Open access, predatory publishers, *The Canadian Entomologist*, and you

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If your experience is the same as ours, you are being ‘flooded’ with emails that offer to advance your scientific career. Some are invitations to be a keynote speaker at an international conference. Others are invitations to join editorial boards, guest edit a special issue of a journal, or even start your own journal. Most, however, are solicitations for your next submission.

Some of you may feel flattered at being ‘singled out’ for this special attention. Others may view such emails as spam. Almost all of these emails are from online journals that promise rapid peer-review with publication of accepted papers via Open Access (OA) to promote your research to the broadest possible audience. Associated with these emails, you may have heard the term ‘predatory publishers’.

What do we make of all this? What is OA? Are these legitimate journals? Why are there so many new ones? What are predatory publishers? Do they deliver as promised? How did they get my email address? Limited funds, a need to quickly publish papers, and the desire to maximize the impact of our research are all reasons why these questions merit close attention. In this article, we hope to shed a little light on some of these topics.

Let’s begin with a bit of background to provide context. Most of us are familiar with the subscription-based model of research publication, where researchers typically pay page charges to publish their papers in scientific journals. The publishers then charge subscription fees for readers to access these journals. These charges cover costs of journal publication (copy editing, formatting, and printing) and distribution, and generate profits for the publisher. For many of us, this subscription-based model is less than satisfying. It just doesn’t seem fair that we have to use our research funds to conduct a study, then probably pay to publish the results, and then pay again to read the papers. To add insult to injury, the profits generated for the publisher rely upon our volunteer time to serve as reviewers and editors. Until fairly recently, however, there didn’t seem to be viable alternatives to the subscription-based model.

The subscription-based model has come under increased scrutiny as subscription costs continue to rise while institutional libraries struggle to deal with declining journal acquisition funds. Adding fuel to the fire are reports of unseemly profit margins for commercial publishers. A recent article in Nature references a 2008 study, which estimated profit margins for society publishers at 20%, for university press publishers at 25%, and for commercial publishers at 35% (van Noorden 2013). These conditions, in combination with the growth of the internet, have paved the way for the rapid proliferation of new online journals.

‘Open Access’ and ‘Predatory Publishers’ are two distinct, but often linked, phenomena.

**Open Access (OA)** – unrestricted access to online journal publications.

**Predatory Publishers** – publishers that exploit the OA model for profit using questionable tactics.

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the way for OA as an apparently less expensive and more palatable alternative to the status quo.

Open access …

OA refers to unrestricted online access to journal publications. There are a number of different models by which this is achieved. The Gold OA model allows articles to be made freely available online upon publication. Depending upon the journal, payment of an Author Publication Charge (APC) may or may not be required. The Green OA model allows for published articles to be self-archived in a public repository, either in the form of the ‘accepted manuscript’ or the published ‘version of record’. Delayed OA allows for published articles to become freely available online after an embargo period. Pure OA refers to journals that only publish OA articles; that is, there are no subscription fees for any content. Hybrid OA applies to journals for which subscriptions are required to access the content, but provides the option of Gold OA to authors of individual papers, usually on payment of an APC.

Many of you may have the perception that OA models allow for free publication. They do not. They allow only for free access. Someone still needs to pay costs to format and copy-edit our accepted manuscripts, to manage their publication, and to host and archive web content. Fee-based OA journals recover these costs as APCs from the author or, more often, from the authors’ research grant or institution. Occasionally, these journals may fully or partially waive APCs in cases of financial hardship. No fee OA journals recover these costs from other sources of income. These may include subsidies (e.g., from foundations, institutions, governments), membership dues, advertising, endowment funds, non-OA journals, or some combination thereof.

The speed with which researchers are embracing OA is astonishing. In 1993, there were 20 OA journals that published 247 articles. In 2009, there were 4,767 OA journals that published 191,851 articles (Laakso et al. 2011). Announcement in the United Kingdom of a new policy by the Research Councils UK (RCUK) is expected to further spur adoption of OA. As of April 2013, authors “are expected to publish any peer-reviewed research papers which acknowledge Research Council funding in journals that are compliant with the RCUK policy on Open Access”. Compliance is met with publication in either Gold OA or Green OA journals. The United States is developing a similar policy, whereby Federal agencies with research budgets exceeding $100 million per annum are tasked with developing plans to increase public access to federally-funded research (Holdren 2013).

