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Cover: Scientists often refer to proteins as the basic machines of life. Many chemists now believe that the best way to test their knowledge of protein structure and function is to design and build them from scratch. (Illustration: A head-on view of four alpha helices designed and synthesized by Michael Hecht and his colleagues.)

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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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Letters

Focus on concepts, not culture

The new study ("Spanish Survives Bilingual Challenge," SN: 9/3/94, p.148) simply reaffirms what bilingual educational studies have already indicated: The larger a native Spanish speaker's vocabulary, the faster and better he or she will learn English. Hence, if Spanish-speaking children are first taught conceptual skills in Spanish, acquisition of English will be easier for them. These children will more likely become successful students, rather than dropouts, and will be able to assimilate into our Anglo-American culture.

This is the focus of bilingual education programs in California schools. It is not to preserve the Spanish speaker's native language and culture. However, it is such a notion that tends to elicit intense debates from many opponents of bilingual education.

Leticia Amador
Chula Vista, Calif.

Variations on cause and effect

The Letters section this week (SN: 9/17/94, p.179) was disappointing. First, Bruce Bower failed to address Mary-Anne Sillamaa's suggestion that poverty might be an effect as well as a cause, possibly unable to conceive of such a politically incorrect thought.

Then Curt Renshaw stated, "What amazes me is the assumption that information traveling faster than *c* represents a violation of causality!" It is not an assumption. Suppose A and B are stationary relative to each other. If an observer at B observed information traveling from point A to point B at above *c*, then an observer traveling sufficiently near *c* from A to B would conclude that the information had arrived at B before it left A.

Philip Goetz
Buffalo, N.Y.

Sound speculations

Having taught a graduate course in structural dynamics for many years, I was fascinated by your story on the vibrations of fractal drums ("Beating a Fractal Drum," SN: 9/17/94, p.184). It seems amazing that there should exist differently shaped bodies with identical vibrational frequencies. However, it is not obvious that the timbre of these ideal instruments should necessarily be identical: The "sound" of an instrument depends not only on its vibrational frequencies, but also on the relative amplitudes of the modes for a given excitation.

As for the observation of strongly damped vibrations in the French experiments involving highly convoluted boundaries, could it not be explained by edge effects caused by wave diffraction and mode conversations — that is, waves which are scattered by and trapped within the "bays" and then dissipated at the "beaches"?

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