

6-21-2011

The Peer Review Process: Benefit or Detriment to Quality Scholarly Journal Publication

Ellen White

The University of Western Ontario

Follow this and additional works at: <http://ir.lib.uwo.ca/totem>



Part of the [Social and Cultural Anthropology Commons](#)

Recommended Citation

White, Ellen (2005) "The Peer Review Process: Benefit or Detriment to Quality Scholarly Journal Publication," *Totem: The University of Western Ontario Journal of Anthropology*: Vol. 13: Iss. 1, Article 8.

Available at: <http://ir.lib.uwo.ca/totem/vol13/iss1/8>

This Article is brought to you for free and open access by Scholarship@Western. It has been accepted for inclusion in Totem: The University of Western Ontario Journal of Anthropology by an authorized administrator of Scholarship@Western. For more information, please contact kmarsha1@uwo.ca.

The Peer Review Process: Benefit or Detriment to Quality Scholarly Journal Publication

Keywords

peer review process, benefit, science, journals

Creative Commons License



This work is licensed under a [Creative Commons Attribution-Noncommercial-No Derivative Works 3.0 License](https://creativecommons.org/licenses/by-nc-nd/3.0/).

The Peer Review Process: Benefit or Detriment to Quality Scholarly Journal Publication

Ellen White

In his book *Reclaiming a Scientific Anthropology*, Lawrence Kuznar gives his definition of what science should be: empirical, systematic, explicit, logical, theoretical, explanatory, predictive, self-critical, based on testing, and *public* (Kuznar 1997:22-24, emphasis added). It is under the assumption that good science is public that many readers open a scientific journal and expect that they are viewing an open-forum of scientific debate. However, much debate occurs between the time a manuscript is submitted to a journal and the time it is published through peer-review. *Peer-review*, broadly defined, is the process by which prospective articles are critiqued by experts in the paper topic to ensure that only quality articles are published.

Though peer-review is practiced by almost all journals that are considered scholarly, it is far from a perfect system. Critics cite the possibility of reviewer bias, competition, plagiarism, and conflict of interest as a few of the negative aspects of peer review. Others claim that the high level of importance placed on publication in academia today has led to a flood of new for-profit journals which result in the publication of mediocre articles. In light of these concerns, this paper will discuss some of the problematic issues surrounding the peer review process and look towards new approaches that may offer solutions to the problems discussed.

Conducting a study of the peer review process is a challenge because journals do not generally provide information about their review policies to the general readership. This is peculiar because, if good science is explicit, it should be expected that the process by which it is judged be made explicit as well. Therefore, this paper will also investigate ways to make peer-review explicit to the public, while still maintaining the integrity of the process, in order to ensure that *good* science prevails in journal publication.

Identifying Peer-reviewed and Scholarly Journals

Before discussing the peer-review process itself, it is worth noting the ways in which scholarly and/or peer-reviewed (or refereed) journals are defined. A study conducted by Bachand and Sawallis (2003) found that there are no set definitions as to what a scholarly journal is, and that most of the times this classification is made by the journal itself. In general, they state,

Articles published in scholarly journals are usually written in the jargon specific to their discipline. Authors are academicians, researchers and others with an expertise in the discipline; the journals' readers tend to also be professionals and students in the discipline or allied fields (Bachand & Sawallis 2003:40).

Information as to whether or not a particular journal is considered scholarly can be found in a periodical directory. A *periodical directory* is a database (in print or web format) that lists periodicals and journals and provides detailed information about these publications. One such directory, Ulrich's, gives information about a journal's country of origin, circulation numbers, editorial policies, and whether or not the journal is scholarly and/or peer reviewed (Ulrich's 2005). However, as Bachand and Sawallis explain further, Ulrich's largely defines journals as scholarly and/or peer-reviewed based on how the journal defines itself and does not investigate the standards by which they make this definition (Bachand & Sawallis 2003:41).

