

MEDICINE

Menace of Mental Retardation

Medical science gradually is pushing back the threat of mental subnormality. Findings from all over the world are adding up to a hopeful picture, Gloria Ball reports.

► EACH YEAR in the United States some 120,000 babies are born who are so mentally retarded that each is a family tragedy. That these children are a personal and social problem is reflected in the modest estimate that 5,000,000 persons, three percent of the United States population, are mentally subnormal.

Known causes of retardation may exert their influence before, during or after birth. The heartbreaking truth is that once the damage is done, no drug or operation will cure the malady.

Some primitive societies have avoided the problem by not allowing unfortunate victims of birth accidents to continue to live. But civilization takes care of its defectives. Because there is no cure, the real hope lies in prevention.

Far from being indifferent to the problem, the medical profession has stepped up its efforts tremendously in the last ten years. The U. S. Department of Health, Education and Welfare alone is spending more than \$10,000,000 this year for research, rehabilitation, teacher training and parent counseling in mental retardation.

One of the biggest projects now in progress is the collaborative study sponsored by the National Institute of Neurological Diseases and Blindness, Bethesda, Md. During a five-year period 15 research centers will gather information on the pregnancies of 40,000 women and follow the children for at least six years.

With additional data on the social, economic, emotional, medical and genetic backgrounds of both parents, researchers hope to establish the significance of harmful factors and correlate them with resulting defects in the child.

Among conditions definitely associated with mental subnormality are those active in the prenatal period—metabolic disorders, Mongolism, radiation, fetal disease of the central nervous system, maternal diet deficiencies, and maternal infections with German measles, syphilis and toxoplasma; those related to delivery—prematurity, birth injury and asphyxia; and those that occur after birth—metal poisonings, head injuries, and lesions and infections such as encephalitis and meningitis.

Findings by two independent research groups suggest that viruses and cancer may be linked in some way with Mongolism, a mental-physical defect that occurs once every 600 to 700 births and becomes more probable as maternal age increases.

A U.S. team headed by Dr. Helene Toolan of the Sloan-Kettering Institute for Cancer Research, New York City, discovered that hamsters injected with cell-free filtrates of cancer cells developed Mongolism-like characters. An Australian group working

on a 16-year health survey found that Mongoloid births came in "clusters" and suggested that a virus or combination of viruses was responsible. The action of such a viral infection, they believe, might be to damage the maternal chromosomes during sex-cell division. This suggestion becomes more significant when linked with the 1959 French find that Mongoloid children have an extra chromosome.

There is hope that mental damage due to German measles can be conquered by wiping out the disease itself. Although there is no proof of effectiveness to date, a measles vaccine developed by Dr. John F. Enders of Harvard University is now in the mass-testing stage in Nigeria.

So great is the present threat that when mothers have German measles in the first month of pregnancy, 96% of their babies are born with mental defects.

In the field of metabolic defects, advances have made it possible to prevent the brain damage that results from phenylketonuria.

One or two persons in every 50,000 are

born with this metabolic disorder. They do not have a particular liver enzyme and, without it, the body cannot properly metabolize an amino acid, phenylalanine, found in protein. If unchecked, an intermediate metabolism product piles up in the brain and results in damage and retardation.

However, a telltale substance excreted in the urine can be detected by a simple test and if the infant phenylketonuric is put on a special diet before he begins eating protein, no extensive brain damage occurs. In Cincinnati, all newborns go home with a gauze pad inserted in the diaper. Later, the pad is returned to the laboratory where it is assayed for the presence of the substance that indicates phenylketonuria.

Among the unsolved mysteries associated with retardation is prematurity. In some cases prematurity is probably the result rather than the cause of the infant's defect, but prematurity itself does carry the risk of retardation.

Studies in England showed the chance of premature birth and other pregnancy complications is increased when the mother is very young. One expert believes age may not be the main factor, but that early marriage and early childbearing are characteristics of persons in lower socio-economic



NORMAL OR MENTALLY DEFICIENT?—Miss Mary Draffen, clinical psychologist at Gales Health Center, Washington, D. C., observes a child's facility for making pictures from mosaic pieces. A normal six-year-old can choose appropriate shapes and arrange them to resemble a familiar object.

groups who also have a poorer level of health and hygiene.

