

Current Comments

Dyslexia: To Read Or Not To Read

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During the past century, scientific research has identified and increased our understanding of many diseases and disorders. Until a particular condition is explored, many of its victims live in a world we can't understand and they are often abused or ostracized. But as research and mass education increase understanding, society develops a more enlightened attitude. Generally, society is now more sympathetic toward victims of leprosy or disorders like mental retardation. We still have a long way to go, however. There are still many diseases and disorders which can be a terrible burden for the victims and their families.

A particular disorder that can create a living hell for its victims is dyslexia. Even though it is almost a century since it was first documented, dyslexics still suffer abuse from teachers and society. Dyslexia can be described generally as an impairment in reading ability. For no obvious reason, dyslexics are able to read and write only with great difficulty. Dyslexia seems to occur independently of social status. It is present in children of all levels of intelligence, and is not accompanied by discernable damage to the brain.¹

The term dyslexia was coined in 1887 by a German named Rudolph Berlin.² Berlin used the word to describe language disorders that are acquired during adult life. By the 1930s, though, the word *dyslexia* was being applied to the apparently congenital (or possibly perinatal) disorder. When the word is

used today, it is often accompanied by the adjective "developmental."

The first case of what we now consider dyslexia was documented in 1896 by English physician W. Pringle Morgan. Morgan described "Percy F.," age 14, as "a bright and intelligent boy, quick at games, and in no way inferior to others of his age.... He has been at school or under tutors since he was 7 years old, and the greatest efforts have been made to teach him to read, but, in spite of this laborious and persistent training, he can only with difficulty spell out words of one syllable."

The boy made curious errors when he wrote words. He wrote *scone* for *song*, *sening* for *shilling*, *seasow* for *seashore*, and *Precy* for *Percy*. When Percy read aloud, "he did not read a single word correctly, with the exception of *a*, *the*, *of*, *that*, etc; the other words seemed to be quite unknown to him and he could not even make an attempt to pronounce them." He had good eyesight, and no signs of brain damage. Morgan assumed he was born with the disability. He named this condition "congenital word blindness." His brief communication to the *British Medical Journal* is the primordial citation for this field.³

By the 1920s, several American, British, and other European researchers had observed cases similar to Percy F. Today, reading specialists can list characteristic errors of dyslexics in reading and writing. They may misinterpret vowels or consonants, for example, *big* for *bag* or *bolt* for *bold*. They may

drop or add letters from words: *trick* for *tick*, or vice versa. Dyslexics may reverse or rotate letters; they may confuse, for example, *d* and *p* and *b*. Whole words may be read backwards: *was* for *saw*, or the other way around. In their reading and writing, dyslexics often substitute one word for another, such as *here* for *there*. The substitute word is not always appropriate; *he* is sometimes read or written instead of *she*. The handwriting of a dyslexic often is cramped and illegible; entire passages may be written in mirrored form. But not all dyslexics share all these symptoms.⁴

As researchers observed reading problems with increasing frequency, they sought causes for the kinds of difficulties Morgan observed. Samuel T. Orton, an American neuropathologist, advanced in the 1920s a theory based on the fact that the brain is divided into two hemispheres. In most of us, the left hemisphere regulates language functions. A few have language functions dominated by the right hemisphere. Orton suggested that in dyslexics neither hemisphere dominates language functions. This has not been proved.⁵ However, Orton is today considered a pioneer in the field. He called the disorder "strephosymbolia," which means "twisted symbols."⁶

Since Orton, there has been no shortage of theories concerning the origin of dyslexia. Some people believe that inadequate teaching methods cause dyslexia. Impaired memory has also been blamed, as has abnormal eye shape or movement. Others believe that dyslexia stems from psychological disturbances. While psychological stress often accompanies dyslexia, it is unclear whether it is a cause of dyslexia or its effect.⁵

British neuroscientist Macdonald Critchley and his wife Eileen believe that dyslexia results from "maturational lag." This means that in dyslexics the parts of the brain concerned with language skills mature at a slower rate than normal. No other abilities or

capacities seem to be affected. The Critchleys emphasize that this is not the same as congenital brain damage: "No crude structural lesion of the brain is visualized, and it is likely that if a pathologist were to make an autopsy he would not be able to detect any physical abnormality on either naked-eye or microscopical examination of the brain. In other words, the fault is one of function and not of structure."⁷ (p. 142-3)

According to the Critchleys, this does not rule out a physical cause for maturational lag. They suggest that intracerebral nerve cells concerned with reading ability are slow to myelinate, that is, to become invested with insulating sheaths of a fat-like substance called myelin. Generally, the parts of the brain which myelinate last are those involved in the higher functions of the nervous system. The Critchleys offer another suggestion. While full myelination has occurred, the cells themselves might be underdeveloped.

