



Wellcome Image Awards 2008

Three from 22 winners of the competition run by the British Wellcome Trust: A fly on sugar crystals (left), prostate cancer cells (below), both by Dave McCarthy and Annie Cavanagh, and a ruptured blood vessel (right) by Anne Weston.

Peer Review I

Confidentiality First

Marcia Angell, a former editor of the *New England Journal Of Medicine* (NEJM), found clear words on the latest moves of drug maker Pfizer's defense in the litigation over its painkillers Celebrex (celecoxib) and Bextra (valdecoxib). She said, "It would undermine the whole system of peer review."

Since lawyers for the plaintiffs had cited studies published in NEJM, the *Journal of the American Medical Association* (JAMA) and *Archives of Internal Medicine* (AIM), Pfizer claimed it needed from the journals all the documentation concerning

these studies to prepare its defense. However, the journals refused to hand over confidential correspondence between reviewers and editors on the grounds that it would have severe adverse consequences for the scientific peer review process.

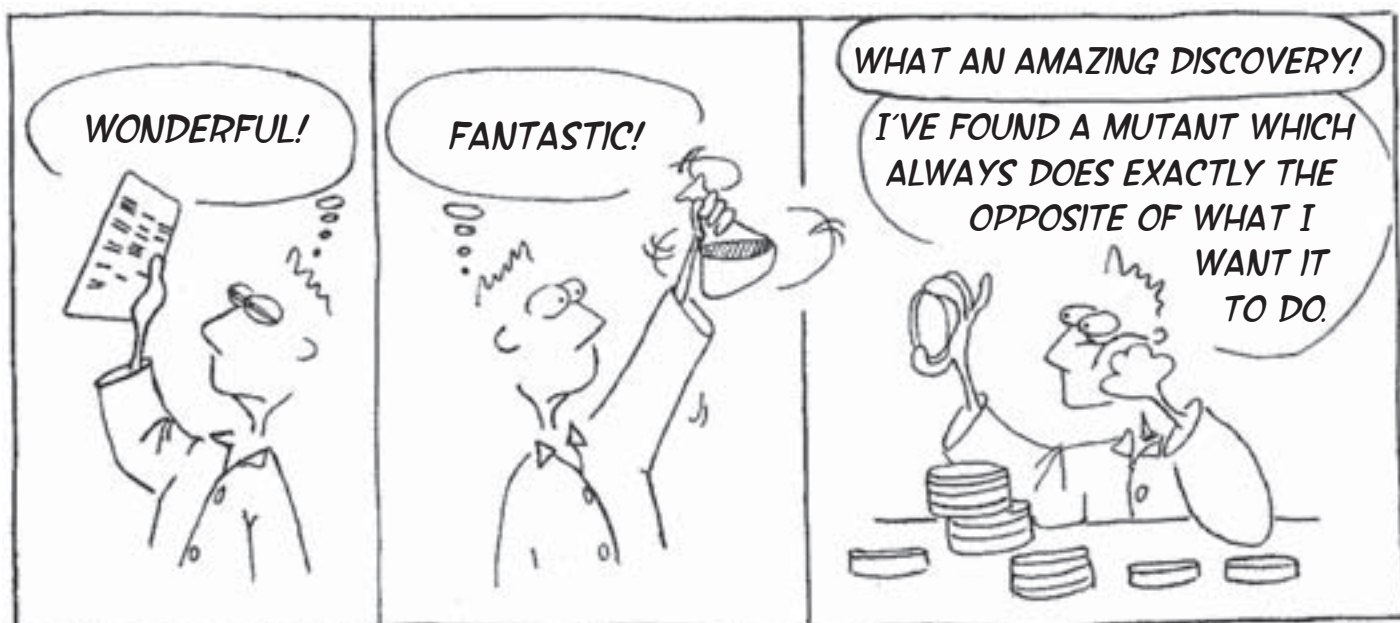
Pfizer, the world's largest drug company, is a defendant in more than 3,000 lawsuits in the US alleging that the cyclooxygenase 2 (COX-2) inhibitors, celecoxib and valdecoxib, might cause heart attack and stroke. Bextra was withdrawn from the market in 2005 but Celebrex is still available.

In May 2007, Pfizer subpoenaed NEJM to surrender peer reviews, the names of peer reviewers and internal editorial de-

liberations for 11 recent papers related to Celebrex and Bextra. NEJM handed over 246 pages of documents but included only its communications with the named authors of the papers and their financial disclosures. Pfizer offered to remove names of individual peer reviewers from the remaining documents but NEJM still resisted. In January 2008, Pfizer filed a motion to force the journal to hand them over along with any other relevant manuscripts useful for Pfizer's defense. Its lawyers said, "Scientific journals such as NEJM may have received manuscripts that contain exonerating data for Celebrex or Bextra. The public has no interest in protecting the edito- ►►

BY RAFAEL FLORÉS

PAUL THE POSTDOC



► rial process of a scientific journal, particularly not when doing so prevents a defendant from access to potentially exonerating evidence.”

