor shot back. "OK," Dusheck yelled, "but next week the proctologists are coming to town."

Throughout his career, Dusheck maintained his determination to challenge authority. While on "Newsroom," KQED TV's roundtable of nightly news, he was assigned a four-minute segment on the mapping of the San Andreas Fault. Instead, he knowingly went for seven minutes, knocking two other stories off the air. After his oratory, the moderator Mel Wax told the audience "George Dusheck has told us more about the San Andreas Fault than any of us want to know." In the retelling, Dusheck, with an impish grin, admitted that Wax had been right.

Once, after receiving a note of reprimand from his boss for some long-forgotten offense, Dusheck convinced the head of volunteers at KQED to slip a note of reprimand in his boss's file which read "for interfering with the objective gathering of the news."

"I don't know if he ever saw it, but it did me a lot of good," he said.

He found scientists to be more truthful than politicians. And over the years he learned to discriminate. "Some physicists were marvelous. Some were awful, and most were in between. That's true of physicists, tennis players, and science writers," he said.

In his waning days, Dusheck retained his acumen, humor, and his high standards. While sipping hospital grape juice he was asked how it tasted. "It's just what you would expect," he reasoned, "Sweet, flavorful, but it can't touch a good Zin."

Dusheck grew up in Illinois the son of an engineer. He graduated from Elmhurst College in Elmhurst, Ill. His first wife, Jessie Dusheck, died in 1942. His second wife, Nina Dusheck, a freelance science writer, was killed in a car accident in 1969 when the couple was driving in Mendocino, Calif. He is survived by his three daughters (including NASW member Jennie Dusheck), ten grandchildren, and two great grandchildren.

(Contributed by Carol Pogash)

Charles Sullivan Hurley

NASW has learned of the death of freelance writer Charles Sullivan Hurley, at the age of 82. He was an NASW member since 1984. He died of heart failure at Kaiser Permanente Medical Center in Oakland, Calif.

[*ScienceWriters* has learned belatedly of these deaths]

Herman Schneider

NASW has learned of the death of Herman Schneider, in June 2003, at the age of 98. He had been an NASW member for 40 years.


PHOTO COURTESY OF THE WILEY FAMILY

John P. Wiley Jr.
Smithsonian *magazine writer and editor*

Jack Wiley, science editor at *Smithsonian* magazine for 28 years and author of its Phenomena, Comments and Notes column, died of congestive heart failure on Feb. 22, 2004. He was 67, and had been a long-time member of NASW.

Wiley was a keen observer of the natural world and had a poetic ability to explain it. A lifelong birder and amateur astronomer, he shared his passions with the readers of his column. He kept a pair of ice skates in his office every winter and at lunchtime could be found at the ice rink next to the Smithsonian's Natural History museum. In his column he reminisced about ice hockey games on a frozen pond in his youth and later pick-up games with one of his sons. In the summer he loved sailing or just drifting in a dinghy delighting in the nature around him, and year round he wrote with eloquence and humor about exploring a marsh or pasture with his dog Gizzie.

In his April 1989 column, Jack confessed to his long addiction to cigarettes and wrote about his heart attack:

> Twenty years after blithely writing stories about running catheters up people's arteries to their hearts, I have watched one invade my own. The x-ray camera moves up and down my body, dancing from side to side in semicircular arcs like an automated life-form analyzer aboard an alien spaceship. When the cath lab crew shoves on my groin to move the catheter, I go rigid with pain, at least until the fourth or fifth syringe of anesthetic. The dye feels like hot salt water washing through my body. Coronary arteries look like downed power lines thrashing about in a storm. It is nothing whatsoever like being at a press conference or sitting at a typewriter back at the office. Not only is the whole procedure uncomfortable, the lab director has carefully explained to me that one possible side effect from this routine angiogram is death.

In 1993, a collection of his columns was published in a book titled *Natural High*.

Born in Elizabeth, N.J., in 1936, Wiley grew up in New Jersey, Aruba, and Massachusetts. He graduated from Fordham University in 1958 with a degree in political science. His first job in journalism was with the *Orange County Post* in Washingtonville, N.Y., where he was one of two employees, the other being the owner/printer. His duties, he said, included reporting, writing, and delivering. From there he went to the *Middletown Record* in Middletown, N.Y. and then to UPI. In 1967 he joined the staff of *Natural History* magazine and in 1973 he began his association with *Smithsonian*.

