script (eg Arabic or Chinese logograms) in their mother tongue – these authors often have difficulty using correct punctuation, spacing and upper- or lower-case letters in names of persons and journals when using the Latin script.

Valuable for us, editors, is our experience and feel for journals and their age – so when we discover a citation like this:

> "Urmenyi, A.M.C., Franklin, A.W., 1961. Neonatal death from pigmented coliform infection. Lancet 1, 313-315"

we know there is something wrong. However, this citation can be found many times in Google. The Web of Science is of no help here either because the entry *Lancet* begins with the year 1961, volume 2, issue 719! One has to search *The Lancet* itself to find the following information:

> Neonatal death from pigmented coliform infection, A.M.C. Urmenyi M.D. Berne, A. White Franklin M.B. Lond., F.R.C.P., Feb 11, 1961, *The Lancet*, Vol. 277 No. 7172 pp 313-315

By the way, this title is rather interesting, too. I can hardly imagine a pigmented infection.

With these examples I want to show how stubborn we need to be in this kind of detective work; we cannot rely on authors themselves despite all the information retrieval systems they may or may not have access to. The core of these problems, however, seems to be in often hastily prepared manuscripts. Pressure for time, pressure to publish bring along these unfortunate results - superficiality and lack of critical thinking on the part of many authors. Not only wine but also a scientific article should be given time to ripen.

The question is, how deep do we have to dig into information resources, how much energy do we have to spend? How much education should we give to our authors? How can we make them understand that they undermine their own credibility besides adding extra work for editors and reviewers, and robbing the incorrectly cited authors of their citations?

Red and green apples: can your readers tell the difference?

Worldwide, up to 8% of men cannot distinguish red from green yet authors and journals frequently use this colour combination in figures.

Allred *et al,* in a letter to *Nature,* call for all journals to provide alternative versions of figures that are more accessible to such individuals.

Editors: Does your journal allow for this?

Freelancers: Are your authors aware of this?

Reference

S. Colby Allred, William J. Schreiner, Oliver Smithies. Colour blindness: Still too many red–green figures. *Nature* 2014; Volume 510, p340. doi:10.1038/510340e

Plagiarism – a prevalent and persistent problem

Denys Wheatley
Editor in Chief, Cell Biology International; Cell Biology International Reports; Cancer Cell International; Oncology News; Chairman and Director, BioMedES; Leggat, Keithhall, Inverurie, Aberdeen AB51 0LX, UK; editor@biomedes.co.uk

Stealing works of others

Many editors can become suspicious of plagiarism, and we have to rely on several different ways of detecting it before being certain. In science, we rely heavily on accurate definitions. Plagiary is "the act of or practice of plagiarising", a plagiarist being "one who steals the thoughts and writings and gives them out *as his own*" (Latin word plagirarius means kidnapper). For an excellent article on the basic features of plagiarism, see Karen Shashok's chapter in the *Science Editors' Handbook*, ORCID ID: 0000-0002-2506-1390.

We are concerned with the misuse of more than just the act of stealing other people's writing, which creates many problems for the literary sleuth regarding any publication. Stealing other people's *thoughts* must be a much trickier business, and the mind boggles at how it can be policed. Plagiarism is a frequent research misconduct, but its prevalence is not known; we probably see only the tip of the iceberg. There are several questions we, as editors and researchers, have to address: (i) when is it an unintentional rather than an intentional act; (ii) when it is truly "stealing"; (iii) how can we detect as much of it as possible; (iv) what sanctions or penalties are appropriate for offenders, particularly persistent offenders; and (v) how can we prevent plagiarism and educate authors to ethically write their articles without infringing copyright law?

Culture versus copyrights

Editors, authors and publishers have to realise that there can be instances where plagiarism is rooted in culture. In China, for example, quoting verbatim words of one's mentor is an act of reverence, and no direct attribution is necessarily given. Chinese authors submitting their papers to international periodicals and other publications should conform to globally acceptable rules of scientific communication and respect copyrights. My most embarrassing occasion as an editor was when *Cell Biology International* published a paper in good faith that failed to be detected as an almost complete plagiarism of another paper by a completely unrelated set of authors, with only the cell type used being different. Indeed it was as close to duplication as one can get before the editor of the first one published in 2007 contacted us (*International Journal of Cardiology* **118**, 381–388, 2007: Compare *Cell Biology International* **32,** 899-905, 2008). A major problem is what the editor and publisher can do about papers, especially those in hard copy, that have gone into the public domain. A withdrawal notice can be issued, but it is always too late and usually goes unnoticed. Today, online papers can be wiped, but sometimes they will still be listed in publication databases.

