

MEDICINE

Seek Anti-Aging Chemical

► WANTED: A chemical to break the "handcuffs" that keep protein molecules in the body from functioning. Such a chemical would stop or reverse the aging process in human bodies.

This is the theory of Dr. Johan Bjorksten of the Bjorksten Research Foundation in Madison, Wis.

Life chemistry, he pointed out, is largely dependent on protein molecules. They make up the flesh and blood and brains. They are tied together, or "cross-linked," by a number of substances which may be formed in the body. Certain kinds of such "cross-linkages," Dr. Bjorksten thinks, make the protein molecules incapable of taking further part in body processes. This leads to a slow, progressive clogging of the cells with inactive protein, in his opinion.

Dr. Bjorksten explained his theory in everyday terms as follows:

"Suppose you have a big machine shop hall where thousands of men are working. At the end of every day an evil power slips a pair of handcuffs on two of the men, so

that they are chained together. The handcuffs cannot be removed or cut with anything we know today.

"At first there won't be much change in the output of the plant, as only a few of the men are handcuffed together, but as more and more of the men get linked together, particularly when three and more get chained to each other, it becomes harder and harder for them to work, and so, gradually, the plant comes to a standstill.

"When we discover a way of opening those handcuffs, the men will soon be working again and the plant will be in as good operation as ever. That is the best comparison I can think of to explain in a simplified manner what we believe happens to the protein molecules in the body when a person ages, only we have not yet found any way to cut the handcuffs.

"First we have to find out what they are made of and how they are slipped on, then we can, we trust, find a way to cut them or to avoid them."

Science News Letter, May 7, 1955

MEDICINE

Juices Cause Ulcers

► AN EXCESS of digestive juices, not local weakness in stomach wall lining, is the real cause of stomach ulcers, Dr. Lester R. Dragstedt, chairman of the department of surgery at the University of Chicago reported.

He told the National Academy of Sciences that excess digestive juices are produced in two ways. In patients with duodenal ulcers, high secretion of gastric juice is usually of nervous origin, while in patients with gastric ulcers, hypersecretion is usually caused by high hormone activity.

Production of gastric juices for digesting food results from stimulation of the vagus nerves, which lie in the chest and upper abdominal cavity. Sight, odor or taste of food causes the stimulation. Gastric juice production is also caused by a hormone called gastrin, formed in the lower third of the stomach, the antrum, when this part of the stomach comes in contact with food.

In patients with ulcers of the duodenum, the part of the small intestine that leads directly out of the stomach, the excess gastric juice results from stimulation of the vagus nerves from the tensions and strains of modern life. The overproduction continues even when the patient is asleep and the stomach empty, and can be from three to 20 times as much as in normal persons.

Severing the vagus nerve by surgery stops the excess secretion of gastric juices and allows duodenal ulcer to heal, Dr. Dragstedt said. This is the so-called vagotomy operation which he developed.

In patients with gastric ulcers, stimula-

tion comes from the secretion of the hormone gastrin. Prolonged presence of food within the antrum, resulting from sluggish digestion or from an obstruction at the mouth of the stomach, can cause this stimulation. Two surgical methods can be used to slow down such overproduction, in which the stomach literally digests itself.

Either the obstructions that prevent the stomach from emptying itself at normal speeds can be removed or the antrum itself can be cut out to slow down the production of gastric juice by diminishing the supply of gastrin.

Dr. Dragstedt's findings account for previously baffling differences in results of surgery on gastric and duodenal ulcers, which were sometimes ineffective, or even led to new ulcers.

Science News Letter, May 7, 1955

MINERALOGY

Find Very Radioactive New Uranium Mineral

► DISCOVERY OF a new uranium mineral that is "extremely radioactive" was reported by L. R. Stieff, T. W. Stern and A. M. Sherwood of the U. S. Geological Survey in *Science* (April 22).

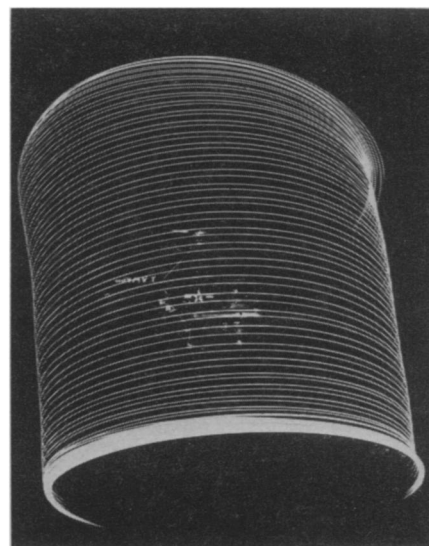
First collected in Mesa County, Colorado, it is named coffinite in honor of Reuben Clare Coffin of Tulsa, Okla., a geologist who has made major contributions to geology of the Colorado Plateau.

Coffinite is a uranous silicate, with the

chemical formula U_2SiO_5 , and contains as much as 61% uranium. Highest amounts of uranium in minerals are the uraninites, with about 85%. Attempts to make the new mineral in the laboratory have so far been unsuccessful.

The black mineral was discovered by Mr. Stieff, Mr. Stern and L. B. Riley. Besides occurring on the Colorado Plateau, coffinite has also been found in Wyoming, Arizona and several foreign countries.

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"SPRING" IN AIR — This helical pattern was made by a helicopter as it took off at night with a set of the newly developed 1,000-g lamps built into its rotor tips.

AERONAUTICS

'Copter Warning Light Can Stand 1,000 G's

► A WARNING lamp on the whirling tips of helicopter blades, withstanding 1,000 times the force of gravity, has been developed.

The rotor lamps will provide a distinctive circular light pattern for night-flying helicopters that could be identified by other aircraft as far away as five miles, even against a background of city lights.

Developed by Westinghouse Electric Corporation and Kaman Aircraft Corporation, the lamp contains two tightly coiled filaments.

A clear plastic housing designed to fit the contour of the rotor blade encloses the lamp. It produces 35 candlepower, but reflectors increase the effective light output approximately nine times.

Helicopters, with their unusual maneuvering characteristics, require special identifying lights to distinguish them from other aircraft. The system is expected to provide this lighting and even permit helicopter night formation flights.

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