Olson also suggests that some of the improvement may simply be attributed to the focused attention given to the children. "It's very tricky doing this kind of research, because kids respond to so many different things in terms of how well they do at tasks," says Olson.

In addition to questioning whether the training regimen was responsible for the gains, researchers aren't convinced the gains are permanent. "The jury is still out," says G. Reid Lyon, who directs the research programs in learning disabilities, language disorders, and disorders of attention at the National Institute of Child Health and Human Development in Bethesda, Md.

Nevertheless, Tallal and her colleagues plan to set up pilot programs using the treatment regimen at selected schools around the country. They also plan to study whether they can identify infants with the auditory defect, which would allow them to start treatment even earlier.

Furthermore, Tallal is convinced that the modified speech and brain-training games can benefit children with dyslexia as well as those with language impairments. The cause of dyslexia is a hotly debated issue, but most researchers agree that the primary difficulty for those with the condition is a lack of phonological awareness—an inability to break words into individual phonemes.

In order to read new words, explains Lyon, a child must understand how to decode them. "If you come across a word you've never seen before, you can crack it into pieces and blend it back together," says Lyon.

What causes problems with phonological awareness? That's the issue on which investigators are bitterly divided. One camp, says Lyon, maintains that humans have specialized regions of the brain that handle language, including areas devoted to phonological awareness. According to that camp, when those brain regions develop improperly, dyslexia results.

In contrast, Tallal and her colleagues contend that dyslexia may not be a language-specific problem but a reading disorder resulting from difficulties in processing rapid auditory information, whether in speech or other sounds. For the same reason that deaf children face profound challenges in learning to read, she says, children with an inability to distinguish between certain phonemes may never develop the proper phonological awareness needed for reading.

"It's as much of a roadblock to accessing and setting up those individual phonemes in the brain as being deaf is," says Tallal, who estimates that more than 80 percent of language-impaired children have reading problems once they enter school.

Noting that teachers often concentrate more on developing reading skills than proper speech, Tallal suggests that many children with dyslexia have subtle language impairments that have gone undiagnosed. And in an admittedly unknown number of those children, Tallal asserts, the causative agent of the reading and language difficulties may be the auditory defect she and her colleagues have identified. If so, early diagnosis and treatment like that practiced with the language-impaired children could prevent young children from becoming dyslexic.

Researchers are understandably cautious about proclaiming a cure for dyslexia, however. "People in this field have become quite conservative because there have been a number of quick cures proclaimed for dyslexia," comments Sherman. "In life, however, there are usually no quick fixes."

The current furor over how far Tallal's work can be extended will ultimately be settled when her technique is tried on children with dyslexia, says Raymond M. Klein of Dalhousie University in Halifax, Nova Scotia. In the December 1995 PSYCHONOMIC BULLETIN AND REVIEW, he and his colleague Mary E. Farmer reviewed Tallal's past research and the evidence of other investigators tying a time-dependent processing problem to dyslexia.

"If researchers play the slowed up speech to people with dyslexia and their reading improves, that would be powerful evidence," says Klein. □

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viduals nor groups replicate. Genes are the replicators in DNA-based life, so there is no individual selection and no group selection. There is only gene selection. Gene selection explains both selfishness and altruism, as well as combinations of the two that cannot be explained by either individual selection or group selection.

I think evolution is the most important and most misunderstood idea of our time, and I'm afraid this article both reflects and perpetuates the misunderstanding. In contrast, *The Selfish Gene* and *The Extended Phenotype,* by Richard Dawkins, provide entertaining and definitive explanations of gene selection and the ideas that compete with it.

Roy Sprowl
Seattle, Wash.

Neither Dawkins nor anyone else has set all questions about the nature of evolution to rest. One area of debate now revolves around whether natural selection preserves inherited traits that mainly benefit individuals or, in important ways, groups as well. This debate will not vanish simply because genes are replicators, which both sides agree on.

See the December 1994 BEHAVIORAL AND BRAIN SCIENCES *for D.S. Wilson and E. Sober's critique of Dawkins' views and replies by Dawkins and many others.* — B. Bower

"Return of the Group" seems to refute an old saw. I refer to the statement that groups ". . . usually do about as well as the sharpest solo decision maker." To me this says that two heads aren't better than one if that one head is sharp!

If businesses could select the sharp individuals, they could really do some downsizing at the upper levels. And think how much money the government could save! Of course the whole process would require intelligent leadership: There's the rub.

Roy E. Landstrom
Cumberland, Ohio

You refer to a set of laboratory experiments often best designed for evoking individual judgments that nonetheless found a surprising amount of power in group decisions. Real-world group studies, such as those mentioned in the article, can begin to address the strengths and weaknesses of group decisions.

Successful businesses usually emphasize coordinated group efforts, not decisions handed down by isolated head honchos. The ways in which businesses select and attempt to control upper-level individuals would make for an interesting study. — B. Bower

CORRECTION

The photograph on p. 13 of "Just Looking' for a Home" (SN: 1/6/96, p. 12) shows the ruffling of a host cell surface that occurs just before a bacterium enters the cell.