

#### HE GREW UP!

The cover illustration of this week's Science News Letter is from a "baby picture" of Bamboo, the gorilla who is the pride of the Philadelphia Zoological Park. Bamboo was a gentle and appealing infant, but as he grew up into a big boy gorilla the nature normal to his species asserted itself and he could no longer be admitted to human society. (Cover photo by Newton H. Hartman.)

#### MEDICINE

## Addison's Disease Patients Improve on Synthetic Hormone

### Patients Taking Small Doses of Chemical Can Even Do Without High-Salt Diet; Gland Rules Use of Food

**S**MALL doses of a synthetic chemical have brought about general improvement and marked weight gains in seven patients suffering from severe Addison's disease, Drs. Kendall Emerson, Jr., George W. Thorn and H. Palmer Howard, of the Johns Hopkins University and Hospital, announced at the meeting of the Association for the Study of Internal Secretions in St. Louis.

In these cases, the chemical was given by injections under the skin, but the Hopkins doctors have previously reported good results when several months' supply of the chemical is made into a pellet like an aspirin tablet and buried in the fat around the shoulder blades. The operations in those cases, by Dr. Warfield M. Firor of the Hopkins surgical

department, were performed under local anesthetic but with strict aseptic technic.

The chemical, desoxy-corticosterone acetate, is apparently the same material as the substance produced by the cortex of the adrenal glands. Without this vital gland product, life cannot go on. Addison's disease patients suffer from failure of the cortex of the adrenal glands, tiny organs near the kidneys, which makes them grow progressively weaker and more anemic and which turns their skins a grayish-brown color.

Extracts from the glands keep them alive, as insulin does diabetics, but the adrenal gland preparations are expensive, and in addition the patients must consume large quantities of salt because one feature of Addison's disease is

dangerous loss of salt from the body.

The new chemical, prepared by a Swiss scientist, Dr. T. Reichstein of Zürich, can apparently take the place of the gland's own product. The patients at Johns Hopkins Hospital not only showed improvement in their general condition but careful tests showed normal conditions in their bodies. They could even get along with a low intake of salt. While the new chemical is now very costly and limited in quantity, there is hope that commercial production will bring the price down to the point where every Addison's disease sufferer can be given all he needs.

## Feminized Roosters

**S**OME of the masculinized hens that have been reported from time to time were probably, on the contrary, feminized roosters. Sex hormone studies indicating this were reported by Dr. L. V. Domm of the University of Chicago.

He injected estrin, the female sex hormone, into single comb brown Leghorn eggs during the second and fourth days of incubation and then let the eggs hatch and the chicks mature.

"The males of this experiment," Dr. Domm reported, "revealed an interesting sexual transformation. Some of the males appeared quite normal at this time while in others feminizing effects were evident in the plumage, but in none of our cases thus far observed has a complete henny plumage appeared during the first year.

"However, following the molt of the second summer many of them developed a henny plumage. A few again developed the plumage prevalent preceding the molt which was either cocky or intermediate. Head furnishings invariably became masculine in character though in some these have become more feminine with the change in plumage following the molt. Some of these birds are known to crow and tread. Others have not been known to display either type of behavior."

Post mortem examination of the sexually mature fowl revealed significant modifications of the sex organs toward the feminine type.

## Gland Rules Food Use

**T**HE conversion of sugars, starches and proteins such as meat into fuel for body activity and into new body tissues is under the control of the tiny gland in the head called the pituitary.

Discovery of how this "master" gland controls both protein and carbohydrate

metabolism was announced by Dr. C. N. H. Long, of Yale University School of Medicine.

The gland achieves its control over carbohydrates and proteins through three mechanisms as follows:

(1) Conversion of simple proteins into more complex ones in fed animals is speeded up or the breakdown of protein is slowed in fasted animals by one pituitary gland substance, probably the growth hormone.

(2) Another pituitary gland substance operates through the adrenal gland cortex to increase the breakdown of protein and consequently the formation of carbohydrates from protein or fat, in fasted animals. In fed animals this mechanism operates to diminish the proportion of carbohydrate oxidized.

(3) Utilization of carbohydrate in fed animals is checked by a pituitary gland factor which acts independently of any other gland factor.

