

km requires its base to rotate with a linear velocity greater than 30,000 km/hr! We see footprints of fast-moving dinosaurs, but where are the footprints of these supersonic whirlpools?

Grand Canyon: A Different View is an example of a new, slick strategy by Biblical literalists to proselytize using a beautifully illustrated, multi-authored book about a world-famous, spectacular locality. Allowing the sale of this book within the national park was an unfortunate decision. In the minds of some buyers, this could imply National Park Service approval of young Earth creationists and their religious proselytizing. I believe that the continued sale of this book within the National Park would

undermine the work of the National Park Service interpreters who work so hard to educate the public.

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—WILFRED A. ELDERS, University of California, Riverside

Comments on “Anonymous Reviews”

PAGE 384

From Robert J. Geller

No Anonymity for Associate Editors

In an ideal world, I would agree with the recent letters to *Eos* by M. Beck (1 July), C. J. Robinove (29 July), and R. E. Criss, and A. M. Hofmeister (29 July) calling for all reviews by referees and associate editors (AEs) to be signed. But in an ideal world, they, as well as the rest of us, would

invariably be fined for petty infractions such as exceeding the speed limit by even 1 km/hr, so it might not be much fun to live there. Human nature being what it is, offering anonymity to referees is probably necessary to ensure the smooth operation of journals.

The above correspondents did not distinguish between the problems created by anonymous referees and those created by anonymous AEs, but I believe this is an important distinction. The AGU publication guidelines state that the editor is the sole judge of what is accepted

and what is rejected, while all other opinions are advisory. This is fine in theory, but may not always reflect reality. When there is, say, only one editor assisted by a team of 20 to 30 AEs, as a practical matter, the AEs are the real decision-makers and the editor cannot possibly find the time to study each manuscript carefully. This reality should be reflected by having the AEs sign their reviews without exception, so that the identity of the actual decision-maker is made clear in every case.

—ROBERT J. GELLER, Tokyo University, Japan (Editor, GRL, 1993–1997)

From John A. Goff

An Editor's View of Anonymous Reviews

PAGE 384

I have read with great interest the recent Forum commentaries in *Eos* by Myrl Beck, Charles Robinove, Robert Criss, and Anne Hofmeister regarding anonymous reviews. I heartily support their position that anonymous reviews should be avoided. I have not written an anonymous review in ages (and regret the few that I did), and have always appreciated and respected greatly anyone who signs a critical review of one of my own papers. However, I would like to add some perspective from the editorial standpoint. I have served as JGR associate editor for 3 years (never anonymously!), and as *Eos* editor for seismology and tectonophysics for 4.

Over the years, I have rejected a fair number of papers, most of those based on anonymous reviews (fortunately, none of the above commentators was one of them). The vast majority of anonymous reviews I received were well

considered. While I would wish that all reviews were signed, I don't think we can summarily dismiss the fear that many would have of enmity and reprisal over a critical review. Some of these fears are likely justified. On more than one occasion, have I witnessed overly aggressive responses on the part of authors to anonymous reviews that I considered to be entirely fair and constructive in their criticisms. I do think we need to do all we can to discourage anonymous reviews, but it will be difficult to completely remove that choice from the process.

I put the blame squarely on the editor when anonymous reviews go bad. “Cheap shot” reviews can be spotted a mile away, and any editor worth their position will discount such reviews in making their decision. An editor who rejects a paper must be fully accountable for that decision—they must be able to defend their position to the authors and be willing to fairly consider any rebuttal that the author may offer in their defense. For this reason, I consider JGR's practice of insulating associate editors from authors to be unsupportable. Officially, it is the head editor of JGR that makes the decisions, but this is creative fiction. In

truth, the associate editor picks the reviewers and makes the recommendation that is eventually accepted by the head editor. The associate editor should be identified to the authors and be available to hear their concerns.

I concur with the other commentators that anonymity in the review process is, for the most part, counterproductive. Our cultural inertia has gotten the best of us and it's time to change course. I would recommend two approaches to get us started. First, AGU journals should begin actively encouraging the signing of reviews. I think many folks simply remain anonymous out of habit, and a simple nudge will get them to change it. Then, as each of us receives more signed reviews, the more likely we will be to sign our own reviews. Second, I think that a somewhat experimental journal like G3 might experiment with requiring reviewers to identify themselves if they agree to do the review. Such an author-friendly policy would likely bring in extra submissions, but would it hamper the review process? I don't know, but we ought to find out.

—JOHN A. GOFF, Institute for Geophysics, University of Texas, Austin

From Joseph S. Walder

Anecdotal Information is Insufficient to Claim...

PAGE 384

I have read the recent Forum commentaries describing disgruntlement with particular anonymous reviews (1 July 2003 and 29 July 2003 issues), and nodded sympathetically. After all, who among us has not felt, at one

time or another, that a reviewer badly misunderstood our contribution to the scientific literature or our grant proposal? But each of these recent Forum contributors in fact committed the elementary logical error of invoking anecdotal evidence to prove a point. I doubt that any of these correspondents would accept *scientific* claims based on anecdotes. Yet somehow they believe that anecdotes form a sufficient basis for claiming that anonymous reviewing is inherently a nasty business. These correspondents further employed the dubious

rhetorical device of contrasting their own self-defined, high ethical standards with those of their adversaries, whom they variously described as rude, hostile, vindictive, lazy, cowardly, selfish, bigoted against women and minorities, and attired in “the costume of crooks.” The parallel with the discourse of political argument is hard to miss.