There are ways of measuring the quality, or at least importance, of a particular scholarly journal. One such measure is *Journal Impact Factor* (IF) which calculates the number of times articles in a certain journal have been cited in other articles. The formula for calculating IF is, within a year, "the total number of citations made in that year for articles published in the two preceding years divided by the number of citable articles published in those years" (Gad-el-Hak 1994:61). A study done in 1983 reported that among anthropological journals, *American Journal of Physical Anthropology*, and *Evolution* had the highest Impact Factors (Garfield 1984:516). However, as Jonathan Benthall expresses in his comments to Garfield's article, IF is not a fool-proof method of gauging a journal's quality. He cites,

for example, the low IF of the journal *L'Homme* as an example of bias against citing foreign-language publications in journal articles (Benthall 1984:519). That said, Impact Factor is a measure used by librarians to select what journals to subscribe to (Bachand and Sawallis 2003; Gad-el-Hak 2004; Garfield 1984), which determines the financial success of a journal. In Garfield's study, *Nature* and *Science* had the highest IF measures among journals publishing articles about anthropology (Garfield 1984). Ten years later, this is still the case.¹ Therefore, journals have a vested interest in maintaining the quality of the articles they publish, as these will be cited the most often. Peer-review is the method most journals utilize to ensure quality, making the process important not only for science, but for the journals that produce the work.

Publish or Perish?

In an editorial in *Physics Today*, Mohamed Gad-el-Hak (2004) criticizes US academia for placing such a high emphasis on the number of articles published as a measure for awarding scholars tenure or grant money. He explains this "bean counting" has resulted in an influx of new journals in which "many articles do not have a single citation five or more years after publication" (Gad-El-Hak 2004).

Due to the influx of journals, referees (peer-reviewers) have more work to do and, partly because they are almost always unpaid volunteers (Bachand & Sawallis 2003), they may not put in the required effort to review manuscripts for errors. This leads to erroneous articles being published (Gad-El-Hak 2004). Further, as referees are almost always active researchers, peer-review is given a lower priority than writing their own work for publication (Connerade 2004).

However, as the Journal Impact Factor implies, there are hierarchies of scholarly journals, and it is often as important (if not more so) *where* your articles are published than *how many* you have had published. If a researcher has published an article in *Nature* for instance, having that to put on a C.V. may be impressive to tenure committees. As well, having that credential may make future reviewers less critical of subsequent articles (Campanario

¹ Journal Impact Factor 2003: *Nature* ranked 8th of all science journals with an IF of 30.79%. *Science* ranked 11th with 29.16% (ISI Web of Knowledge 2003)

1998). Riisgard *et al.* (2003) state that quality hierarchy exists in scholarly publishing because of the rigors and reliance on the review process, and that peer-review in this publish-or-perish atmosphere is of vital importance. However, as will be discussed later in this paper, many critics express that the urgency to be published leads to unethical practices in peer review such as plagiarism and sabotage.

The Peer-review Process

A basic model for the peer-review process is as follows. First, a manuscript is submitted to a journal. Then, the manuscript is reviewed by the editorial board to determine if it is a potential article for their publication. Next, the manuscript is sent out to referees who critique the manuscript, offer revision suggestions, and give an opinion on whether or not it should be published. Finally, the editorial board decides if the manuscript is accepted for publication or rejected. However, there is no singular method of peer review, with various publications choosing different methods depending on the discipline, size, and breadth of the publication.

Roles of Editorial Boards

When a manuscript is submitted to a journal it is read by the editorial board. It is the author's responsibility to ensure the manuscript uses the proper format of the journal such as paper length, citations, and so on. This information is often provided on the journal's website, with a warning that the publication of manuscripts not following proper format may be greatly delayed or rejected (*Nature Online* 2004; *Science Online* 2004). The editor/editorial board also decides if the paper fits in with the general theme of the publication. Robert Cahn (1994) talks about the 'so what?' decision editors must also make. This entails weeding out articles, which, while technically correct, are uninteresting and/or insignificant to the advancement of their field of study. For this reason, an ideal editor is one who is an expert in the field of his/her journal (Cahn 1994:35). It is many times impossible, especially for larger journals such as *Nature* which cover many topics, to have editors who are experts in every topic covered by their publication. Therefore, most scholarly publications utilize outside experts in order to critique potential papers properly. *Nature*, for example, depends on its

list of 100 000+ reviewers (Bachand & Sawallis 1993).