In a blistering *Science* editorial, Donald Kennedy, criticised this argument: “Say what? Doesn’t the public want access to credible biomedical science? [...] Do medical advocacy groups really have no use for knowledge that might help their members? Does confidentiality count for anything to the scientists who serve the journal?”

Pfizer’s attorneys also said, “It is unreasonable to conclude that scientists and academics will stop submitting manuscripts to NEJM if it complies with this subpoena.” Kennedy replied, “But what about reviewers, who are explicitly promised confidentiality? And what about other journals? If this motion succeeds, what journal will not then become an attractive target for a similar assault? If efforts of this kind were to succeed, the sad day might come when *Science* would have to add a firm *caveat emptor* to its instructions for peer reviewers.”

Jeffrey Drazen, NEJM editor-in-chief, said it would seriously affect the ability of journals to recruit reviewers, who will be wary of “the possibility that their volunteer work would land them in the middle of litigation”. Similarly, free-flowing discussion among editors would be stemmed “if litigants were able to pick apart this internal editorial process to serve their own needs”.



Happily for editors and reviewers, US courts have so far been swayed by these arguments, recently ruling that the journals do not have to comply with Pfizer’s subpoenas. In his judgement, a federal magistrate said that although the material Pfizer sought seemed relevant on first examination, “NEJM’s interest in maintaining the confidentiality of the peer-review process is a very significant one and tips the scales in favour of NEJM”.

JEREMY GARWOOD

Peer Review II

Speed Up

Today, the most popular science journals find themselves submerged by requests for publication, rejecting many manuscripts for lack of space according to refined editorial criteria. At this point, the rejected manuscript will usually be reformatted and resubmitted to the next journal down the list, requiring another round of reviewing, with a possible rejection, and the need for a further resubmission and round of reviewing, etc.

To speed up the whole reviewing process for manuscripts caught up in this typical chain of submission to multiple journals, the neuroscience community is currently testing a new initiative, the Neuroscience Peer Review Consortium (NPRC).

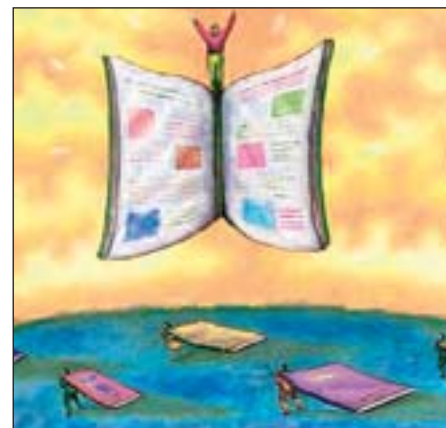
“The NPRC is an alliance of neuroscience journals that have agreed to accept manuscript reviews from other members of the Consortium. Its goals are to support efficient and thorough peer review of original research in neuroscience, speed the publication of research reports and reduce the burden on peer reviewers,” it says at NPRC’s website, <http://nprc.incf.org>

NPRC has been operating on a one-year trial basis since January 1, 2008. At year’s end, it will be evaluated and if it is considered to be achieving its goals, it may be extended indefinitely.

All Medline-indexed journals that publish peer-reviewed original research in the broad field of neuroscience have been invited to join the NPRC. To date, there are 28 members, including *Molecular and Cellular Neuroscience*, *Journal of Neuroscience*, *Brain Research*, etc. *Nature Neuroscience* finally signed up in April and other journals have applied.

Under the programme, authors whose papers are not accepted by one journal in the NPRC can submit their manuscripts to a second participating journal and request that the previous set of reviews be forwarded. The decision to request that reviews for their rejected manuscript be forwarded lies with the authors. Otherwise, they can continue to observe the standard procedure, submitting to the second journal without any reference to a previous submission. No information is exchanged between journals, except at the request of the authors. However, “if the reviews suggest that the paper is of high quality but just not suitable for the first journal, then it will often be to the advantage of the authors to forward the first set of reviews”. Furthermore, if the first set

of reviews appear sufficiently supportive, authors may choose to revise their paper in response to these reviews, resubmitting the revised manuscript to the second journal, along with a cover letter describing the changes that have been made and informing the second journal that they will ask for the original reviews to be forwarded from the first journal. Nevertheless, authors will still have to reformat the paper to the second journal’s specification.



