

Autism: A World Apart

New evidence is emerging on the causes and detection of childhood autism, but the origins of the disorder remain an intriguing mystery

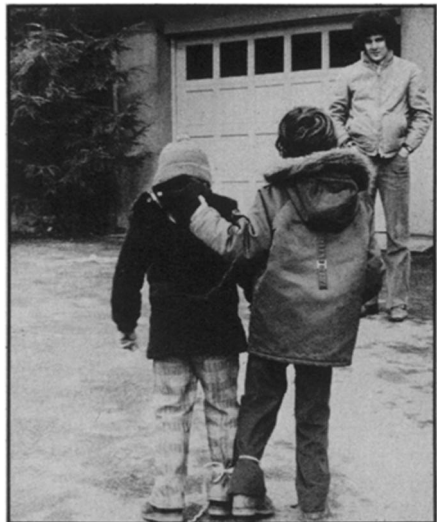
BY BRUCE BOWER

The condition may be noticeable from day one. The newborn child is physically normal, but his attention fades in and out. He is uncomfortable when held. He may cry almost nonstop, or he may seem unusually quiet. At one year of age his main diversion may be looking at his fingers or banging his head against the crib — for hours. Even to his mother, the infant may respond no more warmly than to a piece of string or to a small toy.

These are some of the early symptoms of what has come to be known, amidst a wide spectrum of theories and research approaches, as childhood autism. It is a rare disorder, afflicting about 5 out of 10,000 children, and is four times more common in boys than girls. It is also a confusing disorder, because its symptoms often resemble other ailments, such as childhood schizophrenia, mental retardation and phenylketonuria (SN: 1/19/80, p. 43). But it is certainly not new, having been described by physicians as far back as 1809.

Research to be published in the *JOURNAL OF THE AMERICAN ACADEMY OF CHILD PSYCHIATRY* suggests that a new diagnostic tool may be available to help identify types of autism. Donald J. Cohen and his colleagues of the Yale University School of Medicine performed computed tomographic (CT) brain scans on a group of autistic children and found left hemisphere deficiencies among those children with neurological and central nervous system defects. Children without such problems had normal results on the scans. Treatment can now be more effectively planned for the two groups.

CT scans may provide a valuable look at the brain functions of autistic children, but the disorder remains stubbornly resistant to efforts aimed at revealing its causes. In the 1950s and 1960s most investigators believed that autism was primarily a social withdrawal by the child, a retreat from parental rejection and emotional iciness into what psychoanalyst Bruno Bettelheim termed an "empty fortress." But it was difficult to demonstrate that autistic children experienced such extreme conditions, and researchers began to question assumptions of a primarily psychological cause in the late 1960s. At that time research in the field was still analogous to the story of the blind men and the elephant: Each blind man felt a different part of the animal and each conveyed the picture of a different creature to his comrades. Likewise, researchers with different perspectives on autism were not reaching a consensus as to what "animal" they were studying. Was it nature or nurture, biological predisposition or parental behavior that was creating such severe prob-



Extreme but nonpainful measures can help to develop awareness of others.

lems for a small number of unfortunate children?

Theories still vary, but researchers now generally agree that autism is caused by biological and inborn factors. No one has solid proof for this, but it is clear that scientists are describing a different elephant than had been imagined. "Today ... parents of autistic children are considered to be like the parents of other handicapped children whose care poses inhuman burdens," says Cohen. "Parents are usually unhappy, worried, angry, discouraged and exhausted. But they are not, as a group, unconcerned or unloving."

Experimental results obtained by Susan Folstein and Michael Rutter of the Institute of Psychiatry in London suggest that an inherited cognitive abnormality can cause some autistic cases, that brain damage at birth can cause others and that both factors may work together to trigger the disease (SN: 3/12/77, p. 167). The effect of heredity on autism is uncertain, but the two percent rate of autism in siblings is 50 times that of the general population. This correlation provides ammunition for theories of an inherited defect, but more research is required. It is also true that wealth and divorce run in families.

The genetic baton is now held by psychiatrist Edward R. Ritvo of the University of California at Los Angeles. He recently founded the UCLA Registry for Genetic Studies of Autism, which is involved in an international investigation of the multiple

occurrence of autism in families. So far, more than 200 families have been located, and Ritvo is in the process of verifying the multiple incidence. The National Society for Autistic Children in Washington is helping him find the families. One of Ritvo's main hypotheses is that autistic children may inherit a lack of resistance to a virus that contributes to brain damage before or after birth and causes neurological problems. "We've had an unprecedented response from families so far," says Ritvo. "It seems likely that genetic factors work in conjunction with others, such as biochemical problems, to cause autism."

While Ritvo sees autism as an inherited disease of the brain, Mary Coleman of the Children's Brain Research Clinic in Washington calls it not a disease but a set of three syndromes. "Classical autism" occurs by early infancy and there are no apparent neurological or electroencephalographic problems, "childhood schizophrenia with autistic symptoms" occurs after 30 months of age and additional psychiatric symptoms are present and "mental retardation with autistic symptoms" occurs when there is evidence of organic brain disease and neurological and EEG abnormalities. In a 1976 study of 78 autistics and 78 matched controls, Coleman found that 48 percent of the autistics had biochemical problems: Either there was an error in purine metabolism, an error in calcium metabolism or a decreased level of the neurotransmitter serotonin.