Types of Peer-Review

Single-blind (or anonymous) was found to be the most popular method of peer-review for anthropological journals in Bachand and Sawallis' study of peer review practices (2003). In this method, reviewers know the identity of the author whose work they critique, but they are anonymous to the author. The advantage is that a reviewer can honestly critique the work without fear of repercussions from the recipients of bad reviews (2003:52). However, the anonymity of reviewers also allows for reviewer bias and/or misconduct, though these issues will be discussed later in this paper.

Some journals employ a double-blind review process in which the author of a paper and the reviewer are unknown to each other. Some studies suggest that this further decreases bias, and that referees can look more critically at a paper when they do not know the identity of the author (Bachand & Sawallis 1993). However, in many cases it is easy for the reviewer to guess the identity of the author (especially if it is a specialized field) by the writing style and self-citation (Campanario 1998). Campanario goes on to explain that the cost and time of employing people to remove self-citation references in manuscripts makes this method infeasible for many journals.

Open peer-review is a method that, while not employed in many journals today, is slowly gaining interest among newer journals as "the most equitable system of peer review" (Bachand and Sawallis 2003:55). In this method, the identity of the author is known to the reviewer and *vice versa*. Critics of this method cite that it still allows for reviewer bias, and referees may be less harsh with criticism when their names are published on the review. On the other hand, this method allows reviewers and authors to discuss aspects of publication without the journal editor's input (Dalton 2001).

Roles of Referees

Referees are (ideally) experts/specialists on the manuscript topic who will be able to give a fair assessment on whether or not an article is fit to print. Cahn describes the ideal peer-reviewer as "critical but with a sense of proportion, experienced but not hidebound, exact but not fussy, careful in manners of style but not pedantic. The key quality, as precious as it is rare, is a sense of proportion" (Cahn 1994:37).

The reviewer is also expected to keep all information confidential (Anon, *Nature* 2001). Again, the fact that different scholars have different ideas about what is confidential will be elaborated in a discussion of peer-review abuse. In order to eliminate some of the bias of anonymous peer review, many journals such as *Science* and *Nature* provide check-lists for the reviewer to fill out (Campanario 1998).

Peer-review Abuse

In theory, peer-review is the most effective method to ensure that only quality, accurate information is published in scholarly journals. In practice, it is considered by many to be a flawed system.

Reviewer Bias

Referees, being human, are not infallible. Furthermore, referees, being scientists, are not without bias in their approach towards peer review. In his book *Silencing Scientists* (1998), Gordan Moran expresses that "referees are censors who operate within 'a system of censorship; the censor having no training in how to differentiate between wrong and heretical'" (1998:39). Because of this lack of training, reviewers have been known to reject manuscripts that offer new and innovative ideas. Campanario, as quoted in Moran (1998), cites examples of papers that were initially rejected for publication that went on to receive Nobel prizes. In his own article (Campanario 1998), the author presents Crandall's view of peer-review when he states that "the editorial process has tended to be run as an informal, old-boy network which has excluded minorities, women, novel researchers, and those from lower-prestige institutions" (1998:285).² Other studies have shown that reviewers have shown bias towards certain institutions and publications. Researchers who work at a prestigious institution tend to have their work judged less harshly than those at lesser known institutions (Campanario

1998:284). As well, as mentioned earlier, once an author has been published in a prestigious journal, s/he may be considered an accomplished author, and therefore reviews of subsequent papers may be less critical.

However, many referees have been accused of being too critical also. It has been the case that reviewers feel they must find some error in the paper in order to do a good job reviewing it (1998:281) – a sort of 'nobody's perfect' approach to peer-review. Moreover, a reviewer might sometimes receive an article for review that contradicts his/her own work, making them perhaps unfairly critical of the manuscript (Campanario 1998:284). This is because, for a reviewer to accept the work of his rival as correct, s/he would have to reject part of his/her research. And, due to the careers, and livelihood researchers place in their research, to reject even part becomes "suicidal, or at least an act of self-mutilation" (Campanario 1998:282). In order to counteract this from happening, some journals, as stated earlier, allow authors to make suggestions as to who should and should not review their work; however there is no obligation for the journal to follow those suggestions. Other measures to curb bias are to send the manuscript to two or more referees.

