Response to NIH Request for Information on Maximizing Research Funds by Limiting Allowable Publishing Costs

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In the opinion of this author, Option 1, which proposes that NIH should "no longer support publication costs through any funding mechanism", is alone among the five proposed options capable of realizing NIH's goal of "maximizing the use of taxpayer funds to support research". The remaining four options all propose to continue some level of entanglement between funding agencies and for-profit publishers. To date, such entanglement has proven harmful to the dissemination of scholarly and scientific knowledge and therefore should be discontinued at the earliest opportunity. The suggestion that NIH could consider funding payments to reviewers (Option 3) is especially objectionable. Any such payment will not merely escalate existing wasteful expenditure of taxpayer money but will draw the scholarly and scientific community into ever greater entanglement with for-profit publishing. In turn, greater entanglement will inevitably create conflicts of interest, the harmful effects of which in other areas of professional and scientific pursuits have proven impossible to counter (James, 2020a). Total severing of NIH-funded ties to monetized publishing is the only way of ensuring taxpayer money is used to maximum benefit in the dissemination of scholarly and scientific knowledge.

It is hoped the reader will appreciate that a considerable amount of potentially relevant detail and interpretative nuance have been omitted to avoid this response being overly long. In that regard, the reader may wish to proceed directly to the section below headed, *Action Plan: Reclaiming Genuine Open Access*. That is, for the purpose of making a rapid judgement of the content described herein, the reader may in the first instance choose to skip the earlier section headed, *Background*, the content of which is primarily concerned with providing underlying justification for the Action Plan this response proposes should be adopted by NIH. The present author is available to participate in follow-up elaboration, discussion, and correspondence should NIH desire it.

Background

Maximizing access to scientific knowledge has been an aspiration of scholarly and scientific publishing since the founding in 1665 of the longest-running scholarly journal, the *Philosophical Transactions of the Royal Society*. The resilience of that aspiration is evidenced by numerous affirmations over the centuries, including, for example, the position currently held by Science Europe that scientific knowledge can only function properly if openly accessible to all. Thus, despite the incalculable value of new scholarly and scientific knowledge, academic publishing has long pursued an ethos of sharing rather than trade for profit. However, all that changed in the late 20th Century with the entry of for-profit publishing into the arena of scholarly and scientific endeavor.

The term "open access" as applied to academic publishing is of relatively recent origin, having been coined in 2002 at the Budapest Open Access Initiative (BOAI). However, the underlying concept of open access is much older, indeed, it is ancient. In a letter written approximately 2,000 years ago, the Roman philosopher Seneca the Younger(c. 4 BC – AD 65) stated: "Any truth, I maintain, is my property . . . the best ideas are common property." In effect, Seneca was asserting the belief that access to worldly knowledge is a fundamental human right. It remains for the current generation to implement that 2000-year-old aspiration and preserve it for future generations.

Obviously, ancient methods for knowledge dissemination could not deliver the ideal of universal open access. Seneca's letters for example were written on papyrus scrolls. In that context, the invention of the printing press by Johannes Gutenberg in 1440 represented a major step toward the ideal of open access, serving as it did as a catalyst for the advent of printed scientific journals from the mid-17th Century. However, despite being a major advance, it is obvious that print is not absent of costs, including materials (e.g., paper, ink), equipment (e.g., the printing press), labor (e.g., typesetting, binding of articles into journals), and the need for physical distribution of the finished printed volume. Not unreasonably, those costs needed to be recouped by the professional societies who, until recent times, were the principal owners of scholarly and scientific journals. That printing costs were essentially all that needed to be recouped is itself highly significant. The centuries-old scholarly ethos of sharing fostered universal acceptance that the extensive expertise required to create and disseminate new knowledge would be done without payment to those responsible for that work. That is, it was accepted as a normative principle that authors (mostly employees of universities and research institutes) offer manuscripts without payment, expert reviewers (i.e., scholarly peers) assess that work without payment, and final decisions regarding publication are made by unpaid editors (mostly senior scholars).

