

## MEDICINE

# Male to Female Change

Doctors find that ovaries can convert male hormone to female hormone. This may explain why hormone treatment for breast cancer fails in some women.

► WOMEN'S GLANDS can make a male to female transformation. The transformation consists in changing the chemical make-up of the male hormone, converting it into female hormone.

This discovery, with implications for cancer treatment, was made by Drs. Ralph I. Dorfman and Kenneth Savard of the Worcester Foundation for Experimental Biology, Shrewsbury, Mass., and Drs. Lewis L. Engel and Billy Baggett of Massachusetts General Hospital, Boston.

The reason for some failures in hormone treatment of cancer is partly explained by the new finding. Heretofore, doctors have injected male hormone into women to check cancer of the breast and cancer of the uterus. The theory was that the male hormone would antagonize the female hormone in the woman's body and keep it from stimulating further growth of the cancer. The results, however, were unpredictable. Sometimes the male hormone treatment seemed to speed the cancer's growth instead of checking it.

In such cases, it now appears, the ovaries in the woman's body were converting the male hormone into female hormone, thus increasing the supply of that hormone. This bears out a theory of the late Dr. Ira T. Nathanson of Massachusetts General Hospital, pioneer in hormone treatment for breast cancer.

Few scientists have believed that the human body could convert the male hormone into female hormone. The Worcester and Boston scientists showed that it is possible by experiments in which radioactive carbon was incorporated in the male hormone, testosterone. This was incubated with a human ovary kept alive in a glass dish. When the scientists purified and analyzed the product of the ovary by countercurrent distribution methods they found that the radioactivity had been incorporated into the principal female hormone of the ovary, estradiol.

The conversion required removing a methyl group from the 19th position on the male molecule and altering the bonds of the first of four carbon rings in its chemical structure.

Scientists have long known that the ovaries produce a little male hormone along with female hormone and that the male sex glands produce a little female hormone with male hormone.

But this is not the same as the chemical transformation announced.

Other glands, ovaries and adrenals from normal women and from those with various kinds of cancer, now are being incubated with a variety of hormones and

other materials, and their products are being analyzed.

Announcement of the findings was made by the American Cancer Society which supported the research.

Science News Letter, April 30, 1955

## MEDICINE

## Isolate Gout Enzyme And Explode Old Idea

► ISOLATION IN pure form of an enzyme chemical involved in gout and explosion of an old idea about how it works were announced at the opening meeting of the Federation of American Societies for Experimental Biology in San Francisco.

The enzyme chemical is called uricase. Lack of it prevents the human body from breaking down uric acid crystals that form in the joints of certain susceptible persons, making them subject to attacks of gout.

Most animal species produce uricase naturally and do not get gout. They are capable of breaking uric acid down into allantoin, which is found in animal urine. Humans excrete uric acid because they do not have the enzyme to break it down.

The old idea that the enzyme is solely responsible for breaking down uric acid to allantoin is the one exploded by the new studies. The enzyme plays a part in this body chemistry, but it forms a substance named ureido alloxan from uric acid. Alloxan is found in the blood and urine of humans with certain abnormalities.

The studies reported were made by Prof. Henry R. Mahler, Harold Baum, Georg Huebscher and Germille Colmano of the University of Wisconsin's Institute for Enzyme Research, Madison, Wis.

Science News Letter, April 30, 1955

## MEDICINE

## 450 Trained to Make Artificial Limbs

► MORE THAN 450 technicians from all parts of the United States were taught the latest techniques of making and fitting artificial limbs in a two-year training program now concluded at the prosthetics training center of the University of California.

The program acquainted orthopedists, therapists and artificial limb makers with results of an intensive artificial arm research program carried on at U.C.L.A. since 1945. It was a collaborative effort with the Veterans Administration and the National Research Council.

Science News Letter, April 30, 1955

## TECHNOLOGY

## Automatic Plating Plant To Test New Coatings

► RESEARCHERS WILL study the merits of a thin nickel coating for cans in the world's first automatic pilot plating plant.

The plant is part of a new laboratory built by the Bayonne Research Laboratory of the International Nickel Company, Inc., to test plating processes under factory conditions.

The automatic equipment can be operated entirely from a central panel board where time, current and voltage for each stage in the process are observed and controlled.

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