Reviewer Misconduct

Referees are normally advised by the journals they review that any information regarding manuscripts must be kept confidential, but referees often differ on what 'confidentiality' means (Anon 2001). Some researchers might leave a manuscript out in view of others, while others consult with their colleagues in order to improve the quality of their review (2001). These acts, while careless perhaps, are generally not done with ill-intention. For this reason *Nature's* policy on confidentiality is that the reviewer must disclose the names of each and every person who knows the content of a manuscript (2001).

This kind of disclosure becomes important as there are cases of gross misconduct carried out by peer-reviewers and their colleagues. One such incident, described in a news feature in *Nature* (Dalton 2001), involved a molecular biologist plagiarizing a report a colleague was reviewing for a grant application, and placing the work in his own grant application, only to have it reviewed by the woman he stole it from! While most would say that this kind of action is deplorable, it has been said that the enormous pressure for researchers in

2

¹ It should be noted that Campanario took this quote from a paper published in 1982; and one would hope that the situation isn't quite so dire today. On *Current Anthropology's* online guidelines for authors, for example, they state that manuscripts can be submitted in the author's native language to be translated by the journal. One wonders how many foreign papers are actually translated and published, but it is a step towards equality in journal publication.

competitive fields, such as microbiology, to publish new and innovative work in order to receive tenure and funding forces a few researchers to crack (Anon 2001; Dalton 2001). Another incident described in an anonymous editorial in *Nature* (2001) involved one of its reviewers who purposely postponed reviewing a paper in order to get information from the author, which he then used in his own research. His report was published first, thus "scooping" the story and preventing his rival's work from being published. While *Nature* states that this reviewer was never used again, it can be hard to prove an article has been sabotaged. If the proof is undeniable, a journal can refuse to accept manuscripts from this author or, at most, inform his/her employer of the situation (Anon, *Nature* 2001).

This problem is perhaps relevant to physical anthropology because much of the research in this field is based on fossil evidence that researchers may or may not have access to. It is thus possible for a reviewer to purposely hold onto a manuscript that conflicts with his/her research for as long as s/he can in order to incorporate new information into his/her research and also delay the publication of the article under review (Campanario 1998). After a period of several weeks the reviewer might then cite conflict of interest as reason for not reviewing the paper. Dalton asks: "Does that represent a cynical attempt to delay a rival's publication? Or is it an innocent slip-up by a busy scientist?" (2001:104). The difficulty in proving one way or another is one reason these practices occur.

Sloppy Peer-Review

As mentioned above, the publish-or-perish perspective has led to an influx of scholarly publications, as well as an influx of articles being submitted. This leads to an over-all strain on the peer-review system and allows for less-than-stellar work to be published (Gad-El-Hak 2004). Riisgard *et. al.* (2003) identify an unfortunate result of publish-or-perish: authors who resubmit a rejected manuscript without revision to journal after journal until it is published. This can further slow down the efficiency of peer-review. They also describe how authors, in light of the importance of being published, have developed sneaky ways to avoid rejection. For example, an author might send his/her manuscript to a feared reviewer before submitting it to a journal under the auspice of getting advice to improve the paper. Then, not heeding any of this advice, the author will submit the manuscript to a journal

with the feared reviewer's name in the acknowledgement section along with the words "for your indispensable wisdom" or something to that effect. Upon seeing that this reviewer has already critiqued the work, an editorial board is likely to send the manuscript to a different (and hopefully easier) reviewer (Riisgard *et. al.* 2003:298).

