Correcting the Record II: Errors

So you've just published last year's work in *Optical Engineering* and have moved on to the next phase that you described to the National Science Foundation two years ago. You are in the process of reconfiguring the system for the next set of experiments and your graduate student sticks his head in the door.

"Y'know that neutral density filter that we put in to keep the detector from saturating?" he asks.

"Yeah. What's the problem?"

"Well, I thought it was an ND1. But when I dismantled the source I found that it was an ND2 and that's going to throw the irradiance calculation off by a factor of ten."

There is a sinking feeling in the pit of your stomach. You were sure you had checked that, but it has been some time since the system was put together and no one else on the team caught it. Darn! But the data is still good, it's just a matter of revising the calculations with the correct irradiance value. And that might explain why we had questions about the lower illumination values….

You prepare a revised paper and submit it to the journal. It is approved with one of the reviewers, who had seen the earlier paper, making a snarky comment about the mistake. But there is a problem: how do you treat the earlier paper with the incorrect results?

Last month's editorial ("Correcting the Record I: Plagiarism") discussed how plagiarized papers could be handled in this brave new digital world. It described two approaches to the online versions of papers whose authors plagiarized others. One of them consisted of adding a note about the plagiarism on the web page that links to the HTML version and .pdf file, as well as a note within the versions themselves that references the plagiarized source. The second approach also added a note to the effect that the paper was removed because of plagiarism and the offending paper was replaced with the references to the plagiarized papers.

But what about the kind of errors caused during the performance of an experiment, as described above? In days of old, when only print ruled the journal world, an errata would be published in a later issue of the journal. But in these digital days, when the record is accessible and correctable, how should such errata be handled?

Just as some newspapers are considered "papers of record," all peer-reviewed journals, as far as I know, are journals of record, archival repositories of the world's scientific and technical progress. In the case of newspapers like the *New York Times*, certainly a paper of record, most corrections are matters of fact. Corrections are made in two ways. A notice is inserted in the print version of the *Times* and a corresponding entry is made in the online (digital) version. In the case of the correction to the digital record, a notation, "Correction Appended," is inserted just before the dateline of the article (e.g., WASHINGTON, Sept. 28), the article itself is corrected, and the correction is described at the bottom of the page. If the article takes up more than one page, the notation and the description are placed in the same location on all other pages.

Recently, there has been no need to correct anything in *Optical Engineering* beyond an author's affiliation and some minor errors. In those cases, an "Errata" was added to the next issue of the print version. This notice also appeared in the Digital Library version of the journal. In addition, the digital versions of the papers were corrected and the correction date was inserted after the publication date beneath the abstract.

In the case of typos, misattributions, or minor factual errors, this approach seems to be appropriate, although I would like to see a notice of the correction in the digital version to be a bit more prominent. Of course, there needs to be an evaluation of the importance of the error as it relates to the content and conclusions found within the paper. Because errors can range from simple typos to major inaccuracies in the data, computation, or analysis that affect conclusions, a single approach will not do.

In the hypothetical case advanced at the beginning, the new values should be reported and any affected figures revised. The paper could be corrected in much the same manner as in the *Times*. But what if the errors drastically change the conclusions of the paper? In that case, the paper would need to be reviewed by the Associate Editor and, perhaps, the original reviewers of the paper. It would seem only right that the paper be given a new submission date. As to the fate of the earlier (wrong) version, there are two ways to proceed. One approach would be for the authors to ask that the online version be withdrawn and the later version be referenced there. However, as was noted last month, pulling a paper is done only under extraordinary circumstances. The other approach would be to leave the paper in place and insert an "Author's Note" on the web pages of both the original and revised papers and within the published papers themselves. As of right now, I am not sure which way we will go.

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Editor