For the first 300 years of printed journals, subscriptions were the main source of revenue used to recoup costs, with institutional libraries being the principal subscribers. Accordingly, members of subscribing institutions (e.g., university researchers) had direct access to a vast array of scholarly and scientific knowledge. Although such access fell short of the ideal of universal open access, it nevertheless represented a major step in that direction. Then, in the late 20th century, with the advent of the Internet and digital publishing, the barrier of cost appeared at last to be surmountable (Fyfe et al., 2017). Perversely, however, the global transition from print to digital had the exact opposite outcome to that which common sense deemed inevitable. Cost of access increased, thereby exacerbating barriers to access for readers and creating, for the first time, financial barriers for authors (James, 2017; Tickell, 2016). Ironically, in the era of virtual immediate access to information, access is being impeded by increased costs for subscribers and the imposition of entirely new costs on authors, a reality that was not anticipated and would once have been incomprehensible.

<u>For-profit Publishing</u>

On the assumption that NIH's invitation for comment does not require an exhaustive account of the incompatibilities between for-profit incentives and scholarly and scientific endeavors, what follows is a summary of key aspects of monetized "open access". With the advent of digital technologies, corporate publishers entered the journal publishing "market". Evidently, they saw commercial opportunities in a "product" of immeasurable value (i.e., new scholarly and scientific knowledge) serving the needs of an immense global consumer base (i.e., the scholarly and scientific community). Notably, the product in question was being produced at little expense due to the input of free labor supplied by an army of authors, reviewers, and editors. "Free" labor is a slight misnomer, given that those supplying the articles and doing the required editorial work were (and are) mostly in the employ of institutions supported by taxpayer money, a financial reservoir which the new crop of commercial publishers understood could be accessed for private profit. Accordingly, from about 1990, major commercial publishing houses began buying academic journals previously owned by professional societies. This happened relatively quickly, such that within a

short number of years ownership of the global stock of scholarly and scientific journals was largely transferred to for-profit publishers.

It appears that professional societies did not give much thought to what they were doing when they relinquished ownership of the journals under their stewardship (James, 2020b). Suddenly, under commercial ownership, journal subscription charges increased markedly, causing what came to be known as the "serials crisis". Within a short time span, even the most prestigious and best resourced universities in the world found they could no longer afford, and still cannot afford, the totality of the journal subscriptions they previously deemed essential for research and education. Interestingly, where a journal did not transfer to private ownership, the traditional owners in some instances came to adopt the for-profit model of commercial publishing that they had previous eschewed (e.g., the *British Medical Journal*). Consequently, cost increases have been near-universal across the spectrum of journals, both old and new.

In addition to greatly increased subscription charges, commercial publishers began imposing an entirely new (and previously unthinkable) charge on authors, euphemistically called an "article processing charge" (APC) under the equally euphemistic umbrella term of "Gold Open Access". The extent of the corruption that accompanied the entrance of commercial publishers into what until then had been a non-profit enterprise is evidenced by the scale of sales and the profit margins achieved therein. Global sales are estimated to be in the region of $20 billion, dominated by five large publishers: Elsevier, SAGE, Springer, Taylor & Francis, and Wiley. The profit margin of the largest, Elsevier, is reported to be about 40%, exceeding that of other major corporations such as Apple, Google, and Microsoft. The expenditure consumed by monetized publishing amounts to gross misuse of taxpayer money which would be better spent supporting scholarly and scientific research or other social benefits.

Recently, the present author conducted a survey of article processing charges levied by biomedical journals ranked in the top 100 in that field. Despite some sources suggesting that the current real cost of processing journal articles may be as little as $10 per article, charges levied by the surveyed journals ranged from $100 to $12,000+, with an average charge of approximately $3,000. One notable feature of the range of costs is the fact that all the surveyed journals are doing largely the same thing, namely, receiving author-submitted articles, which are then peer-reviewed, followed by editorial decision, and uploading to the Internet in the case of positively assessed articles. Thus, it is reasonable to ask, how is it possible to justify APCs that vary by more than 100-fold for essentially the same work? The likely answer: Journals vary by prestige and commercial publishers have learned to "justify" charging whatever would-be authors, drawing mostly on taxpayer money, are prepared to accept.

The unnecessary and often exorbitant financial costs levied by for-profit publishers raise important questions: What benefits and harms are created for prospective authors and consumers of scholarly and scientific literature and to the wider scientific enterprise? Opinions vary. The Global Research Council (2013), for example, has stated its belief that open access publishing "is beneficial . . . and will lead to better research". However, no serious scholarly analysis supports any such claim for monetized open access. On the contrary, empirical studies have reported extensive harm. In summary, for-profit open access publishing has:

- created more barriers (i.e., less access) to published scholarly and scientific knowledge.
- led to greatly increased subscription charges as evidenced by the Serials Crisis.

