

MEDICINE

### Find Cells Affected By Thyroid Hormone

► **DISCOVERY** OF the parts of living cells in the body that are directly affected by the hormone of the thyroid gland in the neck was announced by Prof. Henry Lardy of the University of Wisconsin at an American Chemical Society meeting at the Northern Regional Research Laboratory in Peoria, Ill.

The thyroid's hormone is called thyroxine. It acts, Prof. Lardy found, on microscopic powerhouses called mitochondria found in every living cell. Mitochondria house the enzyme systems which carry on much of the energy-extracting and energy-transmitting functions of living cells and tissues.

Thyroxine is converted by the body into a substance named tri-iodothyronine before it affects the cell's enzyme system.

Tri-iodothyronine acts by decreasing the efficiency with which the body traps the energy in food, but it speeds up the machinery of metabolism. The reaction is like putting an automobile into second gear: the engine speeds up, efficiency is lowered, but total power available is greater.

The particular generator in the mitochondrial powerhouse that is affected by tri-iodothyronine is the one concerned with tapping energy in fats and carbohydrates.

The hormone acts specifically on the enzyme systems that carry on intermediate metabolism of carbohydrates, Prof. Lardy said.

Tri-iodothyronine prolongs the test-tube life of mitochondria carrying on oxidative processes. This may simply be a result of test-tube conditions and may not hold true in the living organism, Prof. Lardy said, but if it does, the substance may be more beneficial than now realized in maintaining tissues, particularly those directly involved with energy reactions such as muscle tissue, in a vigorous condition.

Associated with Prof. Lardy were Drs. Gladys Maley and Ken Timita.

Science News Letter, March 12, 1955

BIOLOGY

### Study Relationship of Organic Fats to Growth

► **THE SIGNIFICANCE** of the relationship between organic fats or lipids and growth is being investigated by Dr. John McMenamim, associate professor of biology at Occidental College on leave to do research at the University of California at Los Angeles.

He discovered the relationship by stopping the function of the thyroid glands in nine-day old chick embryos.

Just before the 21-day hatching time of normal chicks he examined the embryos and found their growth was three days behind schedule. He also found that lipid levels in their livers were only about half those of normal embryos.

Chickens normally have a high level of

lipids, particularly cholesterol. The lipid level of yolk, the growing embryo's food source, is also high. Just before a normal chick hatches there is a marked acceleration in its utilization of these organic fats.

What part these fatty substances play in the development of the chick the last few days before hatching Dr. McMenamim does not know. The fact that the changes in lipid levels paralleled growth retardation seems significant and he plans further experiments to clarify the relationship.

"This is perhaps just another link in the increasing chain of evidence pointing to the importance of these fatty substances in life processes," he said.

Science News Letter, March 12, 1955

INVENTION

### Missiles Set Off On Targets by Radio

► **A TRAIN** of guided missiles, directed to targets by radar, can now be set off one at a time at given targets when they are told to by radio beams.

Radio control apparatus for detonating a string of missiles at predetermined targets has been patented. The radio-radar missile control system also embodies the means for changing the path of one or all of the missiles while in flight.

Invented by Everard M. Williams of Pittsburgh, Pa., and Edwin V. Cousy of New York City, the missiles each carry electronic equipment set to receive high frequency radio pulses. When the missile is over a target or on a target, the radio beam from a control point automatically dumps and detonates the weapon at a pre-set range. The control apparatus was awarded patent No. 2,703,399.

Science News Letter, March 12, 1955

## Questions

**AGRICULTURE**—How much land is Russia planning to cultivate for grain this year? p. 163.

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**INVENTION**—How can polarization be used to detect radioactive fall-out? p. 168.

**METEOROLOGY**—What is the width of a tornado's destructive path? p. 170.

**PSYCHOLOGY**—Why are mirrors used in some cases to teach children to read? p. 169.

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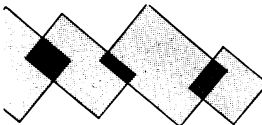
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