A second problem plaguing researchers is that there seems to be little correlation between detectable degrees of brain abnormality and the degree of retardation. Grossly deformed brains may carry little or no retardation, while those with no apparent malformation may belong to severely retarded persons. Pinpointing definite amounts of biochemical change holds much promise in this area.

Whatever the cause, and regardless of the advances in prevention, there are 5,000,000 persons in the U.S. who are already irreversibly retarded. About 150,000 of them are being cared for in institutions across the country.

Fortunately, most of the mentally deficient (85%) have I.Q.'s between 50 and 75 and can eventually advance to the mental age of eight to 12 years. They develop mentally and scholastically from one-half to three-fourths as fast as an average child. Although their vocabularies are

always limited, they learn to read and do simple arithmetic, and by age 16 can handle second to fourth grade material. By learning to do unskilled or semi-skilled work, these "educable" children can usually support themselves.

The "trainable" group, with I.Q.'s between 20 and 49, comprise about half the population in institutions for the mentally subnormal. Limited to a mental age of three to seven years, these persons can learn to care for themselves, adjust to the society of family and neighborhood, and can help with simple tasks in a sheltered, supervised environment. Generally, academic pursuits are beyond their reach.

For the 3.5% of the mentally retarded who are totally dependent, life is a perpetual infant world that will never grow beyond the two-year-old level. So great are the needs of this group that three out of ten are placed under institutional care. For them, the need for a cure to be found is particularly urgent.

• Science News Letter, 78:298 November 5, 1960

PUBLIC SAFETY

Toxic Agents Curbed

► THE FOOD and Drug Administration is getting letters from different parts of the United States concerning dangerous ingredients of model airplane cement.

A typical case is that of a 13-year-old boy recently arrested in El Paso, Texas, who was "high" from sniffing a cloth soaked in model airplane "glue."

The FDA expects that the new Federal Hazardous Substances Labeling Act, passed by Congress this year, will be a help in protecting innocent youngsters from the dangers of inhaling solvents that could cause kidney, liver or blood damage. The Act provides that court action to enforce the law will begin in February, 1961.

Any effective solvent for plastics is likely to have a depressive effect on the central nervous system. Therefore, parents are warned to tell their children not to inhale fumes from cements used in making model planes.

One of the solvents used is Methyl Cellosolve (ethylene glycol monomethyl ether) which is rated as poisonous.

Gasoline or benzene were formerly used as solvents for these cements, but even these older solvents were hazardous. Not only can gasoline cause intoxication, as youngsters have discovered from uncapping and sniffing the gasoline tanks of parked cars, but there is an explosion and fire hazard.

When FDA starts to administer the new labeling law, the following information must be put on the labels of hazardous products:

1. Name and place of business of the manufacturer, packer or seller.

2. The common or usual name of each component that is toxic.

3. The signal word "Danger" must appear on substances extremely flammable, corrosive or highly toxic as defined in the Labeling Act.

4. The signal words "Warning" or "Caution" on all other hazardous substances.

5. An affirmative statement of the hazard, such as "flammable," "vapor harmful," "causes burns," "absorbed through the skin," or similar wording that describes the hazard.

6. Instruction when appropriate or necessary for first aid.

7. The word "Poison" if the substance is highly toxic.

8. Instruction for handling or storage of packages which require special care.

9. "Keep out of reach of children" or the practical equivalent of this statement.

10. All must be in English and prominent on the label, made conspicuous by typography, layout and color.

Hazardous substances which do not meet the labeling requirements are deemed misbranded under law and may not be shipped in interstate commerce.

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Do You Know

Blue tongue, a serious virus disease of sheep, is a warm weather disease carried from sheep to sheep by flying insects.

The Navajo is the largest of the remaining American Indian tribes.

Diseases of the thyroid gland are more common than those of any other endocrine gland.

In 1959, American dairymen were sixth in milk production per cow; cows in the Netherlands, Denmark, Belgium, West Germany and the United Kingdom produced more.

About two persons in every hundred over 40 years of age in the U. S. have glaucoma.

The best fertilizers for fall lawn care are those that contain a high percentage of nitrate nitrogen.

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