The Critchleys cite another possible key to dyslexia. Perhaps there is an excess or dearth of as-yet-undiscovered neurotransmitters that are involved in reading skills. If this is so, someday dyslexia may be treated through drugs.

There is also evidence that dyslexia is genetically determined. It has been reported that dyslexia runs in families.⁷ And for every dyslexic girl there are four or five dyslexic boys.

None of these theories has been fully accepted by all experts on dyslexia. One reason is that different researchers use different criteria to establish a diagnosis. Perhaps there are several different types of dyslexia. Each may have different causes and respond to different treatments. This lack of a uniform concept makes it difficult to count the number of dyslexics. A National Institutes of Health publication places the figure for American children at 1,200,000.⁵

The widespread disagreement and uncertainties about dyslexia lead some researchers to question whether it even

exists. However, they do not deny that a widespread reading problem, which is not yet fully understood, exists. But some educators don't believe a serious disorder is involved. The Critchleys quote a headmaster who asserts that dyslexia is a euphemism for laziness.⁷ (p. 1) Many teachers simply label dyslexics as mentally retarded, slow, stupid, or stubborn. This attitude is often picked up by the children's peers.

Is there a cure for dyslexia? Some dyslexics can achieve adequate, or more than adequate, reading and writing skills. The success rate may depend largely upon early recognition. Since there is no universally agreed upon set of symptoms, this is not always easy. Many children have reading and writing problems. But dyslexia is usually diagnosed by a process of elimination. Suspected dyslexics often turn out to have correctible sight and hearing problems. Others prove to be hyperactive, brain damaged, or mentally retarded.

The Critchleys claim that dyslexic children may be identified even before they reach reading and writing age. Pre-school dyslexic children may be confused over concepts like up and down, right and left, inside and outside. They may look at picture books upside down. When drawing a man, they may draw the feet first, then the legs, then the torso, then the arms, and lastly the head. Such confused spatial orientation may be an indicator of dyslexia. A family history of dyslexia may also be a useful warning sign.

Remedial reading programs can be an effective treatment for dyslexia. The first remedial program was developed in the 1930s,⁸ and today there are about five distinct types.⁹ No single method works for all dyslexics, and each program is, ideally, tailored to the needs of the individual. All of them take significantly different approaches to the teaching of reading than those used for normal children.

Scientists don't fully understand how we learn to read. It's a complex process

that involves many separate skills. The various remedial reading programs break down the learning process into the component skills that non-dyslexics master with relative ease.⁵

The remedial process is slow and difficult. The learning of letters, syllables, and words is reinforced through the appearance and sound of the appropriate symbols. Touch association is sometimes used. For example, remedial teachers will let the letter *A* stand for *apple* and have students hold an apple in their hands while the letter is being memorized. In some remedial texts color is used to emphasize different parts of speech. And a variety of methods for teaching vocabulary are used.¹⁰

Some experts are more optimistic than others about the value of remedial reading for dyslexics. And the programs are still being refined. But in some cases they can be surprisingly effective. One follow-up study of 56 dyslexics showed that, after remedial reading, 48 went on to earn university degrees.¹¹

US Public Law 91-230,¹² enacted in 1970, guarantees remedial reading programs for dyslexics. Unfortunately, most countries do not have screening programs to guarantee that dyslexic children will be identified. One exception is Czechoslovakia, which has a national screening program to identify dyslexics.¹¹ In the US and elsewhere the lack of screening programs leaves many people undiagnosed. The cost to society is significant. Like other illiterates, dyslexics have a high unemployment rate.¹³

There is also an emotional toll. Many dyslexics are highly intelligent. Intelligent children who can't read, while their peers can, obviously experience psychological problems. Eileen Simpson,¹⁰ in her book *Reversals*, tells of the scorn heaped on her by unsympathetic teachers who believed she was stupid or lazy. But she learned to read well enough to get through high school, a remarkable accomplishment without the help of remedial training. In fact,

she read books like James Joyce's *Ulysses* before, at the age of 22, she was diagnosed as dyslexic. Simpson has since earned a PhD in psychology at Rutgers University.