A solution to the dilemma of sloppy manuscript submission would be to limit the number of publications on an individual's CV to five to ten of the most important/relevant entries (Gad-El-Hak 2004). Measures of importance suggested in Gad-El-Hak's paper are: Journal IF and the number of times that article has been cited. In response to this, Lance Nizami points out another element of journal misconduct: "citation cartels" (Nizami 2004). This involves certain researchers and institutions agreeing to cite each other's work. In contrast, some authors are purposely not cited by their rivals to keep their citation count low! Another suggestion put forth by Riisgard *et. al.* (2003) to improve quality of manuscripts is for journals to impose penalties on authors of poor-quality papers that are resubmitted for publication. The problem with this is that,

[manuscripts] may be rejected for reasons other than scientific substance. [Manuscripts] may not fall within the editorial policy of a given journal. The journals *Science* and *Nature* reject some 90% of submissions, many of which may be of high quality, but not considered of sufficient general interest (Riisgard *et. al.* 2003:300).

It is thus unfair to impose penalties on these papers.

Many critics, including Connerade (2004), suggest that a solution to this problem is for institutions that grant tenure and/or grant money to place a higher emphasis on reviewing as a measure of competence. This could involve editors supplying referees with letters of reference (Bachand & Sawallis 2003), publishing a list of reviewers in the journal (Riisgard *et. al.* 2003), or even publishing the names of reviewers in the articles they review (Ibison 2004).

The Aquatic Ape Theory

After engaging in a discussion of the peer-review process itself, it is interesting to look at an example from the study of hominid evolution of an idea that seems not to have

passed the process: the Aquatic Ape Theory. Simply put, this theory states that modern *Homo sapiens* are descendants of aquatic apes, which explains all of our morphological differences from arboreal apes (Morgan, AAT leaflet). The main proponent of this theory is a woman named Elaine Morgan and, though she has written several books on the subject, her articles have not appeared in the pages of *Nature*, *Science*, *American Journal of Physical Anthropology*, or any peer-reviewed publication. This may seem quite odd considering the praise she has received from 'respected' members of academia such as Desmond Morris, a popular television presenter, who states: "It is difficult to see how all the points assembled to back the Aquatic Theory can be explained away" (Morgan, AAT leaflet). Glyn Isaac also provides his glowing endorsement of the hypothesis when he states: "The aquatic hypothesis... cannot be eliminated yet" (Morgan, AAT leaflet). It is perhaps unfair to be sarcastic, but it is puzzling that no major journal has picked up on her ideas. As quoted in Langdon (1997), Morgan has suggested that paleoanthropologists have been "closed-minded to new ideas, sexist, and prejudiced against non-anthropologists or non-academics or Europeans" (1997:480). As has been demonstrated above, these claims are certainly possible in terms of biases reviewers and/or editors may have and the means they have of controlling what is and is not published. However, I would like to look at the way Morgan has constructed her theory to find out if she is a victim of poor peer-review, or poor science.

While none of Morgan's articles have appeared in scholarly journals, critiques of her theory have. John Langdon, for example, has written an article critiquing her theory which appears in *The Journal of Human Evolution* (Langdon 1997). In this article, he addresses many of the arguments Morgan makes in constructing her theory. For example, Morgan claims that the modern human nose developed as an adaptation to diving (1997:482). It projects in order to prevent water from entering the nasal cavity, which she compares to the large-nosed proboscis monkey, which sometimes must navigate flooded areas. Langdon states that, due to its high degree of variation among the species, the nose is difficult to use in order to define the species. Furthermore, the projecting nose can just as easily be an adaptation to warming and moistening air entering the lungs (1997:284). This is just one of the many arguments Morgan makes that Langdon explains can just as easily

relate to terrestrial adaptation instead of an aquatic one. This is not in itself enough reason to exclude Morgan's ideas from scholarly publication. However, Langdon points out that her arguments are all based on modern human anatomy, and she does not include fossil discoveries later than 1960 in her analysis (Langdon 1997:481). The anatomy she uses is mostly soft-tissue material, not preserved in the fossil record, and therefore not available for paleoanthropologists to study (1997:480). She posits in her theory that an aquatic model is as plausible (if not more so) than a savannah model for hominid origins. However, by the time her latest book was published, the savannah hypothesis was discounted in favour of a woodland habitat reconstruction for hominid origins (1997:490).

