

life sciences

MICROPALEONTOLOGY

Oldest fossil claimed

For more than 60 years, micropaleontologists have been examining tediously prepared rock particles with their microscopes in search of the fossilized remains of the simplest and oldest life forms in order to fix the time of life's origin.

A team of paleontologists and other earth scientists from Giessen University, Germany, has uncovered what may be the oldest documented fossil finds. In stone deposits dated at 3.2 billion years in Swaziland, Africa, the scientists discovered fossils of spherical-shaped organisms with structures corresponding to what has been regarded as the simplest possible organization for the processes of life.

In diameter, they measure 0.000008 to 0.0000008 of an inch, and contain a mass of blue fluorescence. The cell wall seems to be composed of mineral or crystalline particles.

The organic composition of the microfossils was determined by chemical analysis which detected the presence of three different amino acids, the basic compounds of protein. These residual amino acids were identified as alanin, glycine and valin.

TOXICOLOGY

Mercury damages heart

Mercury has a direct injurious effect on the heart and indirectly damages heart muscle by causing disturbances in the coronary vessel circulation.

This is the conclusion of Polish scientists S. Kosmider and T. Wocka-Markowa, who made electro- and phonocardiographic examinations of 61 workers exposed to mercury vapors and experimented with 25 rabbits exposed for 90 minutes daily during 30 days to mercury vapor concentrations of 10 milligrams per cubic meter.

The EKG records disclosed functional heart-muscle damage in most cases, whereas the animal experiments showed functional and structural heart damage.

Histochemical tests showed a direct toxic effect on the bulbospinal system, due to the mercury inhibiting the enzymes involved in electron transport.

Systolic murmurs were sometimes noted over the apex of the heart and at Erb's point, but no anemia symptoms were found.

ENTOMOLOGY

Plant seeds kill mosquitoes

The seeds of certain weeds have been found to kill mosquitoes by the millions, according to scientists at the University of California, Riverside.

Dr. Eldon L. Reeves, assistant insect pathologist, found that seeds of both *Lepidium flavum* and shepherd's purse trap mosquito larvae with a natural glue which forms as a coating when the seed is immersed in water. During feeding, the larvae come into contact with a seed; stuck fast by their mouth brushes, they die.

"The potential for killing mosquito larvae is rather fantastic," Dr. Reeves says, noting that as many as 27 larvae have been stuck to one seed. He says there are

about two million seeds of *L. flavum* per pound, roughly the equivalent to the number of larvae distributed over four acres of marshland.

Commenting on the practical application, Dr. Reeves says the rate of mucilage breakdown due to pond sediments and algae is the key question. Otherwise, production would present no problems since the weeds adapt to a wide range of growing conditions. The seeds could be sterilized by heat so they couldn't germinate and add to the weed problem.

RESEARCH ANIMALS

Cancer rate high in Tasmanian devils

The Tasmanian devil, scorned, shot and poisoned as a pest for years, may provide important clues for a breakthrough in