

MEDICINE

# Cancer Follows Injection Of Germ From Proved Case

## Conventional Ideas Attacked as Culture From Human Makes Guinea Pig Cancerous at National Health Institute

**D**EVELOPMENT of cancer following the injection of a germ or micro-organism has been announced by the U. S. Public Health Service's National Institute of Health.

The discovery was made by Drs. T. J. Glover and J. L. Engle who have been working at the Institute, although they are not attached to the regular government staff nor to the U. S. Public Health Service.

They have succeeded in producing typical, unmistakable cancer in a guinea pig. This cancer followed the injection of a culture of a micro-organism or germ isolated from the tissues of a proved case of cancer of the human breast.

Medical scientists here are frankly excited by the discovery. They realize that it attacks the prevalent opinion that cancer is not a germ disease.

Application of the new discovery to the treatment of human cancer is far in the future, but the experiments of Drs. Glover and Engle promise to blaze a new line of cancer research that appears very hopeful.

"It promises to open a valuable field for further research," commented Dr. George W. McCoy, director of the Institute.

Drs. Glover and Engle have also found that cancer in rats follows injection of their culture of germs from human cancerous tissue. But rats develop cancer so very easily that this was not considered convincing evidence that the germ or culture actually could cause cancer. The production of cancer in guinea pigs which, so far as anyone knows or can find out, do not readily develop it, is considered much more of a feat and more convincing that the germ culture of Drs. Glover and Engle is cancer-producing.

The cancer produced in the guinea pig has all the characteristic appearance of cancer when examined by the unaided eye and under the microscope. Furthermore it spread, producing cancer in other parts of the body, thus ful-

filling another of the criteria for the diagnosis of the growth as cancer.

The germ itself is what scientists call a spore-bearer. It was isolated on special media from the tissues of the human cancer.

In the report made public, only one case of cancer in the guinea pig is described. The diagnosis of cancer in this case was confirmed by a pathologist of the National Institute of Health, and the foremost staff bacteriologist is now checking the bacteriological side of the work.

Dr. Glover started his investigations several years ago in New York. For the last three years, the work has been carried on by himself and Dr. Engle at the National Institute of Health where the director and staff scientists could follow and check various steps of the research.

In their report made public recently they do not claim specifically to have discovered the cause of cancer, but state with characteristic scientific reserve:

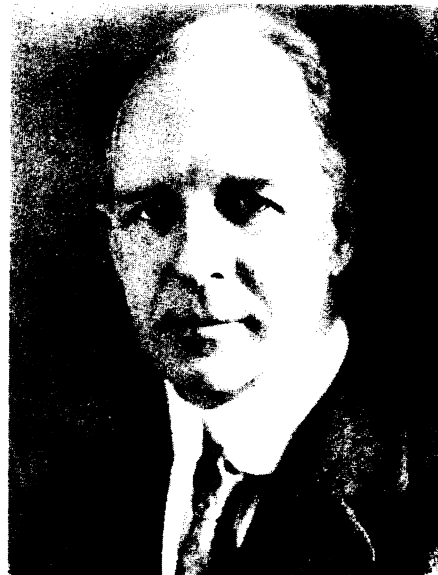
"It is the purpose of this report to place on record the production of metastatic malignancy in one of a group of guinea pigs inoculated with a culture containing a spore-bearing micro-organism which (*Turn to Page 220*)

GEOLOGY

## Internal Fires Make Mountain Move

**I**NTERNAL FIRES of Carbon Mountain, near Durango, Colo., are the cause of the "moving mountain" phenomenon now attracting attention, scientists of the Colorado Museum of Natural History at Denver explain. The explosion under this mountain producing additional avalanches of rock, heavy smoke and fumes, indicates fire in the underlying deposits. The original movements are doubtless traceable, in the opinion of the scientists, to expansion and pressure imposed through the heat of underlying fires.

*Science News Letter, April 8, 1933*



DR. LYMAN J. BRIGGS

GENERAL SCIENCE

## New Bureau of Standards Head Chosen From Ranks

**P**RESIDENT ROOSEVELT'S nomination of Dr. Lyman J. Briggs to be director of the National Bureau of Standards of the Department of Commerce is received with acclaim in scientific Washington as evidence that there will be no playing of politics in the operation of the scientific research bureaus of the government under the Roosevelt administration.

The elevation of Dr. Briggs to succeed Dr. G. K. Burgess who died last year is a promotion from the ranks of scientists who labor at the Bureau of Standards for Uncle Sam. He has been acting director since Dr. Burgess' death and President Hoover nominated him to the directorship but his nomination, with all others made to the lame-duck Senate by Hoover, died because of inaction by the Senate. President Roosevelt, by renewing Dr. Briggs' nomination, has followed the tradition that directors of this great government testing, research and standardization laboratory are eminent scientists who have won research laurels in the organization. Dr. Briggs is the third director in the history of the Bureau of Standards. The late Dr. S. W. Stratton who resigned to become president of the Massachusetts Institute of Technology was director at the formation of the institution shortly after the turn of the century. Dr. Burgess was chief of the

this acid in water, and spread upon polished iron, zinc, or even tin, or when these metals are placed in the acid, the acid acquires a fine blue colour.

