

● RADIO

Saturday, Dec. 22, 1951, 3:15-3:30 p.m. EST

"Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Associate Justice William O. Douglas, honorary national chairman of the Muscular Dystrophy Appeal, will discuss "Muscular Dystrophy."

SURGERY

Operate on Stomach Though Cancer Diagnosis Uncertain

▶ **WHETHER THE** patient's stomach complaint is diagnosed as gastric or as possible early cancer, an operation to remove the involved part should be considered, Dr. Thomas J. Kennedy of Denver, Colo., declared at the meeting of the Radiological Society of North America in Chicago.

Dr. Kennedy's statement came at the end of a special session on gastritis during which radiologists discussed methods of diagnosing this condition.

Gastritis is an inflammation of the stomach. Dr. Kennedy declared that it is still not possible to tell, either by X-rays or by the gastroscope as used today, the difference between certain inflammatory conditions of the stomach and certain ulcerating or infiltrating types of cancer. He asserted that this differentiation can only be made by microscopic examination of a bit of the stomach tissue.

Early diagnosis of stomach cancer, he pointed out, is a key to improved outlook for cure. Some authorities believe that gastritis is a forerunner of stomach cancer. For these reasons Dr. Kennedy declared a diagnosis of either calls for consideration of surgical removal of the involved portion.

Science News Letter, December 15, 1951

MEDICINE

Early Lung Cancer Sign Shadow on X-Ray Photo

▶ **AN EARLY** sign of cancer of the lung which is often overlooked was reported by three Minneapolis doctors at the meeting of the Radiological Society of North America in Chicago.

The sign is an enlargement on one side of the shadow made on X-rays by the hilum of the lung. The hilum is the pit or depression on the surface of the lung where it faces its mate and where the bronchus, blood vessels and nerves enter the lung.

It has been found often both in proved cases of lung cancer after symptoms had developed and in cases seen long before symptoms developed.

Drs. Leo J. Rigler, Bernard J. O'Loughlin and Richard C. Tucker, reporting this early sign of lung cancer, are trying also to establish some exact standards as to the normal size of the hilum shadows of the lung.

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PHYSICS

Shortest-Lived Particle

Find subatomic particle, the neutral meson, that lasts for only a hundred million millionth of a second. Discovered in photographs of cosmic ray events.

▶ **THE SHORTEST-LIVED** fundamental subatomic particle so far discovered exists for only a hundred million millionths of a second. It is the neutral meson, observed in the tremendous showers of atomic particles that are created high in our atmosphere when a cosmic ray proton particle smashes into an atom.

Dr. Morton F. Kaplon, 30-year-old University of Rochester physicist, and Dr. David M. Ritson, 27-year-old British physicist now a Rochester research associate, reported this discovery to the American Physical Society meeting at Houston, Tex., in describing a new method of capturing cosmic ray events high in the earth's upper atmosphere.

What is called an "emulsion cloud chamber" is sent about 20 miles into the stratosphere attached to free balloons. This little device consists of carefully aligned alternate layers of brass-absorbing material and photographic emulsion that is sensitive to the smashed debris of the atoms.

Photons (gobs of radiation) result from the decay of the short-lived neutral mesons, born of the high energy interactions. Electrons (particles of negative electricity) are produced in showers. These are easily seen in the photographic emulsion and they

lead directly to the high-powered collisions that occur in the brass plates. By measuring the many streaks of speeding particles, the physicists can work out what happened.

The cosmic rays from outer space are immensely more powerful than any radiations produced even in the largest atom-smashing accelerators. Protons (hearts of hydrogen atoms) in the cosmic rays have energies of 5,000 billion electron volts and more. The University of Rochester cyclotron produces 250,000,000 electron volts while the largest atom-smashing machine under construction is the 6 billion electron volt bevatron at the University of California.

Drs. Kaplon and Ritson found that a 5,000 billion electron volt proton in cosmic rays produces an average of 21 charged particles and 12 neutral mesons when it hits the heart of a copper atom in the brass. Measuring the path of the particles allows a determination of their energies and their fleeting lives.

Such cosmic ray researches help work out the structure of both the atoms that make up all matter and what happens in the universe outside the earth where the cosmic rays are created.

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NUTRITION

Seek Unknown Nutrient

▶ **BOTH BUTTER** and oleo may contain some as yet unidentified substance that is nourishing in addition to their fat, scientists at the U. S. Department of Agriculture report.

Special feeding tests with rats suggest its presence and work to track down the elusive factor is continuing. All rats used in the tests are treated alike except for the form in which they receive the fat making up either 10% or 30% of their diet. The fat is given as butter, butterfat, oleomargarine or oleofat.

The diets presumably contain adequate amounts of all known nutrients, yet baby rats born from mothers raised on the special diets differ in their death rates and in their weights at weaning.

If the mothers were fed either the butterfat or oleofat diet only, their offspring were more apt to die or to weigh less at weaning than rats born of mothers who had always been fed on the butter and oleo diet.

This suggests that both butter and oleo "contain some nutrient or nutritive prop-

erty in their constituents aside from the true fats," the scientists state.

In butter, the nutritive property would be in the milk solids that go along with the fat in the final product. In oleomargarine the unknown nutrient possibly would be in the skim milk or cultured skim milk that is added to the product.

The study is included in the annual report of the Bureau of Dairy Industry.

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INVENTION

Preserve Cottage Cheese By Dehydration Process

▶ **COTTAGE CHEESE** and other soft cheese can be preserved for long periods by means of a dehydration process which brought Louis Gootgeld, Escondido, Calif., patent 2,576,597. The dehydrated cheese can be rehydrated to yield a product with essentially the same taste as the original.

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