

SCIENCE NEWS®

The Weekly Newsmagazine of Science

Science Service Publication
Volume 146, No. 12, September 17, 1994

Alfred Scott McLaren	Publisher
Patrick Young	Editor
Blair Burns Potter	Managing Editor
Dan Skripkar	Production/Design Director
Greg W. Pearson	Associate Editor
Janet Raloff	Senior Editor
Ron Cowen	Environment/Policy
Bruce Bower	Astronomy
Richard Lipkin	Behavioral Sciences
Richard Monastersky	Chemistry/ Materials Science
Tina Adler	Earth Sciences
Kathy A. Fackelmann, Elizabeth Pennisi	General Science
Ivars Peterson	Life Sciences/ Biomedicine
Larry Norland	Mathematics/Physics
Cait Anthony	Editorial Assistant
Donald R. Harless	Books/Resource Manager
	Advertising/Business Manager

SCIENCE NEWS (ISSN 0036-8423) is published weekly on Saturday, except the last week in December, for \$44.50 for 1 year or \$78.00 for 2 years (foreign postage \$6.00 additional per year) by Science Service, Inc., 1719 N Street, N.W., Washington, D.C. 20036. Second-class postage paid at Washington, D.C., and additional mailing office. POSTMASTER: Send address changes to SCIENCE NEWS, P.O. Box 1925, Marion, Ohio 43305. Change of address: Four to six weeks' notice is required — old and new addresses, including zip codes, must be provided.

Copyright © 1994 by Science Service, Inc. Title registered as trademark U.S. and Canadian Patent Offices. Printed in U.S.A. on recycled paper. ♻️

Editorial and Business Offices:

1719 N St. N.W., Washington, D.C. 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, Ohio 43305
For new subscriptions only, call 1-800-247-2160.
For customer service, call 1-800-347-6969.

Letters

Clarifying poverty-IQ link

"Growing Up Poor" (SN: 7/9/94, p.24) implies that poverty is to blame for a lower than normal IQ in children and for harsher than normal parenting. If that is true, then the cure is to give the poor more money.

However, maybe these results come about because poor parents are, on average, less than normally adept people who find it difficult to provide adequately for themselves or their children. If this is true, programs like Head Start are a better cure because they help compensate for poor parenting.

To believe poverty is the real culprit, there must be observed evidence that children's IQs improve or that parenting becomes less harsh when a family's economic circumstances improve.

Mary-Anne Sillamaa
Don Mills, Ontario

Although inheritance plays a large role in an individual's intellectual capacity, persistent pov-

This Week

- 180 Rooting Around for Missing Carbon
- 180 Just say no to prostate cancer screening
- 181 Distant comets: Driven by carbon monoxide?
- 181 EPA: Dioxins are more than carcinogens
- 182 Polymer transistors show their soft side
- 182 The terrible twos just got younger
- 183 Getting a grip on prehistoric tool makers
- 183 Catching the flutter of a falling leaf

Research Notes

- 187 Biomedicine
- 187 Earth Science
- 191 Environment
- 191 Science & Society

Articles

- 184 Beating a Fractal Drum

Cover: Mathematical studies and physical experiments reveal new details of how a drum's shape affects its sound. Using computer graphics, researchers can visualize, for example, the vibrations of a drum's fractal membrane. This image represents how rapidly the slope of the drum's surface changes during one of these vibrations. (Image: Griffith *et al.*)

- 188 Searchlight on the Cosmos

Departments

- 178 Books
- 179 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.

erty — accompanied by developmental risks such as early malnutrition, exposure to toxic substances in the environment, and lack of a stimulating or safe home environment — hinders intellectual development, as reflected in lower average IQ scores in poor children than in their more affluent counterparts.

The issue does not boil down to nature versus nurture. The point is that whether a child starts out with an IQ of 140 or 70, long-term poverty can take a toll on intellectual functioning during childhood.

— B. Bower

Criticizing assumptions

"Faster-than-light time tunnels for photons" (SN: 7/2/94, p.6) makes two amazing statements. The first, "Recent experiments...show that photons tunnel through a barrier at velocities considerably greater than the speed of light in a vacuum." The second, "This result doesn't necessarily violate the notion that cause precedes effect."

What amazes me is the assumption that information traveling faster than c represents a violation of causality! Causality simply

means that the cause of an event precedes the effect of the event. In this case, for example, a photon is emitted before it is absorbed in a detector. If the travel time were 1 million times faster than c , the cause would still precede the effect, and causality would not be violated.

Somehow, uncritical acceptance of the theory of relativity has become so great that it is now assumed, even by the physicists testing such effects, that information transfer in excess of c violates causality! All that is actually violated in this case is Einstein's second postulate — that the speed of light is a constant, equal to c .

Curt Renshaw
Alpharetta, Ga.

Address communications to:
Editor, SCIENCE NEWS
1719 N Street, N.W.
Washington, D.C. 20036
All letters subject to editing.



SEPTEMBER 17, 1994

179