

## MEDICINE

# X-Rays of Liver Possible Through Chemical Injection

## New Technique, Causing Organ to Show up Clearly On Photographic Plate, Aids Physician in Diagnosis of Case

PIONEER work in the use of a new method of diagnosing serious, often fatal, diseases of the liver and spleen was reported to the American Medical Association meeting at New Orleans. The new method detected conditions which could not be determined by any other laboratory or clinical methods now in use, Dr. Wallace M. Yater, professor of medicine at Georgetown University School of Medicine, said in discussing the result of a study made by himself and his associate, Dr. Laurence S. Otell.

In using the new test, a small amount of a solution called thorium dioxide sol is injected into the veins every day for three days. On the fourth day X-ray pictures are taken of the liver and spleen. Ordinarily these important organs do not show up well on the X-ray plate, but after the thorium dioxide injections the shape of both spleen and liver may be clearly seen. In this way physicians will be able to tell whether these organs are enlarged, whether there is fluid in the abdomen, whether such diseases as cancer, cirrhosis or syphilis of the liver are present, and whether a large mass in the left side of the abdomen is an enlargement of the spleen or a tumor of some other organ.

### Safe to Use

The substance which makes all this possible is a compound of thorium, a heavy metallic element related to radium. Thorium dioxide, however, has no radioactivity and is a perfectly safe compound to use. It was first investigated for this purpose by a German, Dr. Radt, of Berlin, in 1928. Two other foreign scientists have investigated it, but the Georgetown group is the first to try it in this country.

Being a foreign substance, the thorium dioxide is taken up by certain blood cells whose duty it is to fight infections and gather up foreign matter in the body. These cells are very highly concentrated in the liver and spleen. When they are full of heavy, opaque thorium dioxide, they and the whole organ show

up in the X-ray pictures, Dr. Yater explained.

Because these cells are also present in great numbers in bone marrow the new method may be used for diagnosing disease of this substance and of intracranial disease.

Most valuable of the older tests for determining how the liver is functioning is the icteric index, which indicates the presence of jaundice by showing the amount of bile pigment in the blood, Drs. William Egbert Robertson, William A. Swalm and Frank W. Konzelmann of Philadelphia stated at the same session.

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## ENGINEERING

## Huge Canal May Be Built Across Northern Florida

THE CONSTRUCTION of a great ship canal across northern Florida to save more than 800 miles, or three days sailing time on a round trip between North Atlantic and Gulf ports, is urged in a report made by Col. Gilbert A. Youngberg to the Florida Engineering

Society following a preliminary study.

He believes that the project is well worth a complete survey of the site by Army engineers. Col. Youngberg's study, made for the City of Jacksonville, was authorized by the 1930 River and Harbor Act. A special board of engineers is now making a study of the most practicable route.

The canal would be one of the world's largest engineering projects. It is roughly estimated that it would cost between \$125,000,000 and \$200,000,000. Vessels plying between Gulf ports and northern Europe would be benefited almost as much as those going to or from the Gulf and North Atlantic American ports.

### Immense Savings Possible

During 1929, Col. Youngberg said, 1,487 vessels made 10,341 voyages that would have profited by the canal. These ships are the larger portion of those sailing from the Gulf, it was pointed out, since only 1,971 vessels traded between ports on the Gulf and ports elsewhere.

The immensity of possible savings in tonnage the new canal will effect was emphasized by comparison with freight now carried by well-known inland waterways. The ton-mileage savings of the projected canal will exceed 20,000,000,000 statute ton-miles, it was stated.

"This is more than ten times the ton-mileage carried on that portion of the Mississippi River between St. Louis and New Orleans," Col. Youngberg said. "It is more than 13 times that on the Ohio between its mouth and Pittsburgh, and it is about eight times the ton-mile-



### ETERNAL SNOW IN CALIFORNIA?

*Looks like it, but the white banks are gleaming masses of pumice stone—the so-called Pumice Stone Mountain in northern California, east of Mount Shasta and southwest of the Modoc Lava Bed. Photograph by R. H. Finch.*

age on the Monongahela, that paragon of inland waterway freight lines."

