

MEDICINE

Thyroid Affects Cancers

► FEMALE RATS that have had their thyroids removed get mammary, or breast, cancer less easily than normal rats. Cancer occurrence also is decreased in rats given large amounts of L-thyroxine, an active thyroid hormone, commonly given to people with hypothyroidism.

The Chicago scientists who report this in *Nature*, 188:73, 1960, do not suggest that this necessarily can be applied to human cancer, but it is a lead that undoubtedly will be followed in further research.

One of the scientists of the Ben May Laboratory for Cancer Research, University of Chicago, is Dr. Charles Huggins, the director, whose researches in the past have resulted in the successful treatment of human cancer of the prostate gland with estrogens, female hormones. This is one of the outstanding successful cancer treatments. His colleague in the present researches is Dr. John W. Jull.

Four groups of rats were given 3-methylcholanthrene (MC), a cancer-causing chemical. But first, certain groups underwent operations for removal of the thyroid and others for removal of ovaries. At the age of 63 days all the animals were fed MC semi-weekly for seven weeks. At the same time MC was fed to a group of normal rats used as controls, and to two groups that received L-thyroxine in respective doses of 0.5 milligram and 1 milligram.

All normal control female rats, and those receiving the L-thyroxine in the smaller dosage, developed multiple mammary cancer. Frequently the tumors grew to a weight of 15 grams by the 90th day of the experiment.

Rats that had had their ovaries or thyroids

removed had a significant decrease in the incidence of mammary cancer and a delay in the development. Only solitary cancers developed, and these remained small during a six-month observation. The weight of the largest tumor was less than 100 milligrams.

The scientists say that the decrease in incidence of mammary cancer in the rats whose ovaries had been removed is certainly due to the deficiency of ovarian hormones.

The rats whose thyroids had been removed showed a decrease in the occurrence of breast cancer because of the influence of smaller caloric intake, which has been shown to have a marked effect on the beginning of tumors.

No reason is given for the decrease in mammary cancer among the rats that got large amounts of L-thyroxine.

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PHYSIOLOGY

Human Nerve Impulses Feed Electronic Computer

► An ELECTRONIC COMPUTER is being used to compare the behavior of man and the electrical impulses that are a measure of his nerve responses. An International Business Machines Corporation 704 computer is also recording nerve responses of crayfish in the hope of applying some of the technique to man's muscle activity.

Dr. William R. Uttal of IBM's Research Laboratory in Yorktown Heights, N. Y., reported on coding mechanisms to the Second IBM Medical Symposium in Endicott, N. Y.

Dr. Uttal told SCIENCE SERVICE that "we are collecting the nerve responses and comparing them with the magnitude estimates

reported by the person verbally. Some things correlate and others do not. We are searching for key code variables."

The reason for studying crayfish, he said, is that it is a convenient and interesting animal, and the pooled nerve responses are similar to the electrophysiological activity recorded from man.

Computers are being used in various types of research involving enormous quantities of data. In a few seconds of experimental time millions of "bits" of information can be recorded.

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MINERALOGY

Super-Graphite Makes Better Rocket Nozzles

► TOUGHER AND MORE DURABLE rocket motor nozzles are now possible with a new super-graphite produced by the National Carbon Company in New York. This high-density material is made by a hot-working process that gives a recrystallized graphite with about two to three times the high-temperature strength of conventional graphites.

The crystal alignment and internal structure of the super-graphite provide high strength at temperatures up to 5,500 degrees Fahrenheit. The material has good machinability, thermal shock resistance and a low creep rate.

Performance tests of rocket motor nozzle inserts made of the recrystallized graphite show that it is as good as, and in some cases better than, such materials as tungsten and pyrolytic graphite. There are no limits to the size of the objects that can be produced from this material.

The recrystallizing process, on which National Carbon began work in 1953, produces a more uniform and compact structure. Careful control of this process produces different graphites with properties suited for a large number of applications.

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PSYCHOLOGY

Creative Ability Related to Humor

► YOUR CHILD'S C.Q. (creativity quotient) is related to his sense of humor. Research by Prof. Jacob W. Getzels and Prof. Philip W. Jackson of the University of Chicago points to development of a "creativity quotient" similar to the I.Q. system of ratings now in use.

For their research on giftedness, they used a group of about 500 adolescents in the University of Chicago Laboratory School from the sixth grade to the end of the senior year in high school. They found that the emphasis on sense of humor is so marked that it is the one characteristic that sharply sets apart the high-creativity group from all other groups.

Their research also disclosed that teachers prefer the high I.Q. child to the child with the high C.Q. The highly creative child studied was selected only if he was not in the top 20% in I.Q. The high I.Q. child and the high C.Q. child were equally superior in school achievement to the student population as a whole.

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FASTEST HYDROFOIL—The U. S. Navy is demonstrating the most advanced hydrofoil vessel in existence, developed for the Office of Naval Research by Dynamic Developments, Inc., of Babylon, N. Y. It was shown at The Hague at an international symposium on hydrodynamics recently.