

# The metre and the pendulum

SIR—In his Commentary on 'The metre and the pendulum' (*Nature* 348, 105; 1990), J. H. Freeman remarks that no records appear to exist on contacts that might actually have taken place between France and England following the Act of the French National Assembly of 8 May 1790. In this act, as well as proposing the establishment of a new system of weights and measures, the Assembly instructed Louis XVI to write to the King of England asking for the cooperation of the British Parliament in the venture.

In fact records of such contacts do exist and were published in *Nature* (69, 425–427; 1904) by Herbert McLeod. Briefly, the events, as recounted in some detail by McLeod were as follows:

**5 February 1790:** Sir John Riggs-Miller (1744–98, Member of Parliament for Newport 1784–90) speaks to the House of Commons on the subject of uniformity of units of measurement. He makes various proposals, all of which are agreed to, for a series of inquiries into present practice among the towns and shires of England.

## Not the first

SIR—In a recent Product Review article (*Nature* 345, 747; 1990), I. Jardine writes that "electrospray ionization has been shown to be useful for the molecular weight and structural analysis of carbohydrates and . . ." (ref. 4: R. D. Smith *et al. Analyt. Chem.* 62, 882; 1990) and then "When used with high-resolution mass spectrometers . . . ESI should, in future, allow complex mixture analysis . . .".

I must say that the first application of ESI/AP/MS (Russian abbreviations MS/ERIAD) "for the molecular weight and structural analysis of carbohydrates" has been demonstrated by us in our work in *Bioorganicheskaya Khimiya* in 1986 as was indicated in the review by R. D. Smith *et al.* (ref. 26). In the following works (P. W. Bezukladnikov, L. A. Elyakova & O. A. Mirgorodskaya *Bioorg. Khim.* 10, 1318–1325; 1989; P. W. Bezukladnikov, L. A. Elyakova, T. N. Zvyagintseva & O. A. Mirgorodskaya *Khim. Prirod. Soedin.* 1, 54–59; 1989; P. W. Bezukladnikov & L. A. Elyakova, *Carbohydr. Res.*: in the press) we showed that MS/ERIAD "allows complex mixture analysis" of carbohydrates not "in the future", but now on the instrument created by the Institute of Analytical Instrumentation (Leningrad).

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He suggests the pendulum as the basis for a new unit of length.

**28 March 1790:** Talleyrand (Bishop of Autun) writes to Riggs-Miller congratulating him on his initiative and says that he is about to make a similar proposal to the French National Assembly.

**1 April 1790:** The House of Commons establishes a committee (which includes Riggs-Miller) to examine and report upon weights and measures.

**13 April 1790:** Another speech in the House by Riggs-Miller announcing his contacts with Talleyrand and going into further detail on proposals for new units and standards.

**8 May 1790:** Decree adopted by the French National Assembly proposing a new system for weights and measures and instructing Louis XVI to write to the King of England.

**22 May 1790:** Letter to the British Foreign Secretary from the French Ambassador in London formally inviting the House of Commons to join the National Assembly in establishing a new system of weights and measures. The Ambassador proposes that the Royal Society and the Académie des Sciences jointly take up the matter.

**11 June 1790:** Parliament is dissolved. At the subsequent election, Riggs-Miller loses his seat at Newport. In the new parliament, the committee on weights and measures is not reappointed.

**3 December 1790:** The Foreign Secretary writes to the French Ambassador saying that although the House of Commons has discussed his proposal, no formal motion has been put and therefore nothing can be done. In any case he adds "the whole scheme looks impractical".

And there the matter rested.

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## National citations

SIR—In a recent review article in a US journal (*Science* 246, 465; 1989), Konishi *et al.* argue convincingly for the usefulness of birds as study subjects, but their citations of the literature show a strong US bias suggesting that US ornithologists have made a very large contribution to the progress of avian biology.

Scientists based in the United States had written 77 per cent of the 214 papers cited in the review. The preponderance of US papers was more marked for those published in the 1970s and 1980s (91 per cent of 51 and 85 per cent of 105 respectively) than for those published before 1970 (51 per cent of 59).

By way of control, and following the statement of Konishi *et al.* that the 1985 volume of the *Zoological Record* contains more than 9,300 articles on birds, I picked at random 25 pages from each of the 1965, 1975 and 1985 volumes to estimate the US contribution at those times. The proportions of US papers were 21 per cent (of 930 papers) in 1965, 19 per cent (of 770 papers) in 1975 and 19 per cent (of 668 papers) in 1985.

Because English-speaking scientists are notorious for ignoring non-English publications, I have also taken from my sample of articles cited in the *Zoological Record* only those written in English. I find that the proportion of papers by US-based scientists was 37 per cent (of 523 papers) in 1965, 33 per cent (of 440) in 1975 and 28 per cent (of 460) in 1985. Thus the over-representation of US citations in Konishi *et al.* does not stem from a language problem. Indeed, the data suggest that there should have been an increase in the citation of non-US papers during this period, for the proportion of papers written in English increased from 56 per cent (of 930) in 1965 to 69 per cent (of 668) in 1985.

The over-representation of US citations in US papers has been remarked on previously (P.-H. Enckell *Nord. Ecol. Newslett.* 39, 1; 1988), in a comparison of the citation practices of US and Swedish ecologists.

What is the explanation of this bias? There are four possibilities, not necessarily mutually exclusive, as follows: (1) non-US scientists publish relatively inferior science, so that their papers are not worth citing; (2) many US studies are duplicated elsewhere, in which case it is easier to cite the more readily available publications; (3) US scientists do not see European journals, so that non-US studies are simply overlooked; and (4) it is a consequence of chauvinism.

I do not believe the first explanation is justified, but some combination of the other three may account for the data I have quoted. The question can be resolved only by further detailed study of citation practices.

The result is that US-based scientists get a fair share of European citations plus a disproportionate share of the US citations. This bias in citation frequencies may have important consequences: the dissemination of scientific ideas is slowed down, as the same hypotheses are re-invented time after time. And, at an individual level, European and US scientists competing for the same job may turn up with different citation scores, not because their research differs in quality, but because they happen to live on different continents.

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