This is a case where industry has made a pollution-prevention achievement of great magnitude and has virtually eliminated dioxin from its processes.

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References

1. T. Deardorff, *Pulp Pap.*, 97 (Oct. 1997).

Clarifying the SF_5CF_3 Record

W. T. Sturges and colleagues report on the identification of SF_5CF_3 in the atmosphere and point out that this compound could be an important greenhouse gas (Reports, "A potent greenhouse gas identified in the atmosphere: SF_5CF_3," 28 Jul., p. 611). The identification is based on the mass spectrum of this compound, which the authors list as "68.995 (CF_3^+), 88.967 (SF_3^+), and 126.964 ($SF_5CF_3^+$)." This latter assignment is wrong: the ion at the mass-to-charge ratio (*m/z*) of 126.964 is due to SF_5^+. This mistake may be just a typographical error, but it could be misleading by suggesting that a molecular ion for this molecule has been observed, which it has not. Incidentally, contrary to the authors' statement, a library mass spectrum for SF_5CF_3 is available in the National Institute of Standards and Technology (NIST) Mass Spectral Library (version 1.6).

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Response

We thank Hites for noting the typographical error. Mass 126.964 is indeed attributable to the SF_5^+ ion, not $SF_5CF_3^+$ as stated in our report (*1*). The molecular ion is not formed. It is true that SF_5CF_3 now appears in the latest version of the NIST Mass Spectral Library (version 1.6), but this version was not supported on our particular instrument at the time of the study. We can, however, confirm an excellent match between the spectrum we obtained from the pure compound and that given in the updated NIST library (see the figure). We remain confident in our identification of SF_5CF_3 in the atmosphere, as is also illustrated in the figure.

Regarding the letter from Santoro of 3M, he suggests a plausible origin of SF_5CF_3 in the atmosphere, presumably from the electrochemical fluorination production of widely used intermediates and products such as trifluoromethanesulfonic ("triflic") acid and fluorosurfactants. This process has been in use since the late 1950s, which fits our observations of detectable SF_5CF_3 in air samples dating from the 1960s. What is not clear, however, is whether the amounts released by electrochemical fluorination can account for the year-on-year rise in emissions to a current rate of 270 metric tons per year. In the absence of actual emission data, the possibility of other sources cannot be ruled out. Efforts by private companies Sturges *et al.* indicate in their report an uncertainty as to the origin of SF_5CF_3. We know that one source of this compound is as a by-product of the manufacture of certain 3M fluorochemicals.

The authors correctly suggest that concentrations of SF_5CF_3 detected in the atmosphere are so small as to be a minor contributor to overall radiative forcing. Despite this, they appropriately call attention to the prudence of limiting releases of SF_5CF_3. In fact, 3M had already implemented a comprehensive program to reduce all greenhouse gas emissions, including SF_5CF_3, from company operations. Since 1995, the company has reduced global greenhouse gas emissions by more than 40%, and additional reductions, on the order of 50% or more, are planned over the next 1 to 5 years.

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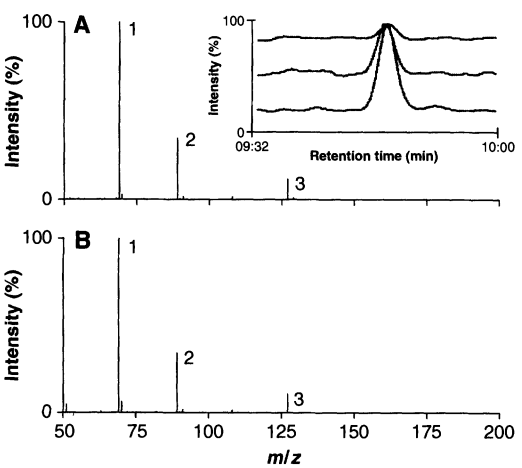

Mass spectrum (*m/z* 50 to 200) of SF_5CF_3. (A) Gas chromatography–mass spectrometry (GC-MS) measurements by this group (1) and **(B)** NIST Mass Spectral Library Version 1.6d entry 23164. The ions marked 1 to 3 correspond to CF_3^+, SF_3^+, and SF_5^+, respectively. The ion SF_4^+ (*m/z* 107.966) is also observed at low abundance. The inset shows the GC-MS analysis of 200 standard cubic centimeters per minute of "clean" ambient air [Colorado Mountains, collected in 1994 (*1*)] showing peaks of *m/z* corresponding to the same ions (1 to 3) in the traces from the bottom to top, respectively, at the retention time expected for SF_5CF_3.

such as 3M to voluntarily reduce their greenhouse gas emissions are, however, to be commended.

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1. W. T. Sturges *et al.*, *Science* **289**, 611 (2000).

No Mercy

According to the ScienceScope item "Dedicated to history" (20 Oct., p. 421), German scientific research organizations have dedicated a new monument to "the victims of Nazi euthanasia crimes." However, the accepted definition of euthanasia is "mercy killing," such as to end an individual's suffering during a painful and life-ending disease, presumably with his or her consent. Perhaps someone needs to give these organizations a better German-English dictionary.

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Secret to Marital Bliss?

The Random Samples item "Less bliss in China?" (6 Oct., p. 41) reports that questionnaires filled out in Turkey, China, and the United States indicate that "moderate husband dominance seems to maximize marital satisfaction." Psychologist Lisabeth Dilalla of Southern Illinois University suggests (Dilalla, private communication) that this could be explained if dominant husbands do the ratings of marital satisfaction for their wives: "Are you happy? Of course you're happy! Put down 'Yes.'"

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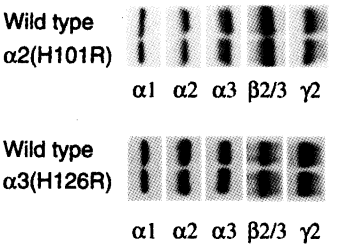
CORRECTIONS AND CLARIFICATIONS

News Focus: "New brain cells prompt new theory of depression" by G. Vogel (13 Oct., p. 258). Barry Jacobs' theory on neurogenesis and depression is described in a review article in the May 2000 issue of *Molecular Psychiatry.*

Reports: "Molecular and neuronal substrate for the selective attenuation of anxiety" by K. Löw *et al.* (6 Oct., p. 131). Figure 2A was printed incorrectly, obscuring the data. The panel appears below.



News of the Week: "Downloading the human brain, with security" by E. Marshall (29 Sept., p. 2250). The correct sponsor was not cited; the work by Benjamin Martin Bly on data-sharing software is supported in part by the James S. McDonnell Foundation of St. Louis, Missouri.

Perspectives: "Aging, chromatin, and food restriction—connecting the dots" by J. Campisi (22 Sept., p. 2062). In the first paragraph, caloric restriction should have been described as a reduction in food intake "to 50 to 70%," not "by 50 to 70%."