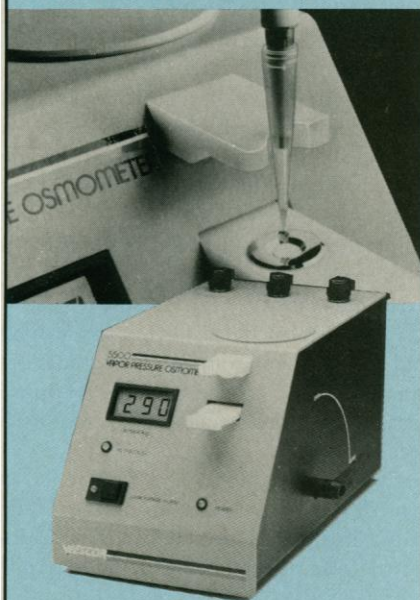


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Letters

British Popular Science: "Prizeworthy"

How ludicrous to criticize British writers of popular science for not being up to the standards of their colleagues across the Atlantic ("America rules the words," *Briefings*, 24 May, p. 1063). Has the author of these remarks never heard of, say, Richard Dawkins? Dawkins' book *The Blind Watchmaker* was published 3 months too early to qualify for entry in the first British Science Book Prize (awarded in 1988), but it went on to win the Royal Society of Literature Award, the first science book ever to do so. Or of Michael Rowan-Robinson, author of the beautifully written *Universe?* (Why this remarkable book was not even shortlisted in this year's Science Book Prize is a mystery). Or of Roger Penrose, winner of last year's prize (*The Emperor's New Mind*)? Or of Steven Hawking? Enough!

It is certainly true that few British publishing houses take popular science as seriously as their American counterparts. But perhaps that is at least in part due to the lamentable fact that science books are largely ignored in the book reviews pages of our newspapers here.

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Munk's Experiment

Shame on you for publishing the farrago of innuendos, anonymous statements, and unsupported assertions contained in Jon Cohen's article (*New & Comment*, 17 May, p. 912) about the Heard Island long-distance sound transmission experiment, carried out under the inspiration and general direction of Walter Munk of the Scripps Institution of Oceanography!

Cohen quotes Ann Bowles, the leader of the biological survey team on the expedition, as saying that beaked whales and pilot whales may have avoided the transmissions; and he quotes Bob Pitman, one of the biologists, as saying that "it's possible that deep diving mammals were affected." Bowles told Cohen, however, that she and her colleagues on the biological survey vessel couldn't distinguish between the effects of the transmissions and the effects of the survey ship itself, a more likely source of disturbance. Cohen does not mention Bowles'

observation that the endangered blue whales in the area did not appear to have any meaningful response. One blue whale was actually observed to feed and socialize during a transmission and to travel 11 kilometers toward the transmitting vessel in the process.

In the absence of evidence of harm to marine mammals, Cohen makes his case with lurid verbiage, referring to the transmissions as "blasts" or "shots," implying at the same time that they were continuous. In fact, the transmissions consisted of a low-frequency 57-hertz buzz, incapable of blasting anything more than a couple of millimeters from the face of the source. They were emitted in a duty cycle of 1/3 on and 2/3 off (actually lower because of mechanical failures) for only 5 days. Cohen quotes an anonymous marine mammalogist, who was "more worried about this experiment than any other human activity other than toxic waste." In fact, no study of marine mammals has found any evidence of long-term biologically important effects of even high-intensity industrial noise, despite an intensive, 11-year effort in the Beaufort Sea, north of Alaska and Western Canada.

Cohen quotes anonymous staff members of the National Oceanic and Atmospheric Administration (NOAA) as saying that the experiment on the marine mammals was not scientifically sound because it had no controls. In fact, marine mammals were observed and listened to with sonobuoys and other underwater hearing devices for 5 days before the start of transmissions, and for several days after the transmissions were completed. Cohen's statement denigrates the hard work under terribly difficult conditions of the team of nine biologists, who spent every daylight hour watching the rough sea for marine mammals coming to the surface. According to the biological survey team, a "completely adequate" experiment would have required a baseline survey lasting 4 months, spread over 2 years, followed by a similar period of transmissions and a follow-up. This would have exposed marine mammals to 12 times the noise at an expense of over \$8 million.

