Oxide formation: reaction details studied, reported in brief

Sir — Nineteen years ago, I published a sonnet in *Nature*[1] reporting new chemistry carried out at the University of Stirling. Although this application of the sonnet form was well received by critics, it has not subsequently been widely followed.

My present sojourn in Japan has caused me to consider the haiku. It is, with only 17 syllables in its English language form, of legendary brevity. The form is not extensively known outside Japan and the following is illustrative (although not original in content).

"War-time Deprivation and Hope"
Yes! We have no bananas,
We have no bananas today.
But soon?

On the positive side, this brevity provides little scope for waffle in the discussion section of a scientific publication but, on the down side, experimental details must be kept to a minimum (I rule out, of course, the option of stringing together haiku as not within the best traditions). The 17 syllables are normally 5, 7, 5 but some latitude is allowed, as with the usual allusions to nature, the seasons, and other conventions of form and content[2] (although purists might quibble).

Since the relatively recent discovery of the wide-ranging biological effects of nitric oxide (NO), considerable effort has been applied to the discovery of compounds which will liberate it under physiological conditions. Some *N*-nitrosohydroxylamines are such compounds[3]. However, we have discovered that closely related *N*-nitrosohydroxylamines undergo an alternative decomposition under very similar reaction conditions to liberate nitrous oxide, N_2O (refs 4,5). Moreover, this alternative reaction involves highly electrophilic intermediates analogous to ones involved in reactions of nitrosamines, for example, which are known to be seriously hazardous to human health. Investigation of the molecular basis of these alternative reactions of *N*-nitrosohydroxylamines was, therefore, of some importance.

As a further attempt to encourage the scientific community to explore alternative forms of scientific reporting, and to draw to the attention of a wider readership our recent work at Newcastle on the mechanisms of decomposition of *N*-nitrosohydroxylamines in which we identify the molecular basis of the alternative reaction channels referred to above[6], I submit for consideration for publication in *Nature* the following.

"Decomposition of *N*-nitrosohydroxylamines"[4–6]
Nitric or nitrous?
The leaving groups determine
Which oxide will form.

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Varied ecosystems need different fire protection

Sir — Covington states in his Commentary[1] that the open ponderosa pine forests of the western United States are "in widespread collapse" because fire suppression by humans has eliminated the low-intensity surface fire regime that maintained the open, park-like structure of these forests. He fears this will lead to an "unprecedented" crown fire regime that will eliminate forests.

Although a crown fire regime in ponderosa pine forests may be unprecedented, there is a wide variety of ecosystems in North America that have always had a high-intensity crown fire regime, including chaparral in southern and central California, subalpine forests in the Rocky Mountains, and the boreal forest of Canada and Alaska[2], among others. Some forest managers and conservationists believe that wildfires in these crown fire regime ecosystems are more extreme in their behaviour and effects than ever before, but in most ecosystems there is little or no good evidence to support this belief[3].

In the chaparral ecosystems of southern and central coastal California, for example, the crown fire regime has changed little since Europeans first settled the area, despite extensive fire suppression efforts over the past decades[4]. There has been an increase in the number of human-caused fires; these, however, have had an insignificant impact on the total area burnt each year. Consequently, high-intensity wildfires continue to dominate in these ecosystems and are not an artefact of fire management policy.

In boreal and subalpine forest ecosystems, it is often stated that, because of fire suppression, fire intensity will increase because fuel accumulates as forest stands age. However, while large fuels may accumulate,the fine fuels (1 cm diameter) that contribute most to fire intensity and spread reach an equilibrium well before stand maturity. Thus, we should not expect a significant change in fire behaviour owing to "unnatural fuel accumulation" in these closed-canopied forests.

Although there may be evidence to suggest a shift from low-intensity surface fires to high-intensity crown fires in the ponderosa pine forests of the southwest, it would be prudent for resource managers from other western ecosystems to demand convincing evidence before applying Covington's suggestions to their areas.

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Opposition to animal law is not lack of concern

Sir — A letter to the Editor from Bert van Zutphen (*Nature* **409,** 452; 2001) suggests that there is a difference between the views of the Federation of American Societies for Experimental Biology (FASEB) and the European Science Foundation on the issue of laboratory animal welfare. In fact, our positions are quite similar, as demonstrated by the principles for the care and use of animals in research and education adopted by the FASEB Board of Directors in 1994 (see http://www.faseb.org/opar/animal1.html).

Our opposition to proposed changes in the United States' Animal Welfare Act — extending it to cover rats, mice and birds — is not based on a lack of concern for animal welfare. In the United States, the care of most rats, mice and birds in medical research is subject to the Public Health Service policy on humane care or voluntary accreditation by the Association for the Assessment and Accreditation of Laboratory Animal Care, International.

What we object to is the additional level of bureaucracy that would divert resources from biomedical research without providing any new benefits for animals.

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