Her experience confirms that dyslexics can learn to read and excel in various walks of life. Psychiatrist Lloyd Thompson suggests that some eminent people, such as Leonardo da Vinci, Thomas Edison, and bacteriologist Paul Ehrlich, may have been dyslexic.¹⁴ He also suggests that Einstein may have been dyslexic, though Einstein's biographer, Ronald W. Clark, disagrees.¹⁵ (p. 10) Woodrow Wilson was probably dyslexic.¹⁰ (p. 237) Nelson Rockefeller spoke openly about his own dyslexia.¹⁶ I am sure he was gratified that the Rockefeller Foundation funded some of Orton's early studies.¹⁷ Also, some noted writers may have been dyslexic. Among them are W.B. Yeats, Gustave Flaubert, and Hans Christian Andersen.¹⁰ (p. 237-9)

Some dyslexics do overcome their handicap without help. But this is no justification for not attempting remedial education. "One way or another," Simpson writes, "intelligent dyslexics do learn to read—inefficiently, painfully, slowly. What proper teaching spares those who receive it is the inefficiency, a good deal of the pain, and the terrible waste of years."¹⁰ (p. 208-9)

Although PL 91-230 has been in effect since 1970 it falls far short of a national treatment program for dyslexics. The training of people with reading problems is expected to be handled at the local level. The International Reading Association (P.O. Box 8139, 800 Barksdale Road, Newark, Delaware 19711) is one source of information for parents whose children may need remedial reading programs. This 70,000-member nonprofit group has 960 local branches. Founded in 1956, it also encourages teachers to study reading problems and promotes research in remedial reading.

Another national nonprofit group that has been offering aid to dyslexics

since 1949, the Orton Society (8415 Bellona Lane, Towson, Maryland 21204), has 20 branches throughout the US. It also organizes conferences, and stimulates discussion of dyslexia through its newsletter, *Perspectives on Dyslexia*, and a journal, *Bulletin of the Orton Society*. In 1974, the Orton Society and the Mayo Clinic, Rochester, Minnesota, sponsored a world congress on dyslexia.¹⁸

The society was founded in 1949 by Samuel Orton's widow, June. Though it bears the scientist's name, it is not committed to Orton's theories on dyslexia, and recognizes that all theories are incomplete. Its aim is to inform educators, parents, and scientists about dyslexia. The society is also encouraging dyslexics to will their brains for research. The society's president is Drake D. Duane of the Mayo Clinic.

David Pearl, chief of the National Institute for Mental Health (NIMH), Behavioral Science Research Branch, says the NIMH is supporting research on dyslexia. This includes research aimed at early detection.¹⁹ James Kavanagh, a scientific administrator at the National Institute for Child Health & Human Development (NICHD), said some NICHD-supported scientists are looking into the causes of dyslexia.²⁰ Some are developing tests to shed light on the processes involved in acquiring reading skills. How do we learn to read in the first place? Answers to that question will help us to better understand dyslexia.

There have been few studies on the incidence of dyslexia in China or Japan; what research has been done reports much less dyslexia than in the US. This may be because there is a low level of awareness about dyslexia in these countries or because dyslexia occurs less often there.⁷ Very little is known about the relationship between language and dyslexia. Pearl says some NIMH-supported research is trying to find out if the ideographic nature of Chinese and Japanese affects the incidence of dyslex-

ia. In light of this, it's interesting to consider a 1971 study of a small group of American children who had trouble reading English. Three psychologists at the University of Pennsylvania concluded, "American children with reading problems can easily learn to read English represented by Chinese characters."²¹

Some NICHD-funded scientists are also trying to determine how the type of alphabet affects reading ability. Kavanagh explains that in eastern Yugoslavia children learn the Cyrillic alphabet first, the Roman second. In western Yugoslavia it is the other way around. The researchers hope to examine how this affects children's ability to read and write Serbo-Croatian.

The vast amount of basic brain research conducted worldwide may eventually lead to a better understanding of dyslexia. In the meantime applied research must continue to improve methods for identifying and treating dyslexics. And educators must be trained to be alert to the possibility of dyslexia so that diagnostic and remedial programs can be implemented.

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