NPRC journals will no longer accept confidential comments from the reviewer to the editor. “If authors are to make informed decisions about whether to forward their reviews, they must be able to see all the material that would be forwarded. To the extent that confidential comments to the editors may be useful, deleting this information from forwarding reviews would leave the second journal with information that is substantially incomplete. Hence, reviewers will be required to make all comments on the manuscript accessible to the authors and will not be permitted to include comments in a ‘confidential comments to editors’ section of their review.” Only confidential comments relating to issues such as human or animal subject welfare, potential conflicts of interest or misconduct are now accepted by NPRC journals. No confidential comments will be forwarded, nor will priority ratings or other scores.

However, forwarding reviews is an “all-or-none” affair. Authors cannot select which reviews will be forwarded. If a manuscript went through multiple rounds of review at the first journal, the reviews from all rounds will be forwarded. Similarly, a journal will forward its reviews to one other journal only. If that journal also turns down the paper, the entire set of reviews must go to a third journal, not just the reviews from the first one.

Overall, NPRC aims to reduce the load on reviewers and editors by reducing ►►

►► the number of times a manuscript is reviewed. In addition, NPRC strongly encourages reviewers to make their identity available to other journals since “editors will give more weight to reviews from identified reviewers.”

JEREMY GARWOOD

“Unpublishable” data

Out of the Dark

This month the open access publisher BioMed Central announced the release of *BMC Research Notes*, a new type of research journal. *BMC Research Notes* will serve as a repository for otherwise unusable (or ‘dark’) data, previously unpublishable, but potentially useful information such as software tools, specialist databases and negative results.

The advent of open access publishing promises to change the manner in which data is shared in the scientific communi-

ty. With more and more funding bodies demanding ever greater degrees of scientific transparency and data sharing, *BMC Research Notes* seems ideally placed to take advantage of the zeitgeist of accessibility.



In aiming to deposit large and fully peer-reviewed data sets in publicly available repositories, the editors are setting themselves a potentially Herculean task: formatting, standardising, referencing and storing such a collection will be no mean feat. However, it seems as though it is necessary. The editors of *BMC Research Notes* are hopeful

that publishing the sort of results that never normally see the light of day will help steer the juggernaut of scientific progress onto the right road.

Open access publication suits this new sort of journal down to the ground: costs are low and the readership is potentially high. But already one or two dissenting voices can be heard. Whether scientists, with ever more papers to read, will have time to keep abreast of negative data too remains to be seen. Also, with impact factors serving as hard currency in today’s academic world, scientists may prefer not to share their dark data but keep it in the drawer in the hope that it will one day be more personally useful.

Whatever the reception, the best chance for scientists to openly share their results, useful or not, is that this latest step for open access publication quickly integrates itself into the fast running stream of scientific culture.

-WTE-

Two Become One

An Oxford team describes how, by genetic exchange, two distinct bacterial species “despeciate” into one.

What is a species? A seemingly simple question, repeated in schoolrooms around the world has a surprisingly complicated answer, especially when one considers bacteria. It is well established that bacteria are much more free and easy about genetic exchange than their rather more prudish eukaryotic cousins. However, a recent report in *Science* (Vol. 320 (5873): 237-9) by the group of Martin Maiden in Oxford now explains how, in an apparent reversal of the speciation process, two bacterial species can actually “despeciate” by merging their genomes, leaving many textbooks and exam questions in need of redrafting.

Lateral gene transfer, the process by which genetic information can be swapped among organisms, is prevalent in bacteria. Certain species, especially pathogenic ones, go in for lateral gene transfer in a big way. This has implications far beyond an evolutionary biologist’s computer. The same species of bacteria is able to cause different diseases; for example, different strains of *Streptococcus pyogenes* can cause either a sore throat or impetigo. Simply knowing which species of bacteria causes an infection is, therefore, potentially not enough for doctors. Only a more detailed analysis of bacterial genotype can yield useful information.

To make such classifications, Martin Maiden, along with Brian Spratt at the Imperial College, London developed multi-locus sequence tagging (MLST); a technique which assigns a code to a bac-

terium depending on the combination of alleles at seven loci of its genome (*Proc Natl Acad Sci USA* 95 (6): 3140-5). Of less immediate practical benefit to doctors, but no less useful for it, the development of MLST has brought data sets capable of shedding light onto the complicated genetics of pathogenic bacterial evolution.



Campylobacter jejuni, *Campylobacter coli* or what?

In their new paper, Maiden and his colleagues now describe the hybridisation of two species of *Campylobacter* as genetically similar to each other as we are to mice. Actually, *Campylobacter jejuni* and *Campylobacter coli* are currently converging in certain habitats as a consequence of a recent increase in genetic exchange.

Various types of natural barrier normally prevent such an event. However, one of them, an ecological barrier physically separating species, may have recently been removed. *Campylobacter* lives in the intestines of farm animals (and is responsible for most cases of bacterial food poisoning). Maiden speculates that more intensive agricultural practices have created new niches, which have been colonised by large numbers of previously separated bacterial species.