From this evidence alone it appears that Morgan has failed to follow a proper model of scientific inquiry. If we recall Kuznar's definition of science, the Aquatic Ape Theory is not *empirical* as it does not refer to characteristics available in the fossil record. It is not *explicit* in that it does not address fossil evidence that may contradict its claims. It is not *logical* in that it relies heavily on analogous traits which have no implications for inheritance. It is *theoretical* and *explanatory*, but not necessarily *predictive* of anything found in the fossil record, nor is it *self-critical* of its own shortcomings as a theory. However, the one thing about the Aquatic Ape Theory that is unequivocally scientific (according to Kuznar's definition) is the fact that it is very public. Despite her claims that her theory has been ignored by mainstream anthropology, the fact that it is such a popular theory outside of academia has required scholarly journals to acknowledge her work. Ian Tattersall, for example, wrote a review of her book for *Nature* (Tattersall 1997) which is impressive. Though he dismisses her hypothesis (as Langdon has above), he states that

along the way she takes liberal swipes (some better aimed than others) at a whole range of more orthodox views, and clearly has a good time doing so. As she has noticed, palaeoanthropologists are fond of telling each other 'Just-So' stories; and once in a while a little needling of this kind does no harm at all (1997:638).

So, rather than a being a victim of peer-review bias, the fact that such an unscientific

theory is being commented on in two of the top science journals, by two of the top anthropologists is evidence more that public opinion can sway the editorial decisions of scholarly journals just as much as peer-reviewers can. Langdon states that "umbrella hypotheses ranging from mainstream science to the paranormal maintain their popularity among students, general audiences, and scholars in neighbouring disciplines. One reason for this is that simple answers, however wrong, are easier to communicate and are more readily accepted than the more sound but more complex solutions" (Langdon 1997:479). Peer-review is therefore necessary to ensure that 'umbrella theories' do not prevail in scholarly publishing.

Online Journals

As described above, many problems arise in the peer-review process as a result of its secrecy. In order to address this problem, many journals are seeking new ways of presenting peer-review. In *Current Anthropology*, for example, an article goes through a traditional peer review process and then, before it is published, the manuscript is sent out for comments by other researchers in the field. These comments, along with the author's reply, are then published along with the article (Current Anthropology Online 2004). This approach is interesting as it allows the reader to see that there is debate that exists in science, yet this debate is not an alternative to traditional peer review. In addition, comments like these take up a lot of space in a journal and it would, therefore, not be cost-effective for many journals to present information in this way. *Neurosurgery* is another journal that offers comments printed as part of the article, yet these comments come from the referees and tell the reader why s/he thought the paper should be published (Van-Meir 2004).

Again, there are space limitations in print journals which prevents much comment on a particular article to be published. It is for this reason that scholars are looking towards the internet as a tool to present better, explicit, methods of peer-review. Online archives such as *The arXiv* server and *CogPrints* (Gura 2002) allow authors to upload their manuscripts onto the server and have it critiqued by registered colleagues in a message board type setting. However, it should be noted, that as of yet most papers that appear here are often submitted to traditional journals after the author revises it with suggestions from his online colleagues.

Atmospheric Chemistry and Physics is an entirely online journal where, like the above site, unedited papers are submitted to a message board style review process. After a period of eight weeks online, the article is placed in its final, edited form on the website. The advantage here is that publication is accomplished in a matter of weeks as opposed to years (as is the case with many print publications). The explicit nature of the peer review system is also helpful as it motivates authors to submit quality work so as not to be publicly ridiculed by colleagues (Gura 2002:260). The disadvantage, as of right now, to online peer-review is that it is not clear when an article is considered the "published" work of the author. This, along with the open nature of online peer-review, might exacerbate current problems with plagiarism. Another problem cited by Gura is that, as of yet, there is not much participation in online review, with most articles receiving two or three comments each (2002:259). However, as Van-Meir claims, online peer-review can be beneficial because "young researchers could learn how to publish outstanding papers and address criticisms; readers could be made aware of the limitations of certain approaches and we have a historical record of how peer review improves research findings" (2004:803).

