

Letters

Yellow Rain

The major piece of evidence used by Matthew Meselson to support his theory that "it is possible that yellow rain is bee excrement" is based on an electron micrograph showing the presence of pollen in the ABC News sample, a sample that I gave him. Unmentioned in Eliot Marshall's article of 24 June (News and Comment, p. 1356) or in Meselson's AAAS talk (1) is the fact that this sample contained, in addition to pollen and three trichothecene mycotoxins, polyethylene glycol (PEG), a man-made material. This finding has been presented on television (2) and published (3). The PEG evidence was obtained by gas chromatography-mass spectrometry (GC/MS) and is unequivocal. Evidence for the presence of an emulsifier synthesized from PEG (for example, Tween 60) was also obtained, but the chemical structure of the emulsifier could not be definitively established. Analysis of blanks showed that PEG did not come from any of our solvents or materials; nor could it have come from the rubber that stoppered the sample vial, because the stopper was coated with Teflon.

The presence of PEG in the ABC News sample makes irrelevant any explanation for the natural occurrence of yellow rain, bees or no bees. The most reasonable explanation is that yellow rain (a mixture containing at least three highly toxic trichothecenes and a PEG-type emulsifier) was delivered from aircraft onto vegetation previously or subsequently contaminated by wind- or insect-borne pollen, or both.

Two other possibilities raised by Meselson are mentioned in Marshall's article: yellow rain is a "herbicide, like those used by the United States in Vietnam" or a "riot control agent" such as CS." Both suggestions are erroneous. Our GC/MS analysis would easily have picked out the components of Agent Orange (chlorinated compounds are simple to detect because of their isotopic distribution), but we found none; since 1975, U.S. Army scientists have analyzed many yellow rain samples for known chemical warfare agents and have not found CS.

The time has come to stop allowing

ourselves to be diverted from the tragic reality of yellow rain by theories not in accord with all the facts. As responsible scientists, we must get involved in efforts to end the use and proliferation of chemical and biological weapons. Yellow rain has taught us that strong and verifiable arms control treaties must be negotiated.

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References and Notes

1. M. S. Meselson *et al.*, paper presented at the AAAS Annual Meeting, Detroit, Mich., 31 May 1983.
2. "Rain of Terror," *ABC News Closeup*, 21 December 1981.
3. R. T. Rosen and J. D. Rosen, *Biomed. Mass Spectrom.* 9, 443 (1982).

Reorganization of the Commerce Department

Permit me to comment on some aspects of the President's proposal to create a Department of International Trade and Industry that were not covered in the excellent article, "NSF, do you take NBS . . . ?" (News and Comment, 24 June, p. 1363).

In addition to putting trade matters into a single Cabinet department with responsibility for both making policy and implementing it—as is the case in other Executive departments—the reorganization would fulfill the Stratton Commission's recommendation about the place of the National Oceanic and Atmospheric Administration (NOAA) in the federal structure. Placing NOAA on an equal footing with other agencies with related interests, such as the National Science Foundation and the Environmental Protection Agency, would enhance its voice in the scientific counseling of the government. We would have the expectation that, in decision processes at the White House and the Office of Management and Budget, NOAA's programs and budgets would be fully recognized as science, safety, and service, rather than as an adjunct to the larger Department of Commerce.

We think the reorganization will make

possible faster implementation of NOAA decisions on such important issues as fisheries, deep seabed hard minerals, coastal zone matters, and marine mammals. It will also give NOAA the freedom to bring issues directly to the White House when necessary.

I am, of course, well aware of the many other notions about reorganization, including everything from establishing a Department of Science (an idea that, so far as I know, first arose in Congress with the 1884 Allison Commission) to separating the independent NOAA proposal from the larger trade reorganization plan. My own view is that we have a good, solid proposal that will benefit both trade and science, and it deserves support.

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Noun Use Criticism

The use of a series of nouns to modify another noun is common in the writing of biologists. Adjectival nouns save on prepositions but make articles stuffy and stilted. Two such nouns may read smoothly enough ("heart chamber pressure," "jaw muscle tone") but can be strained ("stomach contents results"). What about three? Do we really want to read "heart chamber pressure change," "sea snake diet data," "hair cell orientation pattern," and "ankle joint angle measurement" (to quote recent examples)? One graduate student, having learned by example how zoology is written up, submitted a thesis with a section on "lizard ovary winter lipid level change." I call for research article writer reform and a professional journal editor policy shift to discourage this adjective noun use tendency in order to reduce the science literature jargon glut.

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Erratum: In the article "Acid rain, a year later" by Eliot Marshall (News and Comment, 15 July, p. 241), Jack Calvert was incorrectly described as the director of the National Center for Atmospheric Research (NCAR). Calvert is a senior scientist in the Atmospheric Chemistry and Aeronomy Division at NCAR. The director of NCAR is Wilmot N. Hess.

Erratum: In the report "Spider populations: Extraordinarily high densities on islands without top predators" by Thomas W. Schoener and Catherine A. Toft (18 Mar., p. 1353), the last sentence in the first column (continuing in the second column) of page 1355 was incorrectly printed. It should have read, "Whatever the etiology, we know of no other study showing a decline in density with distance for any species, although many studies have already shown such a decline for species number (3, 12, 13)."