… Predatory publishers …

Let’s get back to those emails that find their way to your inbox, asking you to submit an article to some journal you’ve likely never heard of. Why are there so many of these new journals popping up? How do they find you and why are they so eager to have you publish an article in their journal?

Once again, we need to provide a bit of context. Online publication and use of the internet allow journals to operate with much reduced costs. There is no need to ship or maintain hardcopy publications of journals. Emails provide an inexpensive method to advertise journals and solicit submissions. Thus, the upfront costs of starting a new journal can be as little as a few hours to set up a website. At the same time, there is a need for new journals, particularly those that publish in the English language. Recent years have seen a dramatic rise in the number of PhDs being annually awarded; mainly in China but also in India (Cyranoski et al. 2011). Because English is the ‘language of science’, these new graduates are under pressure to publish their research in English language journals, which may be a requirement for graduation. Doing so also brings international recognition, future collaborations and (hopefully) a permanent job. And once they have found jobs in science, the pressure to publish continues. Established journals don’t have the capacity to accommodate all of these new submissions and may have APCs that are
prohibitively expensive. All of these factors have helped fuel the explosive growth of online journals.

Many of these journals provide valuable and legitimate services. Most of them are sincere in their efforts to develop their product and recruit authors. As new journals, they also need to establish editorial boards. Thus, they strive to attract the services of young, ambitious scientists who recognize the worth of voluntary editorial work to advance both their fields of study and their personal careers. Invitations to serve on editorial boards of established journals are generally uncommon. New online journals also tend to have lower APCs than more established journals. Furthermore, submission to a new online journal may expedite publication of your manuscript. Established journals often have a backlog of papers ‘in review’ or ‘in press’, such that it may take a year after submission to see an article published in final form. In contrast, fledgling journals usually have fewer bottlenecks to delay production of the final product.

There are, however, a significant number of publishers of OA journals that engage in questionable practices. These practices identify them as predatory publishers. Rather than a genuine interest to disseminate science and provide a stringent review process, their primary motivation is to generate revenue. Consequently, publication in such journals may be more reliant upon receipt of an APC than on the quality of the submission. The more articles accepted, the greater the number of APCs received by the publisher.

To garner submissions and maximize profits, predatory publishers send out spam emails using search engine web bots to obtain your email address and the titles of your recent publications from the internet. You then receive a professional-looking email with fancy graphics and announcement of a new leading-edge journal with an alluring title. It likely praises your expertise and contributions to your discipline (often unrelated to the topic of the journal), may reference a recent paper, and then invites you to submit an article. As further enticement, these emails may include invitations to serve on editorial boards. Doing so, however, may obligate you to submit future manuscripts to the journal and your name may be used by the publisher to attract submissions from other authors. Indeed, there have been multiple instances of scientists being listed on editorial boards without their knowledge (Beall 2012b).

The topic of predatory publishers has caught the attention of many, perhaps none more so than Jeffrey Beall (University of Colorado Denver), who has become a leading figure in tackling this issue. Beall (2012a) has developed a checklist (see inset) that identifies the many ways in which predatory publishers deceive, lack transparency or otherwise fail to follow publishing standards with regards to editors and staff, business management practices and overall integrity. His list of
such publishers currently contains more than 225 entries (Beall 2013), most of which publish multiple journals! He also writes a blog that tracks the activities of some of these publishers (http://scholarlyoa.com/). From the 4 June 2013 post on his blog: “I recently discovered a new publisher called Recent Science, a scholarly publisher with 38 journals in its portfolio, some of which duplicate other publishers’ titles. According to Recent Science, every one of its journals has earned an impact factor, even though none has any content.”

