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## CORRESPONDENCE

*To the Editors of ‘The Observatory’*

### *The Elephant in the Open-Access Room*

Open-access (meaning freely available for anyone to read on the internet) journals are becoming more and more common, with some funding agencies requiring that research financed by them be reported in open-access journals, in the case of public money often justified by the claim that taxpayers have a right to see what their taxes have financed. While few think that open-access journals themselves are a bad idea, there are nevertheless some negative aspects associated with them. I briefly mention a few which are relatively well known then one which I haven’t noticed being discussed very much.

There can be no doubt that the internet has changed the face of academic publishing, and that many aspects of that are good. For example, even without access to a subscription, enough literature is available on the internet to fulfil the needs of many researchers, for example, making it possible to work from home. (That, of course, has advantages as well as disadvantages, but shouldn’t be underestimated in times such as the present when many are involuntarily working from home.) Printed journals are becoming less common; not only are many new journals on-line-only, but also some long-established journals

have stopped producing paper editions, such as the *Astrophysical Journal* and, recently, even *Monthly Notices of the Royal Astronomical Society*. Much discussion has focussed on subscriptions or other ways of paying for journals: on-line publishing is cheap, compared to printing, and much of the work (*e.g.*, refereeing, not to mention writing the articles) is done at no cost to the journal (in the case of page charges or open-access fees, the authors even pay for their paper to be published). There can be no doubt that the profit margins of many journals have increased enormously; their costs have dropped, yet subscription prices continue to rise. That and dubious business practices such as requiring libraries to subscribe to bundles of journals when they don't want most of them have even led to boycotts of certain publishers.

All the same, the costs of otherwise similar journals vary enormously; a problem with some open-access advocates is characterizing all journals where the author and/or reader, directly or indirectly, pay for access as equally evil. In some cases, the author is allowed to distribute freely (something equivalent to) the final version, but lack of visibility can be a problem (and arXiv isn't always a solution).

Another trend is the move from subscription-based payment to open-access fees. While some journals have long had page charges (often in addition to subscriptions), increasingly costs are covered by open-access fees, often well over £1000 per article. Some subscription-based journals offer that as an option in order to make the article available to those without a subscription, while other journals are financed essentially entirely by such article-processing fees (making essentially all articles open access\*). There are several problems with such a business model. First, there is an obvious conflict of interest: assuming that the incremental costs per article are small, which is certainly true for on-line-only journals, the more articles published, the higher the profit. There are examples of journals published by otherwise more-or-less-respectable publishers which have very little, if any, quality control. Second, it puts those who don't have the funds at a disadvantage. Even if waivers are offered, they might not always be applicable in a particular case, and in any case the author is forced to petition for such a waiver to be applied. Third, in cases where such fees are covered by an institute or other body with limited resources, unhealthy competition among colleagues can arise. Fourth, a journal which can finance itself *via* subscriptions can be assumed to have some measure of quality, and hence the author can expect some reasonable measure of visibility. If authors are paying to have their article published, rather than a subscription being paid so that high-quality articles can be accessed, there is less motivation for quality control (that is a variant of the first point). (I'm leaving out for now the entire industry of fake journals — and there are even fake conferences, often organized by the same people — which claim to be serious academic journals, often with titles similar to respected journals, and often boast famous people on their editorial boards, without the knowledge of those people. They are often

\*Note that some of those journals solicit review articles from well-known researchers and waive the publication fees. Such articles, being review articles, are often highly cited, especially if they are freely available. (Interestingly, almost all journals where the author pays for publication allow distribution elsewhere, although there is no reason why that must be the case, and thus such articles are often highly visible on arXiv.) As a result, the journals obtain a non-negligible impact factor, which lures some to submit their articles to such journals. It is well known that the impact factor is highly skewed, especially in the case of high-impact-factor journals: most citations come from a few high-profile articles. Nevertheless, some authors — or their employers and/or funding agencies — are deluded enough that an article with no citations in a high-impact-factor journal counts for something, even if it is not far removed from vanity publishing.

termed ‘predatory journals’, but I have little sympathy with authors who don’t even know which journals in their own field are considered respectable. More serious are cases where publication lists inflated by such journals are taken uncritically as evidence of academic accomplishment by hiring committees, not all members of which are experts on the field in question. Even one publication in such a journal should disqualify any candidate.)

