

## ECOLOGY

## Remains of Buried Ice Age Forest Found

**R**EMAINS of a post-glacial forest that once stood on the side of modern Minneapolis were found recently during excavations for a new building, enabling scientists to go botanizing fifty or a hundred years ago. At the meeting of the Ecological Society of America in Cleveland, Prof. William S. Cooper of the University of Minnesota described the plant remains found in the deposit. The dominant tree at that time was spruce; in addition the organic remains represented other conifers, aquatic mosses and casts of a water-weed known as *Chara*, together with pond shells. The whole assembly, said Prof. Cooper, is strikingly similar to that found today in a morainic pond in southeastern Alaska.

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## ARCHAEOLOGY

## Graves At Corinth Show Greek Ideas of Immortality

**H**OW he has excavated a graveyard of the Greeks at one of their finest cities, Corinth, was announced before the Archaeological Institute of America, meeting at Iowa City, by Prof. T. Leslie Shear of Princeton. The oldest graves dated back to the Middle Hellenic period, 2000-1600 B. C., but

objects older than this, even pottery of the late Stone Age people of Greece, were found at the site.

Evidences of changing ideas of immortality were shown in this cemetery. In a grave of about 1000 B. C., a vase shaped like a pomegranate illustrated a Greek belief in immortality. The pomegranate, because of its seeds, was a symbol of fertility and resurrection.

In graves five or six hundred years later, the shell of a hen's egg replaced the pomegranate as a symbol of another life. By that time, the Corinthians

believed that the individual would continue to grow in the future world. The grave of a young boy contained a large helmet, and a small child's burial was accompanied by ten strigils, such as were used in rubbing the body in preparing for exercise.

No Greek objects later than the fourth century have yet been found at this cemetery, Professor Shear said. But Roman colonists later used the Greek cemetery, pushing aside the Greek burials to make room for their own.

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## ASTRONOMY

## First Pluto Pictures Made In Search For Similar Planet

**I**F ASTRONOMERS at the Mt. Wilson Observatory in 1919 had known just where to look on a set of photographic plates made then, the discovery of the trans-Neptunian planet, Pluto, would have been made eleven years ago. Actually the discovery was not made until last year at the Lowell Observatory, in Arizona.

Speaking before the astronomical section of the American Association for the Advancement of Science, Dr. Seth B. Nicholson revealed for the first time that the Mt. Wilson astronomers had themselves sought such a planet in 1919,

and, as it has now proven, they actually photographed it. The plates were taken by M. L. Humason, using a special photographic telescope with a ten-inch lens. The search at that time had been inspired by an article by W. H. Pickering, then of the Harvard College Observatory.

Last spring, after news of the discovery by the Lowell astronomers had been disseminated, and an approximate orbit of Pluto had been computed, they knew just where to look for the planet. Dr. Nicholson and his associate, Nicholas U. Mayall, examined the 1919 plates, and on four of them images of Pluto were found. Photographs of the planet were made this year with the great reflecting telescopes at Mt. Wilson, and from the positions given by the two sets of plates a highly accurate orbit of Pluto was computed.

These orbit figures show that Pluto's year is equal to 247.6872 terrestrial years, which corresponds to a mean distance from the sun of 39.45743 times the distance of the earth. As the earth's mean distance from the sun is about 92,900,000 miles, this puts Pluto at about 3,665,000,000 miles from the sun. However, the orbit of Pluto is quite eccentric. Now it is less than its mean distance from the sun, and is getting still closer. It will be closest, these figures indicate, on Nov. 6, 1989, at 5:20 p. m. Eastern Standard Time.

The Mt. Wilson astronomers have also computed the mass of Pluto and find that it is just about the same as the earth, perhaps a trifle more massive.

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## BACTERIOLOGY

## Growing Disease Germs Generate Electricity

**G**ROWING masses of deadly disease germs generate electricity just as real and effective as the output of the familiar dry cell that rings your door bell, Dr. Barnett Cohen of Johns Hopkins Medical School reported to the Society of American Bacteriologists.

Out of bacteria, some of the sort that cause diphtheria, dysentery and other ills, he has constructed what he calls a "bacterial battery" which furnished current of about two milliamperes at a pressure of 35 volts. This was built up of unit cells composed of a few teaspoonfuls of growing germ culture coupled to a sterile solution and from each small cell there discharged through 300

ohms resistance about a hundredth of a milliampere of electricity each minute.

Dr. Cohen did not suggest practical utilization of the relatively large amounts of electricity produced by the growing germs, but he explained that his studies are important because they throw light on the way bacteria grow.

"It is well known that bacterial growth is accompanied by a chemical reduction of the culture medium together with a loss of heat and the liberation of oxidation products, such as water and carbon dioxide," Dr. Cohen said, explaining that the bacteria growth can be measured by electricity produced.

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