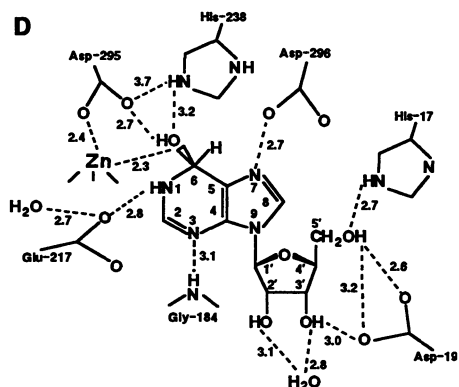
Cohen gives the impression that NOAA staff members insisted on anonymity in their comments because they were afraid of retribution from Munk, who is described as the country's "most powerful oceanographer." In fact, Professor Munk, my friend of more than 50 years, is the gentlest and kindest of men. He is completely incapable of retribution against anybody, especially for a difference of scientific opinion.

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I read the article about the use of extremely loud underwater sound to measure ocean temperatures from the viewpoint of a researcher investigating the effects of loud noise on the vertebrate inner ear. The intensity of the sound at its source was incredibly loud, 209 decibels or approximately 10 billion times the threshold of human hearing. Levels of 124 decibels were detected at a distance of 1000 kilometers from the source. Although I do not know of any studies on the effects of loud waterborne sound on the inner ears of marine mammals, sound levels of 124 decibels are known to induce permanent hearing loss in terrestrial mammals. Marine mammals have a highly developed sense of hearing. Dolphins, for example, use their hearing for communication and echolocation to navigate and find food. Prudence suggests caution in exposing marine mammals to sound levels that are known to induce permanent hearing loss in land mammals.

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Erratum: In the Research Article "Atomic structure of adenosine deaminase complexed with a transition-state analog: Understanding catalysis and immunodeficiency mutations" by David K. Wilson *et al.* (31 May, p. 1278), figure 3D on page 1281 was inadvertently omitted. The figure and a corrected caption are printed below.



(D) Schematic diagram of the interaction between ADA and HDP. Numbers near dashed lines indicate distances (in angstroms) between refined nonhydrogen atoms. As discussed in the text, Glu²¹⁷ and Asp²⁹⁶ are likely to have pK_a values greater than normal, His²³⁸ and Asp²⁹⁵ are likely to be in the ionized or charged species, and His¹⁷ (a zinc ligand) is neutral.

Erratum: In "This Week in Science" (21 June, p. 1591), it was stated incorrectly that a News & Comment article by Paul Selvin about "the legal battles of Jenny Harrison" could be found in that same issue. The article appeared in the next issue, 28 June, p. 1781.

Erratum: In the heading of the review of A. T. Sumner's *Chromosome Banding* (7 June, p. 1437), the name given for the publisher was incomplete. The correct name is Unwin Hyman Inc., to be addressed at 955 Massachusetts Avenue, Cambridge, MA 02139-3107.

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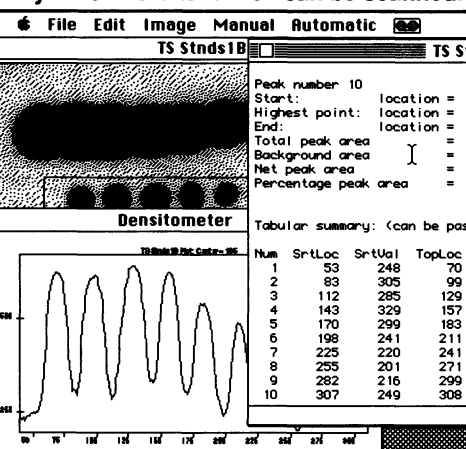
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