SCOAP<sub>3</sub> and Plan S, by enabling or requiring open-access publication, seem to have spawned, or at least contributed to the rise of, open-access journals, often of dubious quality. By transferring the fee from the authors, their institutions, libraries, or universities to higher-level organizations, the actual costs are not as visible to authors. Probably for that reason, many publishers have simply transferred the rightly criticized inflated publication costs from subscriptions and/or page charges to fees paid at the national level or even higher, making it even more difficult to avoid such overpriced journals.

One aspect of this trend which I haven’t noticed being discussed much is the question of what happens to the on-line content of journals if arXiv-overlay journals or some other models which bypass traditional publishers are so successful that traditional journals are driven out of business. While some traditional journals, such as *MNRAS*, leave copyright with the author (and of course *MNRAS* is owned by the RAS and not, as are many journals, by a commercial publisher, though production is outsourced to a commercial publisher), and others, such as *Astronomy & Astrophysics*, are copyrighted by a non-profit organization (in that case ESO), the copyright to articles in many journals is owned by the publisher. If such journals, or even their publishers, are driven out of business, they almost certainly won’t be willing to donate the content they own to some open-access initiative. In the case of journals which are on-line-only, there are no official paper copies. Certainly not everything is on arXiv (and of what is there, the final version isn’t always on arXiv or if so that might not be known). Older articles are available *via* the NASA Astrophysics Data System Bibliographic Services, but in the case of newer articles, ADS often has only links to on-line journals. Even if someone were able to make a ‘virtual journal’ by organizing existing electronic versions of articles, it probably couldn’t be made available, at least not until after a long time, because it would violate copyright. On the other hand, the scientific community cannot be expected to continue to pay inflated prices to publishers in order that the long-term storage of articles is secured, even less so for on-line-only journals (many of which also have prices which are much too high). Even if a solution could be implemented for all new papers, the problem of papers from recent history (the last couple of decades, say) would remain.

Such events have already happened<sup>1</sup>. While no major journals have yet been affected, it nevertheless seems to be something to worry about. There is perhaps a Catch-22 involved: if reasonably priced on-line-only journals are not successful, the established journals can continue to charge inflated costs. If they are, then traditional journals might disappear, and perhaps even the publishers be driven to bankruptcy, which almost certainly would lead to much less availability, and perhaps even to the complete loss of some articles. It is not that no-one has thought about the problem (see, *e.g.*, many entries at ref. 2), but rather that the scientific community as a whole has not implemented a viable solution.

I realize the irony of providing on-line-only references; future historians reading this article can check whether they are still accessible.

Yours faithfully,  
PHILLIP HELBIG

Institut d'Astrophysique et de Géophysique (Bât. B5c)  
Université de Liège  
Quartier Agora  
Allée du 6 août, 19C  
B-4000 Liège 1 (Sart-Tilman)  
Belgium

helbig@astro.multivax.de

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### *Don't Mention the War!*

Leonard Matula notes in his review<sup>1</sup> of *The Birth of Modern Astronomy* that “many other writers have failed” to credit Fritz Zwicky with “predicting dark matter and neutron stars”. While that might be the case, not uncommon is the claim that Zwicky was the *first* to suggest dark matter. Coincidentally, in my article in the same issue<sup>2</sup> I went to some length to point out many who had, in various contexts, suggested dark matter before Zwicky. There is also still no Nobel Prize for astronomy, though several astronomers have been awarded the physics prize; that to Bethe in 1967 was arguably the first for work connected to astronomy, though Bethe was not an astronomer; the first to actual astronomers was that to Ryle and Hewish in 1974. (Five of the last six winners have been astronomers, and the sixth, Penrose, has done work closely connected with astrophysics. In this century, six physics prizes have been awarded to seventeen people for work in astrophysics — compared to four prizes to seven people in the (five times longer) previous one.)

My main comment, though, concerns Wernher von Braun, on whom Matula spends about a quarter of his review. It's nice to see a more realistic picture painted of him; too often one-line comments, such as that which Matula criticizes, can create a false impression<sup>3</sup>, even if that is not the intent of the author. Interestingly, I actually knew Wernher von Braun somewhat, as my mother had worked for several years as secretary to Ed(win) Riddick before I was born; the American Riddick was von Braun's public-relations/political deputy while the German Eberhard Rees was his R&D deputy (and later, succeeding von Braun, director of the Marshall Space Flight Center in Huntsville, Alabama — which is also where I was born). Although she had stopped working when I was born, she occasionally went back to visit, sometimes taking me with her. I have a distinct memory of standing in von Braun's office and drawing a rocket on a blackboard. (We moved from Alabama to Texas in early 1969, when I was