

lexic child will repeatedly stumble over common words in a frustrating attempt to read a simple passage.

To find out more about how children learn to read, Shaywitz and her colleagues designed a project called the Connecticut Longitudinal Study. The researchers randomly selected 24 kindergarten classes during the 1983-1984 school year and then kept track of these youngsters from first through sixth grade. Kids took intelligence tests in grades 1, 3 and 5 and reading achievement tests yearly. The diagnosis of dyslexia was reserved for children whose reading ability fell far below the level predicted from their intelligence test scores.

Using statistical techniques, the researchers found that variations in discrepancy scores — a measure that takes into account reading achievement and intelligence — followed a bell-shaped curve. Scores for dyslexic children tended to appear toward the end of the curve, but there was no natural cutoff point separating dyslexic children from those with normal reading skills, Shaywitz says.

A well-known study reported in 1970 had suggested that discrepancy scores for dyslexic children appeared as a hump at the end of the curve — quite separate from the rest of the data points, Shaywitz notes.

Instead of depicting dyslexia as a fixed condition that doesn't change over time, the new data indicate that a child's reading ability can vary widely, especially during the early school years. For example, only seven of the 25 children classified as dyslexic in first grade got the same label again in the third grade. And fewer than half of the third graders diagnosed as dyslexic kept that label when retested in the fifth grade. Of the first graders diagnosed with dyslexia, only one in six still had that label by the time they reached the sixth grade.

Children who test adequately one year but fall behind the next may escape the notice of educators, Shaywitz says, noting that many schools offer special reading classes only to children who test poorly at one specific point in time.

Shaywitz believes that system is flawed. "It may be that because of administrative and budgetary constraints, school administrators need to establish a cutoff point for determining who is eligible for special help," she says. "But people will have to realize that such a cutpoint is arbitrary and that children who fall on the other side of it may still require and benefit from special help."

The current system may not flag children with very mild learning disabilities, adds Peter B. Rosenberger, a pediatric

neurologist with Massachusetts General Hospital in Boston.

"If you have a bright kid who is only reading at grade level and his teacher says there's nothing wrong with him, this study offers evidence that you should be concerned," Rosenberger contends. Very intelligent children often read well above their grade level, he notes.

While a mild difficulty with words may pose no particular difficulties in the third grade, sluggish reading can trip up students later, especially if they are college-bound, says Rosenberger, whose editorial on the Shaywitz study appears along with the research report in the Jan. 16 *NEW ENGLAND JOURNAL OF MEDICINE*. Many dyslexic children who receive coaching overcome their difficulties, he adds.

At the same time, the disorder can be tricky to diagnose — or even define. Although educators look for a gap between reading ability and IQ score, such a gap may not always indicate dyslexia, says Reid Lyon of the National Institute of Child Health and Human Development in Bethesda, Md., which funded the Shaywitz study. In some cases, intelligent youngsters may not excel in reading — just as some bright people can't sing or hit a tennis ball well, Lyon notes.

— K.A. Fackelmann

Pinatubo and El Niño fight tug of war

January is a month made for breaking New Year's vows and for assessing how the climate behaved over the previous year. According to analyses presented last week by two research teams, Earth's average temperature in 1991 ranks as the second highest on record, continuing a pattern of global warming that emerged during the 1980s.

"Although it is still too early to link the recent concentration of warm years with the influence of increasing greenhouse gases, international scientific opinion strongly supports the reality of the greenhouse effect, and it is likely that this has played some role in contributing to the recent warmth," con-

cludes a group of climate researchers from the United Kingdom Meteorological Office in Bracknell and the University of East Anglia in Norwich.

The U.K. group analyzed both land and sea-surface temperatures measured around the globe, while a separate team from NASA's Goddard Institute for Space Studies in New York City focused on measurements from land stations.

The British researchers' analysis shows 1991 finishing 0.05°C cooler than 1990, which was the warmest year in their 140-year-long record. The NASA investigators found last year 0.08°C below 1990, which holds top position in their 111-year-long record.

Balloon measurements taken in the lower atmosphere at 63 sites around the world also show 1991 as a warm year. In this 33-year-long record, 1991 qualifies as the fourth warmest, after 1988 and 1983, the second and third top years, says James K. Angell of the National Oceanic and Atmospheric Administration (NOAA) in

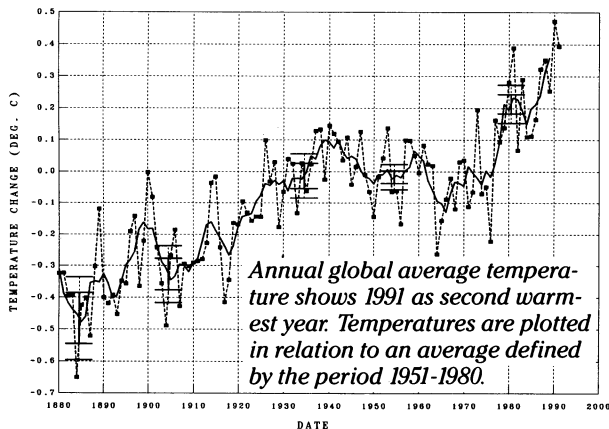
Silver Spring, Md.

In all three data sets, 1991 started off very warm in comparison to other years, and then cooled in the second half of the year, in part, perhaps, because of the eruption of Mt. Pinatubo in the Philippines last May. After the eruption, researchers predicted that sulfur gases from the volcano would block out sunlight, cooling the climate for a few years (*SN*: 8/31/91, p.132). James Hansen of the Goddard Institute says the volcanic cooling should reach its maximum strength later this year and next year.

Global temperatures may not drop excessively in 1992, however, because an El Niño warming in the Pacific Ocean will mitigate the cooling, says Hansen. The El Niño has been growing in the equatorial Pacific since last summer (*SN*: 12/14/91, p.389), and NOAA scientists formally announced its existence this week.

Caused by oscillations in the ocean and atmosphere, El Niño events push warm water from the West Pacific toward the East Pacific, raising temperatures across the ocean. In December, the patch of abnormally warm water had spread along the equator one-quarter of the way around the globe. The El Niño may intensify over the next few months, but should run its course by the end of the year, says Vernon E. Kousky of NOAA in Camp Springs, Md.

— R. Monastersky



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