7. Since the acid of molybdaena also assumes a blue colour from the last-named metals, it is easy to suppose that the acid of tungsten is nothing else than acid of molybdaena. But since in other experiments it behaves quite differently, our acid must also be of a different nature; because (1) the acid of molybdaena is volatile and melts in the fire, which does not occur with acid of tungsten. (2) The first-named acid has a stronger affinity for phlogiston, which is seen from its union with sulphur, and the change it undergoes on calcination with oil. (3) *Calx molybdaenata* does not become yellow with acid of nitre and is dissolved by it quite easily. With tungsten the contrary occurs. (4) *Terra ponderosa molybdaenata* is soluble in water, but not the same variety of earth united with our acid; and (5) acid of molybdaena has a weaker attraction for lime than our acid, because when *calx molybdaenata* is digested with a solution of the previously mentioned sal ammoniac tungsten is again obtained. The iron which is obtained from some sorts of tungsten ought to be regarded as accidentally pertaining to it.

*Science News Letter, April 8, 1933*

## From Page 211

was isolated on special media from the tissue of a microscopically proven carcinoma of the human breast."

Further points to be determined are whether the micro-organism they have described causes the cancer, or whether it is caused by some virus or other germ present in the culture or by some toxin or other substance produced by the bacteria of the culture. It is possible that this culture is not the cause of all types of cancer, but of one group of them. Efforts to develop a serum, either curative or protective, will be a logical outcome of this research.

Investigation of the infectiousness of a type of cancer produced by bacteria as this one was in the guinea pig will also have to be developed.

One of the two physicians making the discovery is from New York while the second is from Philadelphia. They had worked under private research grants for about ten years before bringing their experiments to the National Institute of Health for critical testing.

The story of the development of one kind of cancer in a guinea pig is re-

vealed by daily records in the notebook of Dr. Engle.

These details are given in the Public Health Reports of the U. S. Public Health Service, in which the discovery is being announced to the world.

On Nov. 5, 1932, an adult female guinea pig, a discarded breeder, was inoculated in the mammary region with the germ culture obtained from a proved case of cancer of the human breast.

On Nov. 8, 1932, a condition termed infiltration was observed, by which the investigators could tell that the tissues were being affected.

On Dec. 22, 1932, isolated nodular areas developed in the region.

On Jan. 9, 1933, the nodules were seen to be enlarged and the inguinal glands were affected.

On Feb. 20, 1933, still further increase in size of the tumor and nodules was observed.

On Feb. 24, 1933, the animal was growing weaker.

On Feb. 28, 1933, the animal was very weak and was chloroformed.

Examination post mortem showed tumors in the breast region, inguinal region, kidneys, omentum and within the chest.

The pathologist's diagnosis was: Malignant adenoma with metastasis into the lymph nodes, omentum and kidneys. Commenting on what he found in the animal's body, he said:

"New growth has apparently arisen

ZOOLOGY

# Life of Geologic Past Harvested From Sea Bottom

**H**ARVESTS of "sea lilies," and other strange creatures of the perpetually dark ocean depths have been brought home to the Smithsonian Institution by a recently returned expedition to the waters just north of Puerto Rico, where the deepest part of the North Atlantic Ocean is to be found.

These strange creatures, though called sea lilies, are really animals, relatives of the starfishes. Like them, they have a number of radiating arms, but the arms are branched, and the creatures are attached "bottom side up" to long stalks which anchor them per-

manently to the bottom. Sea lilies, or crinoids as they are also called, were once among the dominators of life on this planet, many millions of years ago. Now, although they are still numerous in the ocean depths, their leadership has been taken away from them by more advanced and active animals.

Upsetting to conventional ideas about cancer is this announcement from the National Institute of Health stating that Drs. Glover and Engle have succeeded in producing cancer in a guinea pig through the use of germ cultures from a human breast cancer case.

This may prove to be the most important news of today or even this year. It is certain that the claims of these two physicians, not government scientists but using Uncle Sam's facilities with the kindly cooperation of the Public Health Service scientists, will meet with opposition from other cancer researchers and practitioners. It is important that such experiments be checked and rechecked by independent experiments. But from such research beginnings have come the conquest of other dread diseases of the human race.

As yet there is no hope for cancer cure or treatment resulting from this work by Drs. Glover and Engle. Cancer patients will only waste time and money by bothering them. Probably there are several different kinds of cancer. The Glover-Engle discovery may mean that one kind of cancer is germ-borne and possibly communicable. But it is much too early to draw conclusions. We can only hope for fruitful results from the beginnings made.

*Science News Letter, April 8, 1933*

There are no plants in the great depths at which the sea lilies grow, for no light ever penetrates to those abysses, and plants cannot grow without light. The whole world of life there consists of animals preying upon other animals, with supplies of carrion plant