Some researchers listed on the web sites of publishers on Beall’s list regret their decision to become involved with publishers of ‘predatory’ journals, and now cannot seem to rid themselves of these associations. A recent New York Times article described the plight of James White, a plant pathologist at Rutgers University. He accepted an invitation to serve on the editorial board for a new journal, Plant Pathology & Microbiology, not realising the nature of the journal. His name, photo, and personal information were posted to the journal’s website, and subsequently used to promote an entomology conference, Entomology-2013 – all without his permission (Kolata 2013).

Two reputable European journals Archives des Sciences and Wulflenia have recently fallen prey to identity theft. Counterfeit websites were created and used to lure hundreds of scientists into paying publication fees for articles that were never received by the legitimate journals, and never published. These forged sites even initially fooled Thomson Reuters, producer of the Scientific Citation Index and compiler of journal impact factors, who noticed a discrepancy between the journals’ print issues and on their website, and alerted the journals to the problem (Butler 2013).

\textbf{.... The Canadian Entomologist …}\n
\textit{The Canadian Entomologist (TCE)} has been published continuously since 1869 as the journal of the Entomological Society of Canada, which celebrates its 150\textsuperscript{th} anniversary this year. This makes \textit{TCE} one of the oldest entomological journals in the world of one of the oldest scientific societies in North America. Initially a forum to disseminate the research findings of mainly Canadian interest, \textit{TCE} has become an international journal that publishes significant new findings from all countries in all disciplines of entomology.

Part of the journal’s success has been the Society’s willingness to evolve in response to changing circumstances. Faced with rising production costs and a desire to better embrace online technologies, the Society began a search for a new publisher in 2010. After considering proposals from several sources, the Society entered into a partnership with Cambridge University Press (CUP), which became the publisher of \textit{TCE} in January 2012.

With its origins in 1534, CUP is the world’s oldest publishing house. It is a department of the University of Cambridge and is a non-profit organization. It has charitable status with a mandate to print and publish for the advancement of knowledge, education and learning worldwide. This philosophy is somewhat different from that of commercial publishers, which also include the expectation of maximizing profits for shareholders. It was partly for this reason that the Society opted to partner with CUP.

With the transition to CUP, \textit{TCE} provides authors with an increased number of attractive features. Page charges have been eliminated, both for text and for colour plates. Submission is now completely online via CUP’s ScholarOne submission process. This allows authors to track
the progress of their submissions and has accelerated the review process. Accepted papers are posted on TCE's website as FirstView articles prior to publication and authors receive a PDF version of their final paper free of charge. Articles published in TCE, including all back-issues, are 'deep-archived' to ensure their perpetuity in digital archives. In addition to a rigorous peer-review process, submissions accepted for publication in TCE are carefully vetted by an Assistant Editor to maintain a consistently high standard of clarity and grammar. Published papers are indexed using a number of services (Cambridge) with CUP continuously working to improve service delivery.

Under the current agreement between the Society and CUP, TCE is published using a subscription model with a portion of the proceeds from subscription sales returned to the ESC to support societal activities. In light of increased pressure for OA publication, however, TCE has evolved once again and adopt a hybrid OA model. This change will give authors the option of Gold OA publication in TCE for a one-time fee. However, should they prefer, authors can still publish in TCE at no cost.

... and you.

This brings us full circle with you looking at the latest email soliciting your next submission, asking you to serve on an editorial board, or to review a manuscript. With your inbox full of such emails, you may find it an increasing challenge to determine where to allocate your time and article submissions. You are not alone. We all face these decisions, which affect our job prospects, career advancement and future research funding. We don’t know what decision is best for you, but we do advise you to be strategic in reaching it.

Peer-reviewed publications are a key measure by which our careers and programs as researchers are judged. This judgement is based on: (i) the number of peer-reviewed articles that we or our labs produce, (ii) the quality of the journals in which we published, and (iii) the impact of the work itself — the degree to which it is applied and advanced by other researchers. The relative importance of these factors varies with the discipline and career stage of the researcher. For students, simply having a peer-reviewed publication, particularly in an English-language journal, may open the door to a PhD or postdoctoral opportunity. As our careers progress, the number and quality of our publications are given greater weight.