Genetic and biochemical findings have accumulated and slowly evolved, but other research has stimulated far more controversy. Bernard Rimland of the Institute for Child Behavior Research in San Diego has reported significant improvement in 11 of 16 "autistic-type" youngsters after giving them massive doses of vitamin B6 daily (SN: 5/13/78, p. 308). B6 apparently increases serotonin levels, but Coleman says her findings indicate that only 5 percent of autistics have depleted serotonin supplies. Other researchers also tend to minimize the potential of megavitamin therapy. Rimland remains unfazed and continues his investigations. The most important research breakthrough, he says, will be deciphering the relationship between allergies, especially food allergies, and brain functioning. Megavitamin therapy may counteract allergic reactions in some autistic children.

While most investigators concentrate on genetic and biological studies of autistic children themselves, Alan J. Ward, director of the Henry Horner Children's Center in Chicago, is looking at the effects of pregnant women's anxiety and family problems on the development of autism in

Treatment Comes Home

The causes of autism remain in question and no cures are in sight. Early psychological theories stressed parental effects and led to "parentectomy" therapy, typified by Bettelheim's approach of separating the child from its parents and substituting warm, accepting parent surrogates. The strength of biological evidence has steered modern treatment back toward parents.

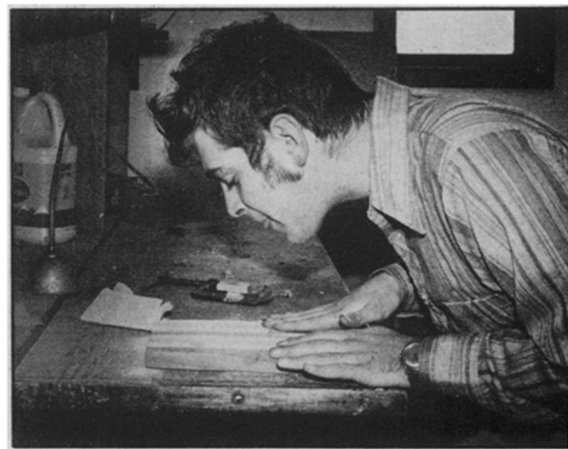
A good example is Division TEACCH, a statewide outpatient program in North Carolina run by Eric Schopler and his colleagues at the University of North Carolina at Chapel Hill. The program pulls together elements of developmental assessment, problem-oriented goal setting, behavior modification, consumer advocacy and community support. Parents can participate both in the clinical setting and in special educational classrooms set up in conjunction with local school systems. Treatment hinges on the "home-teaching program," a list of activities and techniques based on a developmental assessment of the child. Parents learn the home program through demonstration and coaching by Division TEACCH trainers. They are also counseled on behavior management techniques. Close to 500 families with autistic children have entered the program since its inception in 1966 and research suggests that the prognosis for children whose IQ is above 50 is much better than for those with lower IQs. Schopler estimates that about one-half of the children seen in the program have had IQs of at least 50.



An autistic child at Benhaven is taught sign language for the word "good."

At the Benhaven School in New Haven, Conn., autistic children are taught sign language as a means of fostering language use. "Our best tools are special education and behavior modification," says school director Amy Lettick. The Benhaven brochure states: "We teach, we don't treat." Psychoactive drugs are used in some cases, but dosage and reactions are carefully monitored. Long-term drug use can cause side effects such as lethargy, unusual movements and weight gain. Benhaven has both day and residential programs. Construction was recently completed on a V-shaped house with special accommodations for 10 children and five teachers. Youngsters learn to perform daily activities in large teaching rooms, kitchens, bathrooms and laundry facilities. Picture windows are omitted and rooms are clearly separated to minimize visual distractions. Parents and siblings are offered counseling and training in reinforcement techniques. Vocational training is available to older children and to young adults at a farm owned by Benhaven.

Treatment programs for this life-long disorder are not inexpensive. Enrollment in Benhaven's day program for one year costs \$16,500, and the yearly cost of the residential program is \$34,000. "What happens if we say it's not worth the expense?" says Lettick. "The kids will go to a state institution where it costs \$42,000 a year. This program is a saving."



Vocational training includes woodworking.

their children. He has found a significantly higher degree of experienced anxiety in mothers of autistic youngsters as opposed to mothers of a control group of children (SN: 12/3/77, p. 374). Ward is now involved in a project to expand basic prenatal care to Chicago-area mothers and "red-tag" potential problems during pregnancy. "The mother's problems before birth can result in a more vulnerable child ... one with neurological or developmental handicaps—a child who never really starts to grow," says Ward.

As researchers trace the boundaries of autism's causes, the fact remains that the parents of a 3- or 4-year-old autistic child may go from physician to physician in search of a diagnosis and find that the child is given such labels as severe mental retardation, schizophrenia, aphasia, atypical personality development, learning disability or severe emotional disturbance. Each of these diagnoses illuminates one particular facet of the child's problems. "The universal symptom of autism," says Cohen, "is the inability to relate to people and social situations in a normal way." These children have little or no expressive language and may engage in bizarre verbal behavior, such as echolalia, the mechanical repetition of words and phrases. Sensory input is difficult for them to integrate and understand. Their behavior is ritualistic, showing no emotional connection to parents or other children. Yet some of these children have what are known as idiot savant capabilities and are able to perform complex musical, intellectual or artistic feats, even if they have a subnormal IQ (SN: 4/16/77, p. 248). These capacities are related to functions of the brain's right hemisphere and some investigators suggest a possible left hemisphere deficiency in autistics. This theory is strengthened by the new CT scan findings at Yale that show just such deficiencies in some autistic children.

Although optimistic about the future of their efforts, researchers don't expect the sea to part and provide a shortcut to better understanding. "There are very few academic researchers in autism," says Cohen. "It's a wild field." □