I agree that providing readers with an explicit peer-review process will help foster an appreciation for the quality control good peer-review can provide to a journal. I would like to suggest a presentation of journal articles that utilizes the benefits of *hypertext* – the highlighted words on an internet computer screen that, when clicked, link to another page or source of information. Utilizing the unique medium of the internet, as opposed to simply replicating a print-based text online, has the potential to involve the reader even more in peer review. In an article entitled *The Rationale of Hypertext*, textual theorist Jerome McGann proposes that:

Computerization allows us to read "hardcopy" documents in a nonreal, or as we now say a "virtual", space-time environment. This consequence follows whether the hardcopy is being marked up for electronic search and analysis, or whether it is being organized hypertextually. When a book is translated into electronic form, the book's (heretofore distributed) semantic and visual features can be made simultaneously present to each other. A

book thus translated need not be read within the time-and-space frames established by the material characteristics of the book (McGann 1995).

To translate this concept to scholarly journals, an article could be presented online in the final, published format. However, the text online could present information that, due to budget/space constraints, could not be presented in print copy. *Nature's* online edition already does this to an extent, providing additional graphs, charts, and other data not included in the print edition (*Nature*, Online). However, more information could be included such as reviewers' revision suggestions, peer comments, sound and video files etc. Furthermore, this information can be embedded within the article by hypertext instead of following it in an appendix. In this way a reader could click on a highlighted line of text and be linked to the reviewer's comments on that particular statement. In articles about hominid evolution this type of presentation could be really beneficial for scientists. For example, if an article uses a specific fossil in its analysis, the reader would be able to click on that fossil to get a list of all of the articles in the journal which cite the fossil as well.

Therefore, not only does hypertext have implications for making the peer-review process explicit to readers, it allows them to access scientific information in, as McGann (1995) argues, a virtual space-time environment that impresses upon the reader the nature of science as an explicit, self-critical discipline.³

Conclusions

In investigating the process of peer-review in scholarly publishing, one comes across the curious phenomenon that, while many articles appear in scholarly journals on the subject, the journals themselves offer little information concerning their own peer-review policies. This is troubling for readers of journals as they are not made aware of the ways in which the information they receive has been mediated. Making one's specific peer-review policies

3

¹ Even if the reader chooses not to click on any links in favour of simply reading the print-based article, the appearance of the highlighted text on the screen alone is enough to inform the reader that what they are reading is connected to various other forms of inquiry.

known, as well as publishing one's Journal Impact Factor, would help the reader know the quality and rigor of the review process, and thus make informed decisions as to the journals they rely on for their scientific inquiry.

Furthermore, while each different type of peer-review process has negative aspects to it, I suggest that an open peer review in which reviewers sign their reviews is the best method to ensure the explicitness of the scientific community. This would also minimize abuse in the peer-review process as plagiarism, bias, and conflict of interest would be much more difficult to hide. If referees are recognized and rewarded for giving thorough reviews of manuscripts, the overall number of articles published would decrease and the overall quality of published articles would increase. This becomes important in light of popular theories, such as the Aquatic Ape Theory, that find their ideas published in respected journals due to public interest. Thus peer review is still a necessary component in maintaining quality in scholarly publishing.

As technology advances, more journals are turning to the internet as the best medium to provide open, explicit, peer-review in a timely manner. Though this phenomenon is slow in gaining popularity, as its inherent advantages are in presenting vast amounts of information in an innovative yet convenient fashion, online publishing will gain recognition as the site for receiving the most relevant and reliable scientific information.

Acknowledgements

Thank you Dr. Nelson for all of your help and encouragement

Bibliography

- Anon. 2001. Bad Peer Reviewers. *Nature*. 413(6852):93-93.
- Bachand, Robert G. and Pamela P. Sawallis. 2003. Accuracy in the Identification of Scholarly and Peer-Reviewed Journals and the Peer-Review Process Across Disciplines. *The Serials Librarian*. 45(2):39-59.
- Benthall, Jonathan. 1984. Comments on Anthropology Journals: What They Cite and Who Cites Them. *Current Anthropology*. 25(4): 519.

