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## MEDICINE

# Surgery May Save Human Race From Extinction

## Evolutionary Trend Toward Neuter Race May Be Checked By Gland Operation

IS THE HUMAN race passing toward extinction by the evolution of a neuter race? Studies of cases of glandular disorder have led Dr. L. R. Broster, surgeon to the Charing Cross Hospital, London, to suggest this possibility.

If this is the case, for the first time in the history of the world a race may be able to check the processes of evolution and save itself from extinction. Modern medical and surgical science may have provided man with the means of saving himself from the fate of the great auk and the dinosaur, the British surgeon's studies show.

Twelve women suffering from virilism which gave them the appearance of men, like the bearded ladies of the circus side-show, were restored to normal feminine appearance, functions and feelings by removal of one of the adrenal glands, Dr. Broster reported to the *Lancet*.

### Like Cocked Hats

The adrenal glands are small, cocked-hat shaped organs perched one atop each kidney. They have two parts, a medulla from which is obtained the important medicine, adrenalin, and a cortex which is essential to life. A relation between the adrenal glands and the sex glands has already been known to scientists and tumors of the adrenal cortex are known to hasten sexual development so that children suffering from them become sexually adult long before they reach their teens.

The unfortunate women who develop deep voices, beards, masculine figures and even masculine psychological states owe their condition of virilism to a change in the structure of the adrenal cortex, Dr. Broster found. He believes the condition is not a disease but a definite deviation from the normal evolutionary process, and is not confined to man alone. It has been observed in some of the lower animals.

The condition seems to be hereditary and women suffering from it have few children. Its appearance in the human race is a backward movement since it

tends toward an intersex type between male and female. It may be stationary, receding or increasing. If it is increasing, Dr. Broster says we "may be the innocent spectators of an evolutionary process drifting slowly and inevitably into the neuter state." The result of such a drift would seem to be extinction unless humanity develops an asexual method of reproducing itself.

### Surgery a Preventive

Yet this fate may be averted by surgical means, it appears from the good results which Dr. Broster reported in his series of cases.

The condition may develop very early in life, before the child has begun to show masculine or feminine sexual characteristics, or it may develop after these characteristics have appeared.

In the latter case, even though the change toward virilism has become marked, removal of one adrenal gland restores the patient to a normal feminine state. The masculine growth of hair falls out soon after operation, normal feminine functions reappear and the patient's outlook is much improved. One of Dr. Broster's patients subsequently married and gave birth to a son.

Virilism that develops before the time for sexual maturity cannot be remedied by removal of an adrenal gland, Dr. Broster reported. However, if this condition could be detected early, before the child has reached puberty, operation might be effective.

This strange condition develops as a result of the close relation between the adrenal cortex and sex glands, Dr. Broster explained. Both adrenal cortex and sex glands develop from the same group of cells known as the genital ridge.

During the early stages of pre-birth development and just a few weeks after the baby's sex is determined the adrenal cortex contains some masculine element, possibly the male sex hormone itself, Dr. Broster's studies indicated. This normally disappears in another few

weeks, disappearing faster in girl babies than in boy babies.

Failure of this masculine element to disappear from the adrenal cortex fast enough or at the normal time may be responsible for the development of virilism in the girl later on, he suggests.

Probably its disappearance is due to the action of some other sex-controlling gland such as the pituitary, and failure of the mechanism that maintains proper balance between the glands may be the actual cause of virilism.

*Science News Letter, May 19, 1934*

## PSYCHOLOGY

## Right-Handed Rats Made "Southpaws" by Brain Lesions

**N**EW evidence that an injury on the left side of a right-handed person's brain may make him left-handed although leaving his vision undisturbed, was found by S. A. Kirk, a graduate student at the University of Michigan in experiments with rats.

Rats, as well as human beings, are right or left-handed, and Mr. Kirk began his experiments by testing the hand or paw preference of his rats.

The rats were forced to reach for their food from a narrow dish into which they could not insert their mouths, but could use either of their paws. Having determined whether the rats were right or left-handed, a brain lesion was made in the hemisphere opposite the preferred hand. In the majority of cases such lesions caused a change in handedness of the rats. In other words, a right-handed rat could be made left-handed, and vice-versa.

Effects of brain lesions on man's ability to think, read, write, or speak have puzzled psychologists for years. From observations on men who have had brain lesions as a result of accidents, operations or war injuries, a theory has been evolved which asserts that a lesion on the left hemisphere of the brain of a right-handed person, or a lesion on the right hemisphere of a left-handed person will result in changes in the ability to think, read, speak or write.

### Reversing Letters

The possibility that the inclination shown by many children to reverse their handwriting and to read backwards, confusing letters such as b and d, might be determined by interference with the normal dominance of one brain hemisphere, was tested by another of Mr. Kirk's experiments.

He caused the rats to jump from a stand to one of two windows in order to get to their food. One window was latched and the other unlatched. If the

rat jumped at the correct window, which had a letter "F" on it, he got through to his food, but if he jumped at the wrong window, with a mirrored or reversed "F" on it, he bumped his nose and fell into a net. The letters were alternated irregularly and the rats learned to jump to the correct form.

### Does Not Control Vision

According to the theory of brain-dominance, an injury on the left hemisphere of a right-handed rat should result in a loss of the ability to discriminate between visual patterns, whereas an injury in the non-dominant hemisphere should not disturb the function. Preliminary investigations indicate that there is some evidence that the dominance of one brain hemisphere controls handedness in a rat but that very little evidence is found for such control of the visual function.

Mr. Kirk explained that a rat's bodily response to a visual form is somewhat analogous to child's motor response to a letter or word. The experiment is being continued.

*Science News Letter, May 19, 1934*

## PHYSICS

## Find Diamonds Transparent To Ultraviolet Light

**S**TRANGE diamonds that are transparent to invisible light have been discovered by the British scientists, Sir Robert Robertson, Dr. J. J. Fox and Dr. A. E. Martin, in the course of a physical examination of 300 diamonds, water-white, uncut and originating in both South Africa and Brazil.

Five out of the lot were transparent to infrared and ultraviolet invisible light to which ordinary diamonds are opaque.

To the eye, the "transparent" diamonds, as the experimenters called them, do not differ markedly from the

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