Wiley is survived by three sons and a daughter. ■

(Contributed by Sally Maran)

BOOKS BY AND FOR MEMBERS

by Ruth Winter

***50 Simple Ways To Live A Longer Life: Everyday Techniques From The Forefront of Science* by Suzanne Bohan (NASW) and Glenn Thompson, published by Sourcebooks.**

Bohan, a correspondent for the *Sacramento Bee* and a winner of the David Perlman Award for Excellence in Medical Journalism for coverage of ER overcrowding, has written an anti-aging book with her husband, lawyer Glenn Thompson. Each chapter contains a different way to extend life. Advice includes skipping meals, socializing, drinking tea, and making your legs stronger. They authors also present studies that say one serving of fish per week can cut Alzheimer's risk by 60 percent. They also write that eating a good breakfast can reduce the risk of heart disease, diabetes, and cancer while keeping your weight under control. They also point out that light alcohol use helps prevent cardiovascular disease by increasing levels of HDL cholesterol. They cite the scientific references for all the recommendations. Bohan can be reached at 415-383-2446 or sbohan@stanfordalumni.org. The press representative is Genine Murphy at 630-961-3900 or www.sourcebooks.com.

***Food at Work: Workplace Solutions for Malnutrition, Obesity and Chronic Diseases* by Christopher Wanjek (NASW), published by the International Labor Organization).**

This book addresses a simple question: "How do workers eat while at work?" This question is not always given much thought, despite the obvious fact that food is the fuel that powers production. The workplace, instead of being accommodating, is frequently a hindrance to proper nutrition. Cafeterias, if they exist, routinely offer an unhealthy and unvaried selection. Vending machines are regularly stocked with unhealthy snacks. Local restaurants can be expensive or in short supply. Fast food quickly takes its toll on the body. Street foods can be laden with bacteria. Workers' health and productivity decline sooner or later. Christopher Wanjek makes a case for subsidized workplace meal programs to curb

obesity and chronic diseases (in wealthy countries) and malnutrition (in poor countries). He presents case studies of successful programs from around the world. Wanjek, a Baltimore freelance, can be reached at wanjek@nasw.org.

***A Left-Hand Turn Around the World: Chasing the Mystery and Meaning of All Things Southpaw* by David Wolman (NASW), published by Da Capo Press.**

Wolman, a Portland, Ore. freelance, committed a year of his life to traveling the world in order to explore left-handedness—specifically, what causes it and how left-handers might differ from the right-handed majority. Lefties are about 10-12 percent of the population. Wolman's travels took him to see neuroscientists in Berkeley, lefty golf enthusiasts in Japan, psychologists in London, a double amputee in Illinois, palm readers in Quebec, and centuries-old brains in Paris. He even visited the town of Left Hand, W. Va., and served beer from Colorado's Left Hand Brewery at his wedding—all in an effort to discover the essence of "The Southpaw." One of the highlights of his trip, he says, was a visit to Yerkes Primate Research Center, in Atlanta, to observe left-handed chimps and their possible impact on our concept of how our species acquired language, and in turn how handedness connects to these and other major mysteries of the human brain. Wolman, his publisher says, will be touring in a counter-clockwise direction, to promote the book. Wolman can be reached at davewolman@hotmail.com or 503-975-1890.The press representative is Lissa Warren at 617-252-5212 or lissa.warren@perseusbooks.com.

***Tracking Trilobites: Adventures in Paleontology* by Judy Lundquist (NASW), published by Kentucky Geological Survey.**

Trilobites are among the best known and loved invertebrate fossils. While the scientific literature on them is extensive, works accessible to non-specialists are rare. *Tracking Trilobites* fits this bill with exuberance. Readers do not need experience with fossils to enjoy this introduction, yet more than 150 drawings and photos make it a useful resource for more seasoned fossil fans. While a section addresses trilobites found in Kentucky, the main text covers trilobites anywhere—when and where they lived, anatomy, evolution, and ecology. It answers the 'how do they know that?" question. Readers can join trilobite scientists as they explore what happened in the lives of trilobites many millions of years ago. Trilobites inspire art, poetry—and physicists. *Tracking Trilobites* celebrates not just the scientific, but cultural aspects of these fossils, in sidebars with photos. Following a 20-year career communicating science to the public in museums and a national park, Judy Lundquist of Lexington, Ky. turned to freelance writing about science for general readers. She can be reached at jlq.sci@insightbb.com. For a review copy contact Ann Watson at 859-257-5500 ext. 170 or watson@uky.edu. The publicist is Mike Lynch at 859-257-5500 ext 128 or Mike.Lynch@uky.edu.

