Something rotten

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Something is rotten in the state of academic publishing. But even those of us in the thick of it find it hard to pinpoint exactly what is wrong.

Undeniably, the practice of natural science is increasingly subject to the rules and pressures of publishing. As scientists, we perceive that our objectivity is gradually being undermined. It feels harder and harder to disseminate our findings and our ideas, and we are all wasting way too much of our time facing up to rejection letters, shopping around for the next journal, or reconfiguring our data to fit what will be seen as a sexy story.

Three trends seem to define the current publishing climate, with the poisonous power of the journal impact factor (IF) somehow lurking behind all three. First comes the entrenched dominance of the prestige titles, with stratospheric IFs. Getting published there is crucial for both aspiring and established investigators. The beneficiaries applaud the system, whilst the majority grumble bitterly. The stakes being so high, it is not surprising that some of the most egregious cases of scientific fraud have concerned articles published in top-flight journals.

The top journals typically apply a “significance filter” to all submissions. Editors have to assess whether the topic addressed is of wide interest and importance and constitutes a substantial advance for the field. In other words, will the paper spark sufficient interest to be widely cited? In effect, editors are judging whether the paper will enhance or detract from the journal’s own standing in the league table. Upon this rests the journal’s viability, as well as its editors’ own career prospects. Journals like EMBO Reports are also caught up in this web: obliged to emulate the spider yet suffering the fate of all the other flies.

In fact, predicting the real significance of published scientific works is an imperfect art: the citation statistics for manuscripts accepted by top journals overlap those for papers published elsewhere. Inevitably, spurned authors feel aggrieved when they see a paper published in a top journal that later proves to be flawed. The high-impact titles thus command respectful admiration and virulent contempt in equal measure.

The standards of peer review are also very uneven. Authors often assert that reviewers have insisted unfairly on additional data, tangential to the main findings, whilst reviewers complain that their warnings about the need for additional controls were brushed aside by editors eager to publish a “hot story”.

Editors of a few journals, including ours, are trying to address this problem by nudging reviewers towards transparent consensus decisions that provide clarity to authors. But such reforms need to be much more widely adopted by the top journals.

A similar dichotomy of views applies to the second current trend in scientific publishing, towards the opposite type of journal, perceived as prepared to publish almost anything, for a fee. For these outlets, significance is irrelevant, so long as peer review verifies that appropriate controls were conducted, statistical tests properly applied, and data presentation meets minimum standards. Whilst many high-profile scientists deride such journals, many of them also choose to publish there, as papers that are potentially significant for the field may lose impact if similar findings from competing laboratories are already published elsewhere. Such journals thus ensure that the work is at least put in the public domain before it becomes completely stale. Surprisingly, the IFs of many of these journals are far higher than one

would expect if they were mere dumping grounds.

The third trend is a widespread questioning of the financial basis of publishing and the emergence of new business models. Commercial publishers are increasingly perceived as parasites on the body of publicly funded science, whilst the apparently high publication charges for many open-access journals raise authors’ suspicions that someone is making money at their expense, and perhaps even substituting commercial for academic judgement. In contrast, those who carry out the increasing volume of reviewer tasks for no reward at all feel justifiably exploited. But running a quality journal is much more expensive than people imagine. A popular misconception is that this is all down to the costs of print, which are in fact trivial. Most tasks are just as essential in an online-only format, including copy-editing, typesetting, graphics and marketing. But a huge editorial effort is also wasted on reading, considering and rejecting unsuitable manuscripts that the author is advised to take elsewhere.

How can we restore confidence in the fairness, reliability and financial equity of scientific publishing? It’s time for scientists to wrest control and ensure that publishers deliver what we want. Our major means of communication is in danger of becoming irreversibly discredited. We need a scientific literature we can believe in, which recognizes original thinking, provides tangible rewards for the efforts expended in peer review and makes no prior judgment as to what is important.

In this spirit, it is certainly not up to me, as Chief Editor of EMBO Reports, to dictate how to meet this challenge. It is up to the whole scientific community to debate the issues openly, decide what changes are needed and lobby for their adoption.