New and unforeseen consequences of our impact on the environment are continually appearing. As well as destroying species through habitat change do we now also have to worry about creating new ones?

-WTE-

(More research results from European labs on p. 24-29)



Research Letter from:... A Czech pivnice (pub)

Beer Is Bad

By our corresponding author, Pavel Opilý Vědec



Na zdraví, fellow scientists! At 157 litres a year, Czechs can claim the world's highest level per capita of beer consumption. Here in the Czech Republic, some of us like nothing better than finishing a hard day in the laboratory with a few beers. Unfortunately, one of our colleagues, Dr Tomáš Grim, has now seen fit to mix work and play by bringing the beady eye of scientific research to our beer table.

"A possible role of social activity to explain differences in publication output among ecologists." It sounds innocent enough but behind the apparently innocuous title of his article in the research journal, *Oikos* (vol. 117(4): 484-487), Tomáš Grim, a behavioural ecologist at the Palacky University in Central Moravia, has correlated – negatively – annual beer consumption with the production of scientific papers per researcher and their citation numbers.

The more beer, the less papers

His explanation: "One of the most common social activities in the world is alcohol consumption. In Europe, this is mostly in the form of beer drinking. I chose to test the effect of alcohol consumption on scientific performance because this hypothesis leads to unequivocal predictions. This is because it is well known that alcoholic drinks negatively affect human cognitive capabilities that are critical for any physical and mental performance not to speak of such a demanding activity as producing high quality science."

Now, Dr Grim normally looks at birds. His previous research includes a study entitled "How to hatch from an egg of great structural strength. A study of the common cuckoo" and evolutionary puzzles such as "why hosts of parasitic birds discriminate finely against alien eggs, but almost never against parasitic chicks."

This time, however, he has turned his attention to a sadly neglected sub-species: Czech avian evolutionary biologists and behavioural ecologists "who have published at least one paper in a peer-reviewed journal listed by the Web of Science and published outside the Czech Republic during the last two decades." Of the 38 members of this distinguished group, Dr Grim's study obtained a healthy 89% successful response rate. Unlike the birds though, he could directly ask his 34 new experimental subjects their age and publication records and how many glasses or bottles of beer they drink per week.

However, the paper doesn't allow us to scrutinise Grim's raw data since he has "Box-Cox transformed" it to protect his sources, "thus neither the output score nor the consumption score values enable the identification of particular persons included in this research". Instead we are presented with the "results of minimal adequate regression models with beer consumption (litres per year) as a fixed effect and respective publication parameter as a response variable," i.e. lots of processed stats.

In his introduction, Dr Grim had already, "predicted negative correlations between beer consumption and several measures of scientific performance." And sure enough, "I show that increasing per capita beer consumption is associated with lower numbers of papers, total citations, and citations per paper (a surrogate measure of paper quality)."

Moravia versus Bohemia – beer is bad but then is wine good?

And how about wine?

To reinforce his point, he regionalised his analysis, "Generally, inhabitants of Bohemia (western region of the Czech Republic) are known to drink more beer than people from Moravia (eastern region of the country). This difference was confirmed for my sample of researchers: researchers from Bohemia drank significantly more beer per capita per year (median 200.0 litres) than those from Moravia (median 37.5 litres). Therefore, I predicted lower measures of publication output for the former in comparison to latter group of researchers. Indeed, researchers from Bohemia published fewer papers per year, were less cited per year, and showed lower citation rate per paper per year."

Although Dr Grim reassuringly states that, "there is no evidence for discrimination in funding support against researchers from Bohemia (personal inquiry at the Grant Agency of the Czech Republic)", he fails to mention that Moravia is a wine producing and consuming region and that lower beer consumption may mask different patterns of alcohol consumption among avian ecologists. This notwithstanding, he concludes that, "beer drinking may negatively influence publication output not only at individual but also at regional level."

In fact, "These correlations are consistent with the possibility that leisure time social activities might influence the quality and quantity of scientific work and may be potential sources of publication and citation biases."

Dr Grim cheerfully told the UK's *Daily Telegraph* that he had received favourable responses from more than 30 scientists, including one which nicely summed up his main aim, "I find your study fascinating because it is so rare to see anyone willing to analyse what probably has the greatest impact on research results, namely ourselves and our own behaviour as researchers." Which might lead one to wonder about Dr Grim's personal habits.

But don't worry, Dr Grim qualifies the discussion of his results by stating that, "although the current study is based on a limited sample (i.e. researchers from a single country focusing on a single scientific discipline) and is correlational in nature, it is important to stress that the majority of exploratory evolutionary biology and behavioural ecology studies are also based on data from a single population of a single study species".

Seen in that light, I'm surprised that researchers from these fields aren't drinking more!

