

EDITORIAL

On the oligopoly of academic publishers

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A study published in June this year provided convincing evidence that five for-profit academic publishers control more than half of the science research published throughout the world [1]. The study considered 45 million scientific papers covering natural and medical sciences (NMS) and social sciences and humanities (SSH) produced between 1973 and 2013 and indexed in the Web of Science.

In both NMS and SSH, Reed-Elsevier, Wiley-Blackwell, Springer and Taylor and Francis are among the first five major publishers. In the NMS the American Chemical Society is also among the top five, while in SSH Sage Publications is included. Thus there is one scientific society among the top five in NMS, but all the first five in the field of SSH are commercial. In SSH the concentration is particularly marked, with around 70% of papers published by the top five.

In 1973 the five largest publishers controlled only 20% of publications; from the 1990s, in particular, the larger publishers gradually acquired smaller publishing houses and standalone journals. Over the last two decades the diffusion of digital publishing has been a decisive factor in this phenomenon. As Stefanie Haustein, one of the authors of the above-mentioned study [1], noted, “if they can manage one hundred journals, they can manage a thousand (...). The only additional thing they need is more server space” [2]. The advent of the digital age has also seen the major publishers launching the sale of expensive packaged subscriptions to universities and research institutions: in order to acquire the few journals that are really essential for their particular disciplines, these institutions are obliged to purchase a myriad of esoteric journals as well.

The agreements are still growing: recently the merger of Springer Science+Business Media and the majority of Macmillan Science and Education has been announced [3].

Sadly, all is not well even outside the realm of oligopoly.

The arrival of the digital era has also encouraged the rise of open access and its two most obvious manifestations. The first comprises a few well-known publishing groups of recognised scientific quality, such as BMC and PLoS; the second comprises the profusion of predatory improvised publishers [4] whose chief aim is to extort money from authors. The latter form, which has thrown up a superabundance of open access publica-

tions not subjected to peer review, caught the attention of, among others, the biologist and scientific journalist John Bohannon, who described his experience in “Science”. Using the unlikely name Ocarrafoo Cobange and claiming to work for the (non-existent) Wassee Institute of Medicine of Asmara, Bohannon submitted to 304 open access journals an article containing invented data, methodological flaws and linguistic errors (artfully created by translating the text, through Google, from English to French and back again). No fewer than 157 journals accepted the article [5].

The phenomenon does not seem to diminish: on 18 August 2015, Springer confirmed that 64 articles are being retracted from 10 Springer subscription journals, after editorial checks spotted fake email addresses, and subsequent internal investigations uncovered fabricated peer review reports [6].

If we broaden the scope of enquiry further and consider scientific journals not owned by the Big Five and not open access, other problems are encountered and the debate surrounding the advantages and disadvantages of peer review inevitably becomes further confused. In accepting the Nobel Prize for medicine on 10th December 2013, and again in an interview with *The Guardian* on the same occasion, Randy Schekman fiercely accused the “top journals” of distorting science, “just as big bonuses distort banking” and announced that his laboratory would cease sending articles to such reputedly top-level journals as *Nature*, *Science* and *Cell* [7]. He claimed that “The incentives my colleagues face are not huge bonuses, but the professional rewards that accompany publication in prestigious journals – chiefly *Nature*, *Cell* and *Science*. These luxury journals are supposed to be the epitome of quality, publishing only the best research. Because funding and appointment panels often use place of publication as a proxy for quality of science, appearing in these titles often leads to grants and professorships. But the “big journals” reputations are only partly warranted. While they publish many outstanding papers, they do not publish only outstanding papers. Neither are they the only publishers of outstanding research. These journals aggressively curate their brands, in ways more conducive to selling subscriptions than to stimulating the most important research. Like fashion designers who create limited-edition handbags or suits, they know scarcity stokes demand, so they artificially restrict the number of papers they accept. The

exclusive brands are then marketed with a gimmick called “impact factor” – a score for each journal, measuring the number of times its papers are cited by subsequent research. Better papers, the theory goes, are cited more often, so better journals boast higher scores. Yet it is a deeply flawed measure, pursuing which has become an end in itself – and is as damaging to science as the bonus culture is to banking.

The impossibility of finding satisfactory solutions to these problems merely prolongs their influence, while researchers continue to depend on the major publishers in their search for funds and in pursuing their careers.

