Journal citations

SIR — It has been suggested in this correspondence column by P.C. Reid¹ (and elsewhere by this writer²) that it would be desirable to have a standardized system for journal citations.

The *Journal of the American Chemical Society* has recently changed its style to one which is similar to that used by the Royal Society of Chemistry. A citation in the RSC style would be as follows:

S. Kontainen *et al.*, *Nature*, 1980, 274, 477-480

This style would appear to have several advantages over the style currently adopted by *Nature*: it is surely more courteous to give initials before surnames, more logical to give the date of publication immediately after the journal title and more convenient to give the page reference last.

Any move towards a standardized system must be preceded by debate over the merits of the various rival systems. Perhaps this letter will initiate such a debate and contribute to further progress on this topic.

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1. Reid, P.C. *Nature* 283, 242 (1980).
2. Akeroyd, F.M. *Chem. Br.* 18, 481-482 (1982).

MR Akeroyd's call for a debate on the subject of reference citation styles has in fact been answered. For many years the supporters of rival systems — the "Vancouver style", the "Harvard" system and others — have been discussing the merits of the various alternatives. So far there seems little sign of a general agreement on a single universal system. Each journal has its own requirements. The merits of the system used by *Nature* are chiefly brevity and the absence of excess wordage (strings of authors' names and dates) from the text of a manuscript. — Editor, *Nature*.

Numerical verbs

SIR — English spelling is ridiculous. Nevertheless, the language is widely used because it has simplified grammar by discarding many unnecessary features such as gender (when unconnected with sex) and most verb endings. An interesting editorial article¹, by saying "... whether disagreement between the number (singular or plural) of a verb and what appears to be its subject is a mistake or a pointer to some hidden meaning", seems to find merit in the survival of the terminals in the third person singular of the present tense. We can write unambiguously without similar verb endings in other tenses. Would it not be sensible to abandon that residual complication officially? West Africans and West Indians have, to a large extent, already done this unofficially.

This course is followed with the verb *can* in its original sense of "to be able", but not

in the sense "to put in a container". American usage does the same with *fit*. Thus S.J. Gould writes "This view fit nicely with most nineteenth century concepts ..." (ref. 2). Many other examples from equally careful American writers could be quoted. Can anyone explain why, in North America but not in Britain, *fit* shares the sensible simplicity of *can*. Americans do not here seem to be following an older British form. Shakespeare wrote "Why dost thou laugh? it fits not with this hour". (*Titus Andronicus* Act 3, sc.i, 266). Martius's comment applies with equal force to those who consider the rationalization of English a trivial matter.

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1. *Nature* 305, 477 (1983).
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Similar, but not homologous

SIR — The literature of homology is beset with a confusing profligacy of terms (many reviewed by Haas¹), and Moore² does a disservice by adding another. Homology is a simple concept; it is resemblance (more precisely, correspondence) caused by a continuity of information³. It applies within individuals as well as among them, to lineages as well as their descendants, to molecules or genes or behaviours or cultural artefacts as well as to anatomical structures. Moore's distinction is based merely on how we discover homologies, a sometimes difficult problem⁴ but not one relevant to the nature of homology itself. Homology within individuals, an important developmental phenomenon, should never be used as a criterion for homology among individuals, which is due to descent from a common ancestor, despite the temptation to do so exemplified by the "premolar-analogy" theory of mammalian dentitions or the foliar theory of the flower considered phyletically³.

For molecular biologists, many of whom still ignore the evolutionary half of biology while trying to practise it, a good touchstone is that homology is always an inference, never an observation. What we observe is similarity or identity, never homology.

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2. Moore, R.T. *Nature* 305, 268 (1983).
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Chaos at random

SIR — As a long-time worker in the non-linear vineyards, I was delighted recently to see that you have discovered chaos^{1,2}.

You correctly recognize that even the most evangelical worker in chaos stops short of uttering the word random to avoid the wrath of the gods of chance. At the recent Swinney-Gollub conference on classical chaos, for example (Testing Nonlinear Dynamics, 6-9 June, Haverford College, Pennsylvania), the speakers pushed their nonlinear banners as far as the daring, but still vague, Deterministic Chaos but avoided Deterministic Randomness in fear of a contradiction in terms.

We now have an opportunity to rescue nonlinear dynamics from vague, weasel words such as irregular, unpredictable, erratic and chaos¹. Rejoice, chaos and random are synonyms! The meek may continue to use the historical and safe chaos, but the daring may elect random instead. The surprise is that the shift from chaos to random is much more than name calling.

Now that we know precisely what chaos = random is, we can ask whether or not quantum mechanics has any — a question raised in *Nature* in May². It was also raised at the recent Conference on Quantum Chaos (20-25 June, Como, Italy). The prevailing sentiment (but no proof) was that finite, bounded quantum systems do not have any randomness (chaos) beyond that contained in the quantum wave function itself. Moreover, algorithmic complexity theory offers the hope of a definitive proof. One should note that the quantum systems studied by R.V. Jensen are not bounded, finite quantum systems. Randomness in infinite quantum systems remains a totally open question.

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2. *Nature* 303, 15 (1983).
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Flies scarce

SIR — In an extensive interdepartmental study designed to examine the efficiency of E.G. Gray's method for swatting flies (*Nature* 25 August, p.678), we have found out of every three flies challenged, three are killed. However, since we have only been able to find three flies since E.G. Gray's letter was published, your readers may wish to consider the possibility that flies not only use their "visual-brain-motor system" to avoid incoming swats, but also to peruse the pages of your esteemed journal for matters of dipterous interest.

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