

CORRESPONDENCE

Soviet sanctions

SIR — I welcome your leading article of 7 January (p.1) and in particular your criticism of the suspension of the exchange agreement between the United States and the Soviet Union.

Such a suspension must surely weaken world peace. The merits and demerits of unilateral nuclear disarmament are much debated but the prior need is for a better understanding between peoples of different cultures — in this case the United States/United Kingdom and the Soviet Union. The risk of scientists "having their brains picked" surely matters less than the potential benefits from better knowledge of human beings of the "other" culture — their hopes, fears and hang-ups.

As a first line of defence for international understanding and peace, scientific and other exchanges can be good investments and should be fostered, not reduced. Their costs, if prohibitive to self-financing individuals, are infinitesimal compared with those of armaments.

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Ethnic journal

SIR — H.H. Hirschhorn (*Nature* 14 January, p.92) appears to have misunderstood the "small niche" to which *Journal of Ethnopharmacology* is trying to lay claim, even though my review quoted the aims of the journal in full. Rather than being another journal of pharmacognosy, which I would accept could appear to be of greater importance than all the drugs for the cardiovascular system, *J. Ethnopharmacology* specializes in the use of drugs by ethnic cultures. How does the importance of "ceramic use for prehistoric Datura use in N. America" compare with a typical paper from *Journal of Cardiovascular Pharmacology*?

The number of reprint requests might reflect more accurately the obscurity of the journal and difficulty in finding it in a library, than the importance of the subject.

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Anthrax island

SIR — The paper by Manchec *et al.*¹ provides the first published quantitative information about the contamination of Gruinard Island with anthrax spores. In view of the public interest and concern that have been expressed, this is welcome. Nevertheless, the information given is meagre and the main tentative conclusion questionable.

Since no accurate viable counts of spores were made on samples taken before those reported on in the paper, it is impossible to estimate the time course of the contamination. The authors consider that its present extent warrants their taking seriously van Ness's assumption² that significant multiplication of anthrax bacilli may occur in the soil. However, neither in that paper, nor in a series of earlier papers, does van Ness cite experimental evidence to justify this assumption. In support, he quotes a paper by Minnett and

Dhanda³. But those authors actually come to the *opposite* conclusion — that the anthrax bacillus does *not* behave as a saprophyte in nature.

In the past, I have exhumed and examined cadavers of cattle that have died of anthrax, but I failed to isolate anthrax from any, even from one buried as little as three months previously. The conditions — high ambient temperatures and the availability of blood and tissues from the cadavers for the nutrition of the anthrax bacilli — resembled those postulated by Manchec *et al.*¹ as being likely to promote an increase of bacilli and spores in the soil. However, those familiar with the epizootiology of anthrax tend rather to regard such conditions as favourable to the increase of soil microflora inimical to anthrax organisms; a view which practical experience reinforces.

There is little experimental evidence to support either van Ness's view or the more conventional opinion that anthrax does not behave as a saprophyte. Unfortunately, incentives to investigate the ecology of the anthrax bacillus have diminished — despite its intrinsic interest — because of the ease with which anthrax can be controlled by the vaccine I developed⁴.

Attention should be paid to studying factors which could be responsible for the exceptionally long survival of the contamination of Gruinard Island. Is this related, for example, to the form in which the spores were distributed; to their number; to the character of the soil or of the soil microflora; to the lack of husbandry; or to climatic conditions? It would be deplorable if the special circumstances on Gruinard Island were not used to provide answers to these neglected ecological questions, and particularly to the question as to whether the anthrax bacillus can multiply sufficiently in the soil for this to be a significant factor in the epizootiology of anthrax. Practical experience in the control of anthrax does not support this view.

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1. Manchec, R.J., Broster, M.G., Melling, J., Henstridge, R.M. & Stagg, A.J. *Nature* 294, 254-255 (1981).
2. Van Ness, G.B. *Science* 72, 1303-1307 (1971).
3. Minnett, F.C. & Dhanda, M.R. *Indian J. vet. Sci.* 11, 308-328 (1941).
4. Sterne, M. *Onderstepoorte J. vet. Sci. Anim. Ind.* 21, 41-43 (1946).

No change in RE

SIR — D.B. Jack and M.R. Gregg (*Nature* 22 October 1981, p.602) have used Flesch's index of reading ease (RE) to suggest that letters to *Nature* became harder to read at some time between 1940 and 1950. Using the first hundred words in each letter as the criterion, the papers analysed from the years 1950 to 1980 were, on average, 15.44 index points more difficult (the harder to read the lower the index).

This conclusion obscures a difference of style between earlier and more recent letters to *Nature*, that of the way in which the opening paragraph is used by authors. Current practice demands that the opening paragraph shall serve two functions, both as introduction and

as a summary of the main conclusions. In its latter function it must often be laden with a burden of latinized technical terms and exactitudes, for those readers who choose to go further. The earlier style demanded simply that the opening paragraph served to whet the appetite and to lead the reader gently to the nub of the matter, eschewing difficulties at first.

I have therefore computed Flesch's RE for the first and second paragraphs of two samples of 20 letters each, culled from *Nature* of October 1981 and of October 1931. If the second paragraph contained less than a hundred words the third paragraph was lumped with it.

	Reading ease		Total text
	Para 1	Para 2	
1931	29.8 ± 4.3	23.7 ± 4.1	26.3
1981	15.1 ± 2.1	21.0 ± 2.4	18.5

This analysis confirms Jack and Gregg's conclusion that the opening sentences today are more difficult than they were 50 years ago. In my sample the difference is 14.7 RE points. The 50 year difference for the second paragraph, however, is a mere 2.7 points which is not statistically significant. In 1931 the second paragraph was on average 6.1 points more difficult than the introduction; today it is 5.9 points easier.

Authors today seem not to be cloaking their findings in obscure language significantly more than they did 50 years ago, except in the introduction.

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More repeats

SIR — There appear to be two homologous sequences in a single exon of the collagen $\alpha 2(1)$ sequences reported by Wozney *et al.* in *Nature* of 12 November 1981¹.

The sequences occur in a single polypeptide and are apparent in the nucleotide sequence but not the amino acid sequence. A span of 36 nucleotides is repeated with six differences (marked with ×):

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1242                                     1278
GlyAlaAlaGlyProProGlyProProSer
GGTGTCTGCTGGCCCCCTGGCCCTCTGGTCCAAGT
  XX                X                X X
GGCTCTGCTGGTCCCCTGGCCCTGCTGGTCTAAGA
GlySerAlaGlyProProGlyProAlaGlyLeuArg
1315                                     1351

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The differences are probably due to post duplication mutations.

The sequences lie 4 collagen units, (Gly-X₁-Y)₄, from each other and contain 4 collagen units each, which makes a 54 base pair (bp) repeat hard to credit. I cannot think of a plausible scheme to yield 36 bp repeats from 54 bp units. Apparently 36 bp were extracted by double unequal crossover and re-appended 36 bp further down the molecule leading to the internal homology.

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1. Wozney, J., Hanahan, D., Tate, V., Boedtker, H. & Doty, P. *Nature* 294, 129-135 (1981).