

GENETICS

Abnormal Chromosomes

► **ABNORMAL CHROMOSOMES** have been found in a brother and sister with cerebral palsy.

This indicates that, in some cases at least, cerebral palsy, like another defect which affects the brain and mind, Mongolism, is hereditary. Both may be due to a mistake in chromosome duplication that takes place in the germ cells of the parents before the child is conceived.

The two children studied had not only an unusual spastic-aspartic type of cerebral palsy, but congenital cataract as well.

Dr. J. Blumel of the University of Texas Medical Branch and the Moody State School for Cerebral Palsied Children, Galveston, and Drs. Y. Ohnuki and A. Awa of Hokkaido University, Sapporo, Japan, were working at the Moody State School when they first encountered the case. At first they believed that the defects in the brother and sister were due to a rare, recessive, autosomal (not sex-linked) type of inheritance.

Studies of the chromosome arrangement showed, however, that in each child, one of the chromosomes was misshapen and seemed to have no corresponding duplicate.

The chromosome number was the usual 46. The scientists finally found that the abnormal chromosome was the X sex chromosome. It did have a mate, but the mate was normal.

Both parents were normal. But the fact that the X sex chromosome was abnormal in both the boy and the girl led the investigators to propose this theory in explanation in *Nature*, 189:154, 1961:

Before the mother herself was born, that part of the body which would become the cells she would pass on to her children underwent a change. The chromosomes in the vital egg cells changed and the pattern was set for the misshapen X chromosome, later inherited by her son and daughter.

The daughter, with an abnormal X from the mother and normal X from the father, is somewhat less afflicted than the son, who has the abnormal X from the mother and a normal Y chromosome from the father. The normal X is believed to cut down on the damaging effects produced by the abnormal one, and the boy lacks the modifying X. (Females have two X chromosomes, males have an X and a Y chromosome.)

• *Science News Letter*, 79:50 January 28, 1961

MEDICINE

Arthritics in Room Test

► **TWO FEMALE ARTHRITIS** patients who are sensitive to weather are spending four weeks in an airtight controlled climate chamber. This is the first time that the effects of all phases of climate can be controlled and studied separately.

Mrs. Reba McIlwraith of Havertown, Pa., and Ethel Tankel of Trenton, N. J., are the arthritic volunteers. They have been patients at the Hospital of the University of Pennsylvania, from which all future participants in the program also will be selected.

Dr. Joseph Hollander of the University of Pennsylvania School of Medicine, director of the controlled climate chamber program, said many unrelated observations of medical value aside from arthritis research can be carried out on the same patients.

The chamber where the patients are staying is decorated as an ordinary "studio twin" room with mirrors and a mural wall

to avoid a shut-in or claustrophobic feeling.

Controlled variables for possible study include: air temperature from 65 to 110 degrees Fahrenheit; humidity from 40% to 80% at 65 degrees to as low as 10% at 110 degrees; barometric pressure control from 28 inches of mercury to 31 inches of mercury absolute; and ionization to a maximum concentration of 2,500 ions per cubic centimeter positive or negative.

All dust particles are removed from incoming air down to less than 0.2 micra. Odors and gases will be removed by activated charcoal filters.

The patients are keeping diaries and are being measured by repeated tests showing extent of joint involvement, amount of pain-killing drug required for daily relief, blood sedimentation rate, temperature inside the most actively involved arthritic joint, etc.

• *Science News Letter*, 79:50 January 28, 1961

MEDICINE

Sudden Deaths in Infants

► **SMOTHERING IN BEDCLOTHES**, long blamed as a cause of sudden death in infants, is often a fallacy and viral infection instead may be the cause of death.

Among 50 infants autopsied in Cleveland, Ohio, viral agents were detected in 12, seven isolated from central-nervous-system tissues and five from stool or pharynx.

Sudden unexpected deaths of infants under two years of age is a great public health

problem, five doctors report in *The New England Journal of Medicine*, 264:53, 1961. The doctors are Drs. Eli Gold, Hannelore Heineberg, Lester Adelson and Frederick C. Robbins, all of Western Reserve University School of Medicine, Cleveland, and Dr. David H. Carver of the U. S. Public Health Service Communicable Disease Center, Atlanta, Ga.

Previous studies have indicated that from

25% to 44% of all infants dying in the early period after birth but before the age of two years do so suddenly and unexpectedly without post-mortem findings that are adequate to account for death.

Other suggestions of causes of death have included cardiac arrest and spasms of the larynx or bronchus, perhaps set off by a mild inflammation of the respiratory tract.

The investigators believe that considerable multiplication of virus within the body during the incubation period could account for death in a peculiarly susceptible host before any recognizable infection could appear.

They point out the need for further study to prove the relationship between viral infection and sudden death in infants.

• *Science News Letter*, 79:50 January 28, 1961

MEDICINE

Duodenal Ulcers Likely In Group O Blood Types

► **PERSONS** having group O blood type have a better chance of getting a duodenal ulcer (in the first part of the small intestine) than do those with group A blood.

Group O blood persons run less risk of getting gastric, or stomach, ulcers, however, and group A persons are more likely to get this kind of ulcer.

Studies of 1,080 peptic ulcer patients who had operations performed by Dr. Ernest W. Grahame of General Hospital, Middlesbrough, Yorkshire, England, showed these differences between persons of blood groups O and A. The studies are reported in the *British Medical Journal*, Jan. 14.

"The results support the view that duodenal and gastric ulcers are different diseases except when the two are combined in the same patient," Dr. Grahame says. "In these circumstances the mechanism may follow the duodenal type."

Dr. Grahame cautions that he is not suggesting that all group O patients are likely to have duodenal ulcers or that group A patients are protected. In that event, he says, one would expect far greater numbers of peptic ulcer patients than "even the most alarming of figures" might indicate.

• *Science News Letter*, 79:50 January 28, 1961

GENERAL SCIENCE

U. S. Average Scientist \$9,000 Man in 1960

► **THE AVERAGE** U. S. scientist is a \$9,000 a year man.

Data for 1960 gathered by the National Science Foundation show that half of 110,000 scientists responding to a questionnaire earned more than \$9,000 and half earned less.

Comparable statistics for 1959 showed, in addition to salary, \$1,000 more, probably from consulting fees, royalties and other income.

The median age of this full-time employed group was 38 years. The work reported was 38% in research, development and design, 27% in management and administration, and 15% in teaching.

• *Science News Letter*, 79:50 January 28, 1961