Our Institution (Istituto Superiore di Sanità, ISS) is the leading technical and scientific body of the Italian National Health Service. Its activities include research, clinical trials, control and training in public health; it also serves as a major national clearing-house for technical and scientific information on public health issues. Since several years ISS has been reflecting on those “monopolistic” phenomena, taking action to contrast any kind of editorial constraint, discussing internally on trends and changes occurring at the national and mainly at the supra-national or global level. This, to both i) avoid limitation in the free and non-biased circulation of scientific ideas (*i.e.* in biomedicine, delaying innovative treatment or cure represents a moral and technical priority) and ii) possibly nourish a progressive increase in the price of journal subscriptions. Promoting open-

access as the most appropriate way for scientific dissemination has been therefore an institutional priority and the ISS hosted a few meetings [8, 9] and promoted position papers [10] on the subject.

Yet, the policy of reducing the increasing power exerted by a very reduced number of editorial entities somehow controlling the global market witnessed a major step. Already years ago the US National Institutes of Health, the major source of biomedical research funding in Northern America, strongly promoted open-access dissemination for scientific data collected (and the resulting papers published) thanks to its financial intervention. And the same is occurring in the case of the funding strategies presently carried out by the European Union system of research grant allowance.

Finally, for highly delicate issues such as clinical trial policies and their recent trends, the joint co-phenomenon of the double monopolistic avenues in reducing biomedical publishers and concomitantly (for globalized economic and financial attitudes) reducing the number of “Big-Pharma-type” drug companies may explosively endanger the future history of the biomedical sciences. This is of course a possibility, not a certainty. Yet the echoes which followed the printing of provocative book by Marcia Angell, for decades Editor-in-chief of the prestigious *New England Journal of Medicine* [11] are still vividly buzzing around in the scientific community.

REFERENCES

1. Larivière V, Haustein S, Mongeon P. The oligopoly of academic publishers in the digital era. *PLoS ONE* 2015;10(6):e0127502. Available from: <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0127502>.
2. Fisher G. *Five for-profit companies control more than 50% academic publishing*. 2 July 2015. Available from: <http://qz.com/#441305/five-for-profit-companies-control-more-than-50-of-academic-publishing/>.
3. Springer, Nature. *Springer Nature created following merger completion. New company combines Springer Science+Business Media and majority of Macmillan Science and Education*. 6 May 2015. Available from: www.springer.com/gp/about-springer/media/press-releases/corporate/springer-nature-created-following-merger-completion/256626.
4. Scholarly open-access. *Beall's List: Potential, possible, or probable predatory scholarly open-access publishers*. 2015. Available from: <http://scholarlyoa.com/publishers/>.
5. Bohannon J. Who's afraid of peer review? *Science* 2013;342:61549:60-5. Available from: www.sciencemag.org/content/342/6154/60.full.
6. Springer. *Retraction of articles from Springer journals*. 18 August 2015. Available from: [www.springer.com/gb/about-springer/media/statements/retraction-of-articles-](http://www.springer.com/gb/about-springer/media/statements/retraction-of-articles-from-springer-journals/735218)
7. Schekman R. How journals like Nature, Cell and Science are damaging science. *The Guardian* 9 December 2013. Available from: www.theguardian.com/commentis-free/2013/dec/09/how-journals-nature-science-cell-damage-science.
8. Poltronieri E, De Castro P. Gli open data della ricerca in biomedicina: accesso, barriere e condivisione. *Bibliotime* 2014;17(3):1-10. Available from: www.aib.it/aib/sezioni/emr/bibttime/num-xvii-3/poltronieri.htm.
9. De Castro P, Di Benedetto C, Poltronieri E, Roazzi P. The open access policy of the Italian National Institute of Health: steps forward to innovative publishing habits. *J Eur Assoc Health Inf Libr* 2008;4(4):11-4. http://dspace.iss.it/dspace/bitstream/2198/-29649/1/ISSA08_1841-0715_2008_S_4_4_11-14.pdf.
10. De Castro P. Accesso aperto ai risultati della ricerca: un imperativo morale. Il Presidente dell'ISS, insieme ai presidenti di altri enti di ricerca e della CRUI, firmano, il 21 marzo 2013, un position statement per l'Open Access. *Not Ist Sup Sanità* 2013;26(4):7-10. Available from: www.iss.it/binary/publ/cont/onlineaprile2013.pdf.
11. Angell M. *The truth about the drug companies: how they deceive us and what to do about it*. New York: Random House; 2005.