

GENETICS

Gene Patterns Studied

A YOUNG GIRL with the sex chromosomes of a male—XY—is the current example in the complicated picture of man's genetic make-up.

Although it is now firmly established that the normal chromosome number in man is 46, not 48, with 44 autosomes or "body" chromosomes and two sex chromosomes, the human "between-sexes" make it difficult to decide just what chromosomes determine maleness or femaleness.

As a result of their examination of an XY female, Dr. D. G. Harnden of the Radiobiological Research Unit, Harwell, England, and J. S. S. Stewart of the University of St. Andrews, conclude that mere possession of a Y chromosome is not in itself enough to ensure the development of male "looks." (Classically, the female human is XX while the male is XY.)

A 19-year-old girl was treated with estrogen for failure to menstruate with the beginning of puberty. Analysis of her

chromosomes showed she has the sex chromosomes of a normal male, the researchers report in the *British Medical Journal* (Dec. 12).

Even though the Y chromosome is present, they point out, there is extensive development of female characteristics. Possibly the individual's gonads or sex glands failed to develop at a very early stage of embryonic life. If this were true, a female-looking person would result although genetically she is male. In support of this theory, the British researchers note that when rabbits, either female or male, have their gonads removed at a very early embryonic stage they will develop female characteristics.

"Other factors which may or may not be genetically determined are necessary to ensure that sex differentiation is also normal," the scientists conclude.

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MEDICINE

Treat Ills as Psychosomatic

AT LEAST 20% of the patients a general practitioner sees are suffering from purely psychosomatic ailments, most of which can be successfully treated with a new anti-depressant drug.

This is reported in the *Virginia Medical Journal* (Dec.) by Dr. L. Floyd Hobbs of Alexandria, Va. Dr. Hobbs treated 200 patients with phenelzine, or Nardil. All of these patients had been under his personal care for at least two years.

Of the 200, 96 had no organic disease to account for their symptoms. The other 104 patients did have a proven organic disease, but in all cases the degree and number of their complaints far outweighed the severity of the organic disease present, Dr. Hobbs notes.

He estimates that the latter group comprised one-third of all patients a general practitioner sees and says that "often the management of these patients presents one of the most frustrating problems a physician can encounter."

The most commonly complained of symptoms, Dr. Hobbs reports, included gastrointestinal upset, sadness, irritability, apathy, insomnia, chronic fatigue, loss of appetite, shortness of breath, palpitations, tremors and dizziness.

The beneficial effects of phenelzine became apparent within two or three days, he says, "with maximum improvement invariably occurring in less than one month."

Two months of Nardil therapy produced improvement in 174 of the 200 patients. Dr. Hobbs rated the improvement as excellent in 49%, good in 25% and fair in 13%. The degree of improvement was based on both the doctor's judgment and the patient's own evaluation.

Dr. Hobbs reports a complete lack of toxic effects of phenelzine. Only seven patients, he says, developed side reactions necessitating discontinuing the drug.

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VIROLOGY

Photograph Polio Viruses

POLIO viruses have been seen and photographed inside the human cell in which they were formed.

This is the first time this has been done, the American Cancer Society reported.

While the researchers expect that this basic study may help explain how virus infections and symptoms develop—and how infections may be blocked—some mistaken ideas on viruses have already been cleared up. Drs. D. C. Stuart Jr. and Jorgen Fogh

of the New York State Department of Health, Albany, reported the following discoveries:

1. Viruses are formed in the cytoplasm surrounding the nucleus, not in the nucleus of the cell.

2. Some 100,000 viruses, occupying only about one or two percent of the cell volume, are produced in a cell during a few hours. (It would take almost 1,000,000 polio viruses lying side by side to equal one inch.)

3. The tiny polio virus clusters in pure crystals inside the cell. Although scientists have previously produced crystals of viruses outside the cell and it has recently been shown that the large human herpes and adenoviruses can exist as crystals inside the cell, this is the first demonstration of small viruses of any kind inside the cell.

Drs. Fogh and Stuart are now attempting to take electron micrographs of the actual process of virus manufacture inside the cell.

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FLORICULTURE

Shorter Poinsettias Due With Use of Compound

SHORTER-STEMMED and greener-leaved poinsettias may soon be available for decorating the house at Christmas time, thanks to studies made at the U. S. Department of Agriculture's research center, Bethesda, Md.

Applications of carvadan, a compound related to the growth regulator Amo-1618, produced plants only one-fourth as tall as untreated plants, Dr. Henry M. Cathey reported. The poinsettias' red and white "flowers," actually the leaf-like bracts, were only slightly reduced in size.

The compound was effective in various forms: spray, dust, as a dip or as an addition to the soil. Treatment produced greener leaves, but did not delay flowering.

Although the material is not in commercial production now, the USDA reports that "several manufacturers have indicated interest in its synthesis and potential use."

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TREE TRIMMING—A General Electric technician uses new mechanical manipulators at the Hanford Laboratory to trim a Christmas tree placed inside a "hot" cell for handling highly radioactive materials, thus illustrating the delicate work that can be done.