Detection and decisions

Modern software is becoming increasingly sophisticated in its ability to handle the current situation with plagiarism. As it can now indicate where cut-and-paste, air-brushing and graph manipulation has been used, it simply has to stay one step ahead of unscrupulous individuals who are desperate to publish rather than perish. This has always been one of the driving forces, and probably remains the prime reason today. Surveillance is the keyword, and should operate at several levels to ensure that as few papers as possible proceed to publication that have clearly plagiarised other authors.

The first level is the submission systems used by many publishers, which throw up many similar papers within the field of the article being offered for publication. An astute editor can check whether there could be clashes with previous articles, and where there is considerable *suspicion* of plagiarism simply decide on outright rejection at triage, the alternative being to give authors a chance to explain whether their paper is genuinely original. The next step is to check more thoroughly through several different channels whether there is plagiarism in an article and how extensive it is. Using CrossCheck by iThenticate® (http://www.ithenticate.com) or PlagTracker (http://www.plagtracker.com) and many general search engines (eg Google), one can easily detect passages in a text published elsewhere. A paper that gets through this first hurdle will go out to referees, who are experts in their field and should be aware of the relevant literature problems. As an editor, I rely heavily on referees who are more likely to become suspicious or find clear evidence of plagiarism and self-plagiarism in a particular paper than myself. Referees should note carefully plagiarism in any paper they review, and also alert editors where someone seems to have plagiarized someone else's idea and hypotheses. If the essence of a hypothesis can be stated in, say, 20 words, it is improbable statistically that the same words used in exactly the same order will occur. However, if slightly different words are chosen *and their order altered*, this type of plagiarism is more difficult to deal with. A referee who knows where the idea originally came from would probably know that it is not a new hypothesis. These remarks emphasise the importance of expert peer reviewing in science.

Publishers have access to a wide range of literature sources through which they can hunt down plagiarists, and will get back to editors where they see or suspect plagiarism. Unnecessary plagiarism can ruin chances of acceptance of an otherwise good paper, which is why authors themselves must be fully aware of their responsibility in what they have written.

Spotting changes in style

A thorny question is the extent to which plagiarism can be taken before a harsh decision is reached. In some cases plagiarised paragraphs or sections occur where it is almost to be expected, as in the repetitive nature of Materials and Methods. There are only a few ways of saying the same thing, eg in describing procedures, and in many instances a blind eye is turned to the cut-and-pastes occurring here. But this also brings up another indicator of the presence of plagiarised paragraphs to the editor or reviewer, who can spot that a paper has more than an acceptable level of them. Editors sense almost intuitively this practice because of inconsistent styles of writing across paragraphs. Perhaps the Introduction to a paper is a little too familiar to another in a previous article and seems to read rather smoothly, as also might the Materials and Methods section, but then follow sections that are very differently presented by comparison, with a sudden change in vocabulary, syntax and grammar, and a complete lack of style.

Referencing, copyrights and permissions

It is unnecessary to indulge in deliberate plagiarism when a perfectly sound method of dealing with the issue is available. Any use of other people's words, images, tables, figures and so on should be fully referenced and acknowledged. To reproduce verbatim more than a few sentences from another paper, just like using someone else's scheme, requires the author to get permission from the publishers and, by courtesy, the author. It is probably the hassle involved that deters many authors from doing the right thing. But copyrights involve the law, which would lead to litigation where personal gain is involved (eg trying to publish someone else's novel under your own name – an act that is much less likely to happen in scientific publishing!). All publishers have permissions departments and therefore there is indeed no excuse for plagiarism.

Reprimand and training

How can we deal with offenders? The first step is to contact the authors, stating why the paper has been rejected or how it has to be radically altered. A list of overlapping references might be sent, including the authors' previous papers. The next step will be to indicate that future papers are unwelcome from these authors. This might be followed up by intimating to other editors and publishers these unscrupulous cases, especially from persistent offenders. A final step is to inform the authorities of the authors' institution, and ask them to take appropriate action. However, editors seldom get any feedback and do not know what transpires (if anything).

The solution regarding plagiarism is proper education and training. Giving courses on scientific writing and publication around the world, I find that most institutions allocate no more than an hour or so to this matter. Many researchers have little knowledge of ethical writing practice. This is a tragedy and probably the main reason why many editors have their work cut out to improve scientific publication, and will continues to do so until more training is available at all levels, from undergraduates to principal investigators, especially in non-Anglophone countries.