Letters

Space Shuttle Advanced Solid Rocket Motor Testing

The Briefing "Space Shuttle meets the wetlands" (8 Dec., p. 1253) contained misstatements about NASA's plans to test the Advanced Solid Rocket Motor (ASRM) at the John C. Stennis Space Center.

1) The Briefing stated that testing the shuttle's "noxious exhaust was not considered a problem at the old test site, deep in the Utah desert." Despite what the ASRM critics have stated, the Thiokol testing facility in Utah is not located deep in the desert. It is bordered by vegetation, farmlands, and wetlands. Cattle graze in fields adjacent to it, the agricultural community of Tremonton is 6 miles away from it, and a major migratory waterfowl refuge is located 11 miles away.

2) The Briefing stated that "[A]luminum compounds [released during test firing] can damage plants and the human nervous system," but the Environmental Protection Agency (EPA) has concluded that there is no evidence that nonfibrous forms of aluminum oxide cause adverse effects to human health or the environment (*1*, p. 16377). Research conducted by NASA's Langley Research Center during actual Space Shuttle launches shows that the aluminum oxide particulate released from the solid propellants that will be used in the ASRM is nonfibrous (*2*). And although aluminum, not aluminum oxide, has been implicated in Alzheimer's disease, the EPA states that aluminum has not been found to be a risk factor for the disease (*1*, p. 16378).

3) In response to the statement that the "Mississippi wetlands may not benefit from the massive infusion of hydrochloric acid they are likely to get," I point out that NASA is required to meet stringent federal and state laws and guidelines as provided in the permits. NASA is committed to ensuring that the area's environment is protected and is implementing extra measures over and above any legal or regulative requirement to ensure such protection.

4) The Briefing states that the Environmental Impact Statement for the test site "has been challenged by two ecologists at Mississippi State University." At a press conference at the Stennis Space Center on 2 November 1989 regarding the ASRM, Donald W. Zacharias, president of Mississippi State University, and Ralph Powe, vice president for research at MSU stated that the university is satisfied with the steps NASA has taken to make sure the tests are safe.

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REFERENCES

1. *Fed. Regist.* **54**, 16376 (24 April 1989).
2. W. R. Cofer III, NASA Langley Research Center, Hampton, VA, memo to R. McCaleb, Environmental Effects Officer, John C. Stennis Space Center.

Response: The main issue is not whether the old test site is in desert or dry scrubland, but whether exhaust fumes at the new site in Mississippi—a wet, vegetated, and heavily populated area—will create new ecological problems. For example, it may be worth considering the toxic effects of aluminum chloride pollution, which NASA has not studied.—ELIOT MARSHALL

Molecule of the Year

Annual recognition of one "discovery or technique . . . that is likely to have the greatest influence on history" (Editorial, 22 Dec., p. 1541) is a valuable addition to the already excellent research news reporting in *Science*. I find it disturbing, however, that this award is called the "Molecule of the Year," implying that the most important discovery each year will probably occur in chemistry or medicine rather than, for example, in elementary particle physics.

May I suggest that the title be as flexible as *Time* magazine's "Man of the Year," recipients of which need not be male, or even human?

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Response: Reader Covey's suggestion is exactly what we had in mind. Just as *Time* once chose the computer as "Man of the Year," *Science* expects to have physics discoveries qualify as "Molecule of the Year." In fact, we noted the Z particle and Voyager as close contenders for the 1989 award.

—DANIEL E. KOSHLAND, JR.

The idea of making an award to a discovery rather than to an individual is laudable, but there are certainly approaches to scientific questions other than the molecular in which discoveries can and do change the way we live. Molecular biology has proved itself to be a powerful approach. However, "molecular chauvinism" could lead us down