Reviews should obviously be fair-minded and professional, and decisions by editors and funding agencies should be as transparent as possible: on these points, I most certainly

agree with the Forum correspondents. By all means, let there be a debate on the proposition that anonymous reviewing and editing should be abandoned. As a starting point, I urge AGU journals to reverse their practice of letting associate editors remain anonymous. Anyone who chooses to serve as an associate editor needs to recognize that he or she has effectively become the gateway through which

every author must pass en route to publication. This privilege carries with it responsibilities. One is to read every manuscript carefully; a second is to scrutinize all reviews, discard those that are unfair or inept, and solicit additional reviews as needed; a third should be a willingness to directly engage authors.

I also suggest that AGU journals take the obvious step of asking reviewers why they

choose, in some cases, to remain anonymous. This would provide us with data: fuzzy data, perhaps, but data nonetheless. And finally, let's have a debate that does not rely on logical fallacies and rhetorical tricks.

—JOSEPH S. WALDER, Cascades Volcano Observatory, U.S. Geological Survey, Vancouver, Wash.

THE BOOKSHELF

Earth Science in the City: A Reader

PAGE 378

More than half of Earth's population lives in cities today, a figure that is projected to grow to nearly 5 billion in the coming quarter-century. A new AGU book edited by Grant Heiken, Robert Fakundiny, and John Sutter, Earth Science in the City: A Reader, suggests that cities are becoming increasingly coupled with and vulnerable to their environment. The book explores the interrelationship between natural processes and the man-made urban environment, and reports on research examining the effects on urban residents and their surroundings. Included are papers looking at water use, environmental sustainability, hazard mitigation, and atmospheric sciences that propose integrated solutions to city planning, population growth, and policy decisions.

In this issue, Eos talks with lead editor Grant Heiken. Heiken recently retired from the Earth and Environmental Science divisions at Los Alamos National Laboratory in New Mexico.

Eos: How would a city that is run with a scientific outlook differ from cities today?

Heiken: For the purposes of planning, day-to-day management, and emergency response, a comprehensive, dynamic view of a city should be required. Some of the book's recommendations include creating Geographic Information System (GIS) databases to establish a framework for numerical models of all of the natural and infrastructure systems that comprise a city. Some of the areas that could use scientific analyses are water and air quality, energy resources, building materials, the fate and transport of chemicals from pollution or chemical/biological weapons attack, and understanding urban micro-environments as incubators of disease.

In addition, it is important that the traditional walls between disciplines be broken down to understand the interconnectivities between this complex "system of systems" that is a city. Many of the components include prediction, atmospheric sciences, Earth sciences, and even space weather. As things are now, nearly every city department across the nation is

balkanized and doesn't realize the interconnectivities until there is a disaster. At the city level there should, for example, be a team of scientists, engineers, economists, and sociologists, or at least liaisons between city departments.

Eos: What changes in academia, government, and professional settings would be needed to address the urban area of the 21st century?

Heiken: I think of this type of scientific study as a new field that I refer to as urban science. Urban science must become an important part of the university culture; more than three-quarters of the U.S. population lives in towns or cities. Universities must also do more to create collaborations between departments and offer multidisciplinary courses on various aspects of urban sciences to train pioneers that have new ways of managing a city. Also, we need more sessions on urban issues at professional meetings among academics and geoscience organizations.

We are seeing some efforts, like the Central Arizona-Phoenix Long-Term Ecological Research project at Arizona State University (part of a National Science Foundation project to analyze geoscience in metropolitan areas), but we need more cross-departmental research on the urban environment. We need scientists interested in urban issues to present papers at meetings of organizations like the National League of Cities. The scientific community needs to further embrace urban systems as an important and credible field of research, in part by promoting study to train a new generation of science-based urban planners. None of these changes will be easy, but we need to recognize that applying science and technology to the urban condition is mandatory thinking as we move into the future.

Eos: The book suggests that most cities are not sustainable under their current design. How might urban science help remedy the future consequences of current plans?

Heiken: To allow sustainable growth in the world's cities, city managers need to integrate Earth sciences into their thinking. In many cities, for example, there is no holistic understanding of even the most basic aspects of their water systems. Long-term research on natural hazard risk and mitigation, if implemented, can benefit a

city. For example, Robert Leggett, the foremost expert on urban geology in the 20th century, emphasized that the natural setting of a city is its foundation. In the past, most urban planning decisions were made with little or no regard for the role of the natural setting in the city's long-term health and stability. Geology has been shown to have a huge impact on urban management, ranging from new construction to infrastructure development. GIS has revolutionized how cities are viewed and managed, including new remote-sensing techniques that have made city planning much easier.

From my perspective, cities with similar environments could benefit from a regular exchange of ideas and management policies, including cities on floodplains or those in arid regions. The volcanological community, for example, has encouraged this sort of exchange with regular interdisciplinary meetings that involve many fields and include city managers and politicians.

Eos: Do you think that city bureaucracies and politicians would willingly share power and responsibility for urban planning with scientists?

Heiken: If a strong case can be made for the value of science to a city administration, a few cities will give it a try. If, after a decade or so, these cities demonstrate success in creating a more sustainable environment for their residents and an improved economy, then more cities will follow their example. The biggest difficulties facing integrated urban science are "turf battles" between city departments and worries about the legal aspects of planning and prediction.

This book is for those people who can have a direct impact on decisions influenced by urban science: scientists, engineers, students, civil defense workers, and the professionals who manage cities and their infrastructures. Very few geoscience monographs and texts have focused on the application of Earth sciences to urban problems. This book is intended to be both an introduction to this emerging area of scientific study and a response to a growing concern, expressed at national and international levels, about the lack of geoscientific analysis in urban development.

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—JONATHAN LIFLAND, AGU Science Writer