## Hormone for Old Men Rats

**O**LD gentlemen rats that had lost their youthful vigor were stimulated to renewed activity when given doses of a female sex hormone, emmenin, and a special extract of the adrenal gland, Dr. R. G. Hoskins and associates, Helen M. Levene and Sylvia Bevin, of Harvard Medical School, reported. Other gland preparations and various vitamin preparations did not succeed in making lively fellows of the old rats. Why the adrenal and female sex hormones were effective has not yet been explained.

## Brain Waves Guide to Shock

**B**RAIN wave studies can furnish an exact guide to insulin shock treatment of the widespread mental sickness, schizophrenia, Dr. Harold E. Himwich, of Albany Medical College, Union University, reported.

During the treatment, he found, the changes in body chemistry, especially in the brain, and in the patient's symptoms fall into two phases which are paralleled by changes in the brain wave pattern. The best results of the treatment are associated with the second phase, when the patient becomes unconscious and when the alpha waves disappear from the brain wave records.

Brain wave records of the patients during treatment, it therefore appears, can be used to mark exactly the beginning of this therapeutically important part of the treatment.

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### PSYCHIATRY

# No "Speech Center" in Brain, Psychiatrist Declares

## Psychiatrists Hear Also That Removal of Frontal Lobes Indicates They Govern Abstract Thought and Planning

**N**O SPECIAL physiologic and psychic mechanisms for speech exist, Dr. Leland B. Alford of St. Louis declared at the meeting of the American Psychiatric Association in Chicago. Speech is part of general brain activity rather than the exclusive function of a special group of cells, in Dr. Alford's opinion.

The idea of a special speech mechanism in the human brain arose, Dr. Alford indicated, from the fact that injury to a certain area in the brain results in aphasia, a condition in which the patient either cannot speak at all or can only speak haltingly and with great difficulty. Some patients, however, recover their ability to speak after such brain injury, Dr. Alford pointed out.

The loss of ability to speak in these cases is due, Dr. Alford believes, to the fact that following the brain injury the patient is in a markedly unstable mental state. His mentality is qualitatively complete, but he is subject to confusion, fatigue and emotional excitement. It is this unstable mental state that causes the aphasia, and not the destruction of any special speech mechanism, Dr. Alford believes.

Patients may be able to speak at the beginning of a psychological test, for example, but as they get tired or find the test more difficult or tedious, their unstable mental state leads them to take refuge in speechlessness, much as a neurotic patient might use speechlessness to escape a difficult situation.

The problem of locating brain activity in certain brain areas was attacked from another angle in studies of patients in whom the frontal brain lobes had been removed in operations for removal of brain tumors.

## Lose Ability To Plan

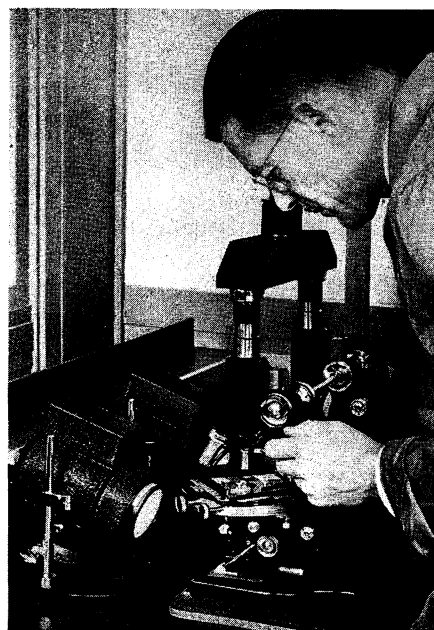
**G**ENERAL intelligence is not much affected by loss of the frontal lobes, but ability to handle problems and plan a line of attack is lost, Dr. Ira C. Nichols, of Providence, R. I. found from studying such cases. For example, one of these patients could not play even a fair game

of checkers because he had lost the ability to formulate an attack. Hope for rehabilitation of such patients by re-education, however, appears from the fact that when the game of checkers was explained and the various moves shown, the patient learned quickly and six months later still made use of the information.

Further evidence that the frontal lobes of the brain are responsible for abstract thinking was reported by Dr. Ward C. Halstead of the University of Chicago. Patients without frontal lobes, he found, had difficulty grouping objects according to categories, that is by size, shape, color or some other common factor. This difficulty with abstract thinking following loss of the frontal lobes was apparent even in patients who had made good social adjustments following their operations.

The category test, Dr. Halstead pointed out, can also be used, other investigators have reported, in predicting the results of shock treatment for certain mental disorders.

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**WEAPON AGAINST CRIME**