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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-

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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.*)

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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*.

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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
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