It is particularly important for early-career scientists to carefully select the journals to which they submit the fruits of their research. In general, articles that are open-access are cited more often than their paid-subscription counterparts. In a meta-analysis of citation counts, Swan (2010) identified 27 studies that reported a distinct advantage to OA publishing versus 4 studies that did not. Eysenbach (2006) found that OA articles were more likely to be cited than non-OA articles published in the same journal. Open-access publishing, especially online “previews”, also can hasten the dissemination and uptake of research findings (Eysenbach 2006). Thus, publication in OA journals may be especially beneficial to early-career scientists — if they can afford the APCs.

The number of times a paper is cited is one indication of its impact. Thus, citation counts are valued and rewarded in performance assessments and funding decisions. One of the most common measures of citation counts is the $h$-index, which is automatically calculated by databases such as Scopus and the Web of Knowledge. In simplest terms, an author with an $h$-index of, for example, 10, has published 10 papers that each have been cited in other papers at least 10 times. Just like citation counts themselves, the value of the OA citation advantage varies with discipline and with the quality of the research (Gargoui et al 2010). However, citation counts are not the only indicator of article quality and importance, especially for more applied research. Thus, they are increasingly supplemented by other online measures that include download counts, tags, comments, ‘likes’, and recommendations (e.g., http://f1000.com/prime).
Publishing in journals that facilitate citation counts is one option, but citations take time to accumulate. Thus, early-career researchers may be more attracted to a journal’s impact factor (IF). The IF of a journal is a measure of the average number of citations to recent papers it has published. The premise is that high IFs reflect a high overall quality of research in the journal and, therefore, of the researchers that publish in the journal. However, this premise is flawed to the extent that the European Association of Science Editors (EASE) has stated that IFs should not be used to assess researchers or research programs either directly or as a surrogate (EASE 2007). Nevertheless, many organizations (mainly academic institutions) still use IFs to assess employee performance. Depending upon your individual circumstances, you may wish to submit to high IF journals, but recognize that they generally have high rejection rates.

Accepting invitations to serve on editorial boards is generally encouraged. Such opportunities are rare and normally offered to individuals that have attained prominence in their field of study. Thus, serving in this role brings immediate prestige. More importantly, however, board members help shape editorial policy and enhance the overall quality of published papers in their field of study. However, these invitations should be accepted with caution. Can you commit the time needed to do a credible job? And if you accept the invitation, what exactly are you agreeing to? Recall that predatory publishers use these invitations to attract submissions and the names of researchers to promote their journals. For example, as an editorial board member or reviewer for journals published by Science PG, “You agree to display your name and photograph on the website of the site and journal cover.” (http://www.sciencепublishinggroup.com/info/benefitsresponsibilities.aspx). Furthermore, use of this strategy has resulted in some journals having exorbitant editorial boards. ISRN Ecology published only 22 papers in 2012, but as of June 2013 lists an editorial board of 229 members (http://www.hindawi.com/isrn/ecology/editors/).

This brings us to the topic of manuscript reviews. Scientific peer-review is critical to maintain the quality and advancement of our chosen fields of study. We are obligated to provide these reviews because it is part of the job and because our peers have taken time to review our manuscripts. There also is a certain level of prestige with being asked to review manuscripts, as it implies that the quality of your own work has earned respect in the research community. However, a thorough and thoughtful review can take several hours and, in addition to improving the quality of the submission, your efforts provide a significant financial return to the journal’s publisher. Consider the following. Will your efforts primarily benefit a predatory publisher? A large commercial publisher? Is the invitation to review from a journal you have never heard of? Is the journal published by a society of which you are a member, and which will provide tangible benefits to you and your students? Early in your career, you may receive few such invitations and can afford to be less discriminatory. As the number of invitations increases, however, you may need to be more selective.

In summary, scholarly publication is in a state of upheaval triggered by new technologies and the desire of authors to obtain the greatest possible audience for their articles. The bewildering number of new online OA journals is only the most visible aspect of this upheaval. These changes are transforming the way we communicate our science and offer tremendous opportunities. But beware the predatory publishers that prowl in your email inbox stalking your next submission. Be informed. Be strategic. But first and foremost, do good research.

References

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