- Campanario, Juan Miguel. 1998. Peer Review for Journals as It Stands Today – Part 2. *Science Communication*. 19(4): 277-306.
- Cahn, Robert W. 1994. "Referees: Advisors or Deciders?" In *Editing the Refereed Scientific Journal: Practical, Political, and Ethical Issues*. Robert A. Weeks and Donald L. Kinser (editors). pp. 34-41. New York: Institute of Electrical and Electronics Engineers, Inc.
- Connerade, Jean-Patrick. 2004. Scandals Stem From the Low Priority of Peer Review. *Nature*. 427(6971):196-196.
- Current Anthropology. Consulted: November 15, 2004. *Information For Contributors*. World Wide Web page, url:<http://www.journals.uchicago.edu/CA/contribs.html>
- Dalton, Rex. 2001. Peers Under Pressure. *Nature*. 413(6852): 102-104.
- Gad-el-Hak, Mohamed. 2004. Publish or Perish - An Ailing Enterprise? *Physics Today*. 57(3):61-62.
- Garfield, Eugene. 1984. Anthropology Journals: What They Cite and Who Cites Them. *Current Anthropology*. 25(4): 514-528.
- Gura, Trisha. 2002. Peer Review, Unmasked. *Nature*. 416(6878): 258-260.
- Ibison, Michael. 2004. Publish-or-Perish Perspectives: Dividing Coauthors, Valuing Referees, Taming Expectations. *Physics Today*. 57(9): 12-13.
- ISI Web of Knowledge. Consulted: November 20, 2004. *ISI Journal Reports*. JCR Science Edition. World Wide Web page, url:<http://isi10.isiknowledge.com.proxy.lib.uwo.ca:2048/portal.cgi?DestApp=JCR&Func=Frame>
- Kuznar, Lawrence A. 1997. *Reclaiming a Scientific Anthropology*. Walnut Creek: Sage Publications Inc.
- Langdon, John H. 1997. Umbrella Hypotheses and Parsimony in Human Evolution: a Critique of the Aquatic Ape Hypothesis. *Journal of Human Evolution*. 33(4): 479-494.
- McGann, Jerome. 1995. The Rationale of Hypertext. Consulted: November 25, 2004. IATH WWW Server. World Wide Web page, url:<http://jefferson.village.virginia.edu/public/jjm2f/rationale.html>.
- Moran, Gordon. 1998. *Silencing Scientists and Scholars in Other Fields: Power, Paradigm Controls, Peer Review, and Scholarly Communication*. Greenwich, CT: Ablex Publishing Corporation.
- Morgan, Elaine. *AAT leaflet: Why We are Different From Chimpanzees*. Consulted: November 20, 2004. World Wide Web page, url:<http://www.geocities.com/Athens/5168/aat/leaflet.html>.
- Nature. Consulted: November 15, 2004. Nature Guide to Authors. Nature Publishing Group. World Wide Web page, url:<http://www.nature.com/nature/submit/gta/index.html>.
- Nizami, Lance. 2004. Publish-or-Perish Perspectives: Dividing Coauthors, Valuing Referees, Taming Expectations. *Physics Today*. 57(9): 11-12.
- Riisgard, Hanz Ulrik, Otto Kinne, Tom Fenchel, et al. 2003. Misuse of the Peer-Review System: Time for Countermeasures? *Marine Ecology-Progress Series*. 258: 297-309.
- Science Magazine. Consulted: November 15, 2004. *Information and Help for Science Authors*. World Wide Web page, url:<http://www.sciencemag.org/feature/contribinfo/home.shtml>
- Tattersall, Ian. 1997. Book Review of The Aquatic Ape Hypothesis – Elaine Morgan. *Nature*. 388(6643): 638-638.
- Ulrich's Periodicals Directory. Consulted: February 7, 2005. World Wide Web page, url:<http://www.ulrichsweb.com>
- Van Meir, Erwin G. 2004. Opening the Chamber of Peer-Review Secrets. *Nature*. 429(6994): 803-803.