PUBLIC HEALTH

Education for Epileptics

Epilepsy education bills now pending in Congress will provide funds for the much-needed improvement of inadequate facilities, now prevalent in schools, for students with epilepsy.

➤ IF NAPOLEON had lived in West Virginia today he could never have married Josephine.

If he had lived in Virginia he would have had to wait till Josephine was 45. In Nebraska he probably would have had to submit to sterilization if he married. This is because the great general, like many famous persons in history, had epilepsy.

Four states have anti-marriage laws that apply to epileptics, and 14 states have sterilization laws that affect them.

Making United States laws fair to persons with epilepsy was investigated in Washington, D. C., by a panel including Sen. Eugene J. McCarthy (D-Minn.), Dr. A. B. Baker of the University of Minnesota, Rep. Harold M. Ryan (D-Mich.) and David Carliner, president of the local chapter of the American Civil Liberties Union sponsored by the Epilepsy Foundation.

Sen. McCarthy and Rep. Ryan have pending epilepsy student education bills that would provide for appropriating five million dollars annually for three years beginning with the fiscal year ending in 1964.

The money would be used to investigate improved methods for educating students with epilepsy in public and private schools and institutions of higher learning.

Grants would be made by the Secretary of Health, Education and Welfare to any state, local or other public or nonprofit agency, organization or institution.

Matching funds would not be required.

The attitude of schoolteachers and parents was scored by the panel, which pointed out that children would accept an occasional seizure in class by a pupil with epilepsy, but neither parents nor teachers cooperate in such acceptance.

Seventy percent of the estimated two million epilepsy patients in this country can be almost wholly controlled. Dilantin, or diphenylhydantoin, was the first of about 25 new drugs effective under medical supervision in controlling seizures in patients who were not much helped by previous medicines.

Despite this, Dr. Baker said, it is almost impossible to convince a schoolteacher that a pupil is really "controlled" even if the family doctor says so.

Epilepsy is not a disease but a symptom, Dr. Baker emphasized. The symptom is of brain irritation—a scar in the brain caused by infection or injury, which manifests itself in a seizure.

Surgery may be successful in patients who do not respond to drugs but it causes another scar, the neurologist said. There are many kinds of epilepsy, 30% of which do not respond to medication.

Sen. McCarthy and Mr. Carliner said the immigration laws were unfair in keeping out a whole family because one child had epilepsy.

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GENETICS

Chromosome Variations

➤ THE NORMAL NUMBER of chromosomes in each human cell is 46, but it can vary in different cells.

The number of these thread-like structures that bear the genes, or carriers of heredity, may drop to 45 or increase to 47 or 48 in the same normal person, Dr. D. G. Harnden of the Medical Research Council, Edinburgh, Scotland, told the International Conference on Congenital Malformations in New York.

Chromosome abnormalities account for many birth defects, Dr. Harnden emphasized, and it can be inaccurate and misleading to study the chromosomes taken from only a few cells.

It is necessary to study 30, 50 or 100 cells, the Scottish scientist said, and these should be taken from different parts of the body.

Among others from the nine countries attending the conference was Dr. Mary L. Lyon, of the Medical Research Council Radiobiological Unit, Harwell, England, who originated the theory that woman is a genetic "mosaic."

This genetic structure means that half the living cells throughout the body of every woman are different from the other half in terms of the hereditary materials that control body chemistry.

Dr. Lyon's theory is that only one of the two so-called X chromosomes in any given normal female cell is active and functional. The other is inert. In roughly half the cells in a woman's body, it is the X chromosome inherited originally from her father that is active, while the active X in the other cells is the maternal X.

Since different genes controlling different characteristics and body functions are carried on the X chromosomes, this means that a woman's active inheritance is not the same from cell to cell. No such mosaic pattern holds for males.

Relating the Lyon theory to chromosome abnormalities and birth defects, Dr. Barr reported on a study of girl babies with an extra X chromosome who had only mild symptoms of disease, including mental retardation.

If the Lyon theory is correct, Dr. Murray L. Barr of the University of Western Ontario, Canada, said, it solves many scientific mysteries while creating new ones. But it may "prove to have genetic and biological implications far beyond the expected," he concluded.

About 1,000 scientists and physicians attended the five-day meeting, sponsored by the National Foundation-March of Dimes.

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Merck Sharp and Dohme

DUAL SYRINGE—This dual-chambered syringe is used for injecting a four-way vaccine against polio, whooping cough, diphtheria and tetanus. The two chambers separate the polio vaccine from the others.

MEDICINE

Dual-Chambered Syringe Allows Dual Vaccinations

➤ A DUAL-CHAMBERED syringe will soon allow effective vaccinations for a variety of diseases to be made at the same time.

Developed by Merck Sharp and Dohme, West Point, Pa., the syringe keeps vaccines in two separate chambers. As the needle tip is broken and the plunger depressed, the vaccines are mixed together just before entering the body.

The syringe originated as a means of injecting a four-in-one vaccine known as Tetravax. The quadruple antigens combat polio, diphtheria, whooping cough and tetanus. Tetravax, which was recently patented, was taken off the market last year when it was discovered the whooping cough antigen nullified the polio one after a period of four months.

The vaccine has since returned to the market as Purivax-Trinavac and is administered by the dual-chambered syringe. The syringe keeps the polio vaccine in a separate chamber in the front while the other three antigens are in the second chamber.

The antigens are not mixed until the last moment, preventing any recurrent ineffectiveness.

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