***The E-Bomb: How America's New Directed Energy Weapons Will Change the Way Future Wars Will by Fought* by Douglas Beason, PhD, published by Da Capo Press.**

In the introduction to the book, Beason, a key architect of directed-energy research, who has worked as an advisor to both the Clinton and Bush administration, describes a scenario in the introduction: "Imagine a US embassy is about to be overrun by a mob of terrorists using innocent women and children as human shields. The Marines guarding the gate don't want another Iran hostage situation on their hands and raise their rifles to shoot. But before they can fire their weapons, the rioters feel intense heat—like a gigantic oven has sprung open before them. Within seconds the pain is unbearable and they retreat from the visible heat source. Curiously, none of the women and children are affected; only the men with the weapons felt the burn. Atop the embassy building, a giant sphere is thrumming…" Called *Active Denial*, it is one of the many non-lethal directed-energy weapons being tested today. Beason, a retired colonel, says had the funding for it not been cut in the late 1990s, it could have been used to quell the urban warfare in Baghdad and Fallujah—and hundreds of lives could have been saved. The press representative is Lissa Warren at 617-252-5200 or lissa.warren@perseusbooks.com.

***Infinite Worlds: An Illustrated Voyage to Planets beyond Our Sun* by Ray Villard and Lynette R. Cook, Foreword by Geoffrey W. Marcy (Afterword by Frank Drake), published by University of California Press.**

Merely a decade ago, there were no known planets orbiting sun-like stars outside our solar system. In the past ten years, however, fast-paced developments in astronomy have revealed over 140 extrasolar planets—with more discoveries surely on the way. Though it will be years before we have direct images of these far-flung worlds, this lavishly illustrated book gives us an idea of what they might look like. A fascinating exploration of the cosmos written for a wide audience, *Infinite Worlds* brings together Lynette Cook's internationally renowned astronomical artwork, the latest and most dramatic images from the world's top observatories, and up-to-the-minute scientific findings on subjects ranging from

the big bang and stellar evolution to a possible universe filled with countless planets and life forms. The newly discovered planets are boggling astronomers' minds with their bizarre characteristics, including an unimagined diversity of sizes and orbits. In Lynette Cook's scientifically based illustrations—many newly created for this book—we glimpse the landscapes and atmospheres that might adorn these planets. Ray Villard's text describes the state of astronomy today, imagines where it will take us in the coming years, ponders the chances of success for the Search for Extraterrestrial Intelligence (SETI), and explores the survivability of life in an evolving and accelerating universe. Cook, formerly the artist/photographer for the Morrison Planetarium at the California Academy of Sciences, has been exhibited around the world at major museums, research centers, and universities; published in many newspapers and books; and featured in television documentaries. Co-author Villard is public information manager for The Space Telescope Science Institute. He can be reached at villard@stsci.edu or 410-338-4514. The press representative is Lorraine Weston at lorraine.weston@ucpress.edu.

***The Best American Science Writing 2005* edited by Alan Lightman and Jesse Cohen, published by Harper Perennial.**

Publisher's Weekly cited this sixth book in a series as a "superb anthology of pop-science essays and news reports. Progressing from the hardest to the softest fields, the eclectic selections include think pieces on the conceptual foundations of physics, updates on cutting-edge controversies in genetic engineering and stem-cell research, profiles of leading researchers, ecological meditations, and debunkings of the latest scientific fads and frauds." Three NASW members are among the contributors: Jennifer Couzin for "Aging Research's Family Feud" that appeared in *Science*; Laurie Garrett for "The Hidden Dragon" that appeared in *Seed* and Robin Marantz Henig for "The Genome in Black and White (and Gray)" that appeared in the *New York Times Magazine*. Some of the other contributors include Frank Wilczek's exploration of the worldview embodied in Newtonian mechanics; Jim Holt's humorous look at cosmologists' varying scenarios for the end of the world, Philip Alcabes's critique of the current panic over bioterrorism, and Mark Solms's account of the return of repressed Freudian theories of the mind in contemporary neuropsychology. The essays are aimed at a general audience, but scientists may also find them full of intriguing information and interpretations. The press representative is Clare McMahon at 212-207-7486 or clare.mcmahon@harpercollins.com.

New Paperback

***The One Best Way: Frederick Winslow Taylor and The Enigma of Efficiency* by Robert Kanigel (NASW), published by MIT Press.**

Kanigel, professor of science writing and director of the graduate program in science writing at MIT, wrote this book about Taylor, who was the first efficiency expert and the father of scientific management. Kanigel shows that Taylor bequeathed to us a clockwork world of tasks time to the hundredth of a minute. He writes that the subject of this biography helped instill in us the obsession with time, order, productivity, and efficiency that marks our age. His influence, furthermore, can be seen in factories, schools, offices, hospitals, libraries, and even kitchen design. Kanigel can be reached at 617-452-5135 and kanigel@mit.edu. Press representative is Katy Papagiannis at 617-258-0603 or e-mail:papgian@mit.edu.■

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