

SCIENCE NEWS®

The Weekly Newsmagazine of Science

Science Service Publication
Volume 144, No. 8, August 21, 1993

| | |
|---|-------------------------------------|
| Alfred Scott McLaren | Publisher |
| Patrick Young | Editor |
| Laurie Jackson Vaughan, | Managing Editors |
| Blair Burns Potter | |
| Janice Rickerich | Production/Design Director |
| Greg W. Pearson | Associate Editor |
| Janet Raloff | Senior Editor Environment/Policy |
| Ron Cowen | Astronomy |
| Bruce Bower | Behavioral Sciences |
| Richard Lipkin | Chemistry/ Materials Science |
| Richard Monastersky | Earth Sciences |
| Kathy A. Fackelmann, Elizabeth Pennisi | Life Sciences/ Biomedicine |
| Ivars Peterson | Mathematics/Physics |
| Larry Norland | Editorial Assistant |
| Bernice Wuethrich | Science Writer Intern |
| Cait Anthony | Books/Resource Manager |
| Donald R. Harless | Advertising/Business Manager |

SCIENCE NEWS (ISSN 0036-8423) is published weekly on Saturday, except the last week in December, for \$39.50 for 1 year or \$68.00 for 2 years (foreign postage \$6.00 additional per year) by Science Service, Inc., 1719 N Street, N.W., Washington, DC 20036. Second-class postage paid at Washington, DC, and additional mailing office. **POSTMASTER:** Send address changes to SCIENCE NEWS, P.O. Box 1925, Marion, OH 43305. Change of address: Four to six weeks' notice is required — old and new addresses, including zip codes, must be provided.

Copyright © 1993 by Science Service, Inc. Title registered as trademark U.S. and Canadian Patent Offices. Printed in U.S.A.

Editorial and Business Offices:
1719 N St., N.W., Washington, DC 20036
(202-785-2255)

Republication of any portion of SCIENCE NEWS without written permission of the publisher is prohibited.

Subscription Department:
P.O. Box 1925, Marion, OH 43305
For new subscriptions only, call 1-800-247-2160.
For customer service, call 1-800-347-6969.

Letters

The oxyfuel-mileage saga (cont'd.)

In "Oxyfuel cost: Lower mileage" (SN: 6/19/93, p.387), Joseph F. Jackson wrote that he experienced a 10 to 15 percent decrease in gas mileage when using oxygenated gasoline. In reply, Janet Raloff quoted Arco Chemical Co., maker of the oxygenating additive, to the effect that mileage reduction is 1 percent, or a trivial \$2 per season.

Did Raloff get any independent confirmation of the 1 percent reduction, or did she merely take the manufacturer's word for it?

My own experience has been a 10 percent decrease in mileage, a number closely agreeing with Jackson's but quite different from Arco's.

Allen G. Taylor
Oregon City, Ore.

If the "1 percent reduction" is real, then so is the tooth fairy.

Everyone I know (without exception!), every attendant at every gasoline station I frequent,

This Week

- 116 Army Scientists Isolate Deadly Virus
- 116 Unstable enzyme underlies inherited ALS
- 117 Reports of 'nonstranger' rapes draw debate
- 117 Getting the drift of ocean circulation
- 118 Microwaves accelerate chemical extractions
- 118 Milky Way starbirth: Some far-out action
- 119 Concern grows over expansion of earmarking

Research Notes

- 120 Behavior
- 120 Biology
- 122 Chemistry

Articles

124 EMFs Run Aground

Cover: Certain home appliances — including aquarium heaters — can induce substantial magnetic fields. While mapping the low-level electromagnetic fields (EMFs) that bathe our residences, electric-utility researchers have turned up other surprising sources. For one, water pipes may be the second largest overall contributor to a home's magnetic background. (Photo: © John Farrell Kuhns)



Departments

- 114 Books
- 115 Letters

Science Service, which publishes SCIENCE NEWS, is a nonprofit corporation founded in 1921. It gratefully accepts tax-deductible contributions and bequests to assist its efforts to increase the public understanding of science, with special emphasis on young people. More recently, it has included in its mission increasing scientific literacy among members of underrepresented groups. Through its Youth Programs it administers the International Science and Engineering Fair, the Science Talent Search for the Westinghouse Science Scholarships, and publishes and distributes the *Directory of Student Science Training Programs for Precollege Students*.

Board of Trustees — *Chairman*, Glenn T. Seaborg; *Vice Chairman*, Gerald F. Tape; *Secretary*, David A. Goslin; *Treasurer*, Willis Harlow Shapley; Joseph W. Berg Jr.; Robert W. Fri; J. David Hann; Dudley Herschbach; Shirley M. Malcom; Elena O. Nightingale; Ben Patrusky; Peter H. Raven; H. Guyford Stever; Sanford J. Ungar; Deborah P. Wolfe. **Honorary Trustees** — Edward Bliss Jr.; Bowen C. Dees; O. W. Riegel; John Troan.

President: Alfred Scott McLaren; **Vice President and Business Manager:** Donald R. Harless.

and my own experience tell me that the minimum reduction in mileage when using oxygenated fuel is 15 percent. This is a bonanza for the oil companies. They sell more fuel, reduce their costs, and experience reduced excise taxes.

For the rest of us, it is another do-gooders' boondoggle — and it doesn't even have an environmental benefit. A 7 percent reduction in pollutants per gallon and a 15 percent increase in consumption result in a net 8 percent increase in tailpipe emissions. Once again, the solution proves to be worse than the problem.

Someone should do some real science for a change.

John Peers
West Linn, Ore.

The Environmental Protection Agency has received lots of complaints about dramatic reductions in fuel economy following reformulation of gasoline with MTBE, observes Mary Smith, who heads EPA's MTBE program. One problem, she notes, is that while the average

drop in mileage attributable to the additive is probably 1 to 3 percent, the drop for any individual vehicle can be greater. Indeed, she says, MTBE's effect seems to depend upon the model of car in which it's used.

Even in the absence of MTBE, Smith notes, motorists may experience a drop in wintertime mileage because:

- Refiners change their fuel blends for winter, adding more butane, which reduces the BTU value of gasoline

- Cold temperatures make vehicles harder to start, thereby requiring more gasoline

- Drivers typically idle their engines to warm them up in frigid weather.

Finally, she argues, if oxygenated gasoline cut fuel economy by 15 to 20 percent, as many motorists have claimed, then New Jersey should have experienced much higher gasoline sales after MTBE was phased in there. In fact, EPA research indicates that statewide gasoline consumption was slightly lower for November and December 1992 — after MTBE — compared with the same period in 1991, before MTBE was added.

— J.A. Raloff

AUGUST 21, 1993

115