The canal would be of great benefit to the American merchant marine, it was pointed out, because, out of a total of more than 10,000 voyages which would have been benefited by the canal in 1929, 7,610 were made by American vessels and only 2,731 by vessels of foreign register.

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## SOCIAL SCIENCE

## Depression May Mark America's Coming of Age

"BLACK THURSDAY" in October, 1929, now observed as an anniversary of a much-lamented stock market crash, may be revealed in the future as the date of America's coming of age in both an economic and an intellectual sense, Morse A. Cartwright, director of the American Association for Adult Education, has declared.

"The sudden diversion of public thought in the United States," he said, "from the all-absorbing pursuit of the dollar for the dollar's sake to the opposite extreme of the painful economic consequences of a prosperity debauch, has resulted in an increased public attention focused upon the complex problems of living. To this extent the uses of adversity have proved sweet: Americans are examining principles—economic, psychological, historical and philosophical—with a skepticism seldom exhibited during the boom days. They are also showing a disinclination to accept business, governmental, or other leadership at face value which is at once the despair and the hope of the democracy."

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## MEDICINE

## Electrically Produced Fever Relieves Asthma Sufferers

ARTIFICIAL fever produced by electrical heating gave relief to 42 sufferers from intractable asthma, Drs. Samuel M. Feinberg, Stafford L. Osborne and Meyer J. Steinberg of Chicago reported to the American Medical Association. Nineteen of the 42 patients were free of asthmatic attacks for considerable time after treatment.

The Chicago physicians based their treatment on the observation that the

## PALEONTOLOGY-ARCHAEOLOGY

# Finding of Arrow Head Near Mammoth Bone Raises Query

THE REPORTS of the finding of an arrow point in close association with the jawbone of a mammoth at Flagler Beach, Fla., write into the scientific record another chapter of the investigations to determine whether human beings lived in America contemporaneously with animals that have heretofore been considered extinct before man arrived on this continent.

The discovery was made by the Explorers' Club of Rollins College, Winter Park, Fla., a student group, with Jack H. Connery of the museum staff as leader. Excavating in a sandy muck deposit about a mile inland, the students proved the site rich in ancient animal remains. Skeletal parts of mastodons, turtles and probably camels were unearthed in addition to mammoth bones.

The discovery that particularly focussed attention of scientists on the work was made by Mr. Connery. What proved later to be the jawbone of a mammoth was encountered a few feet below the surface and as Mr. Connery explained to Science Service:

"On trying to determine identity of the object, it was necessary to follow the outline with the bare hand. On reaching under it, a cavity was discovered large enough to insert my hand. From this cavity I extracted a handful of wet loose substance which differed

from surrounding soil and which contained a hard object. The material was washed from the hard object, which made chemical analysis impossible. The object proved to be an arrow head, which J. E. Spurr, visiting professor of geology at Rollins College, determined as chert."

The circumstances of this discovery raised the question as to whether some prehistoric man might have shot the prehistoric elephant. Mr. Connery communicated word of the discovery to Dr. Carl E. Guthe, chairman of the State Archaeological Surveys Committee of the National Research Council, who in turn asked Science Service to look into the matter as a part of its archaeological and anthropological reporting plan operated in collaboration with a National Research Council committee.

Gene M. Stirling, archaeologist of the Peabody Museum, and Walter W. Holmes, paleontologist of St. Petersburg, Fla., acted as Science Service "minute men" and studied the circumstances of the discovery with Mr. Connery. They reported that the discovery was inconclusive as to whether the arrow point was actually shot into the mammoth skull. They expressed the opinion that a valuable site of promise had been explored and urged that scientists in the fields concerned cooperate in further excavations.

Dr. C. W. Stiles, the eminent zoologist who is visiting professor of zoology at Rollins College, visited the site and expressed the following opinion:

"The one point upon which I am willing to commit myself at present is that the teeth belong to the genus *Elephas*, *sensu lato*, in the broad sense of the term. The finding of an arrowhead and of a needle-like object in connection with these remains is exceedingly suggestive."

The Flagler Beach discovery promises to take its place alongside more than a hundred reports of the association of man with extinct animals in various parts of America. These discoveries, variously interpreted, provide fuel for the continuing discussion as to the antiquity of man on this continent.

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