- spawned the levying of article processing charges (APCs) which are wasteful of taxpayer money, create author exclusion (i.e., researchers in less well-provisioned settings experience less access) and biased research impact (i.e., APC-supported articles are read more widely and cited more frequently than embargoed non-APC articles). Such barriers are entirely arbitrary and must not be allowed to impede the dissemination of new scholarly and scientific knowledge.
- led to a harmful oversupply of publishers, journals, & articles (i.e., approximately 50,000 journals publishing 5+ million papers p.a.).
- incentivized poorer editorial standards.
- fueled a Reproducibility Crisis across many fields of science.
- spawned an era of predatory journals.
- contributed to diverse forms of research misconduct.
- encouraged fraud (e.g., the rise of paper mills).
- contributed to record levels of article retractions.
- contributed to burnout among reviewers and editors due to an ever-growing number of articles submitted to an ever-growing number of journals.
- contributed to a focus on author "output" to the detriment of genuine knowledge creation.
- contributed to a loss of trust in science.

Action Plan: Reclaiming Genuine Open Access

The time has come to sever industry entanglement in scholarly and scientific publishing, and the NIH must seize the opportunity. So doing will have immediate benefits for taxpayers and long-term benefits for knowledge creation. However, it must be recognized that effective action will be disruptive in the short term. Nevertheless, rescuing the traditional ethos of open access publishing must be accepted as an overriding objective. Realizing that objective is the only acceptable option to the current perverse arrangements wherein commercial publishers have misappropriated the term "open access" and drained it of its original meaning. The benefits of concerted effective action will be immeasurably greater than any short-term disruption.

The centerpiece of effective action will see NIH taking steps to enable professional associations to resume ownership of scholarly and scientific journals. This can be achieved by offering relevant professional associations grants to purchase journals favored by their members. In addition, ongoing operational costs, primarily associated with maintenance of a journal Internet site, should also be funded by NIH. Notably, all such ongoing costs will be modest by comparison with those incurred during the print era when professional associations were the main publishers of scholarly and scientific journals. That is, continuous NIH funding should be provided to approved professional associations to cover the modest costs needed to administer journal publishing operations in the digital era.

The main obstacle to transferring journal ownership to professional associations will be resistance from the current for-profit journal publishers to relinquish what for them has been an extremely profitable enterprise. Herein lies the anticipated disruption that effective action will incur. The only way commercial publishers will agree to relinquish their current holdings is by draining those enterprises of the profits they currently generate. This will necessitate certain difficult but essential initiatives. Upon announcing its program of ownership transfers from for-profit to non-profit operators, NIH must terminate all financial support currently going to for-profit publishers. To begin with, funding for article processing charges (Gold Open

Access) must cease. This includes NIH funding as well as in-house university and research institute funding currently going towards payment of those charges. Additionally, NIH must convince institutional libraries to terminate all current subscriptions to for-profit publishers. Simultaneously, NIH should liaise with relevant authorities worldwide, explaining its objectives and encouraging similar action by likeminded parties globally. Announcement of these initiatives should include a date (say, six months hence) when the initiatives will commence.

NIH funding for the purchase by professional associations of for-profit journals should be set to match the original price paid by commercial publishers adjusted for inflation, plus a premium. On the assumption that such action will be resisted by commercial publishers, a time-linked premium will serve to reward publishers who agree early to sell. That is, those who agree early will receive a more lucrative premium than the amount paid for delayed sales. Inordinate delay in agreeing to sell will mean that the commercial publisher receives the original purchase price adjusted for inflation without a premium. Ultimately, failure to reach an agreement to sell will mean that the commercial publisher is left holding a commercially worthless asset that generates no income from subscriptions or article processing charges. Under those circumstances, it is anticipated that ownership of virtually all current for-profit journals (excluding predatory journals and others of doubtful repute) will be transferred to professional associations. In turn, the new owners (i.e., the professional associations) will resume normal publishing operations, allowing genuine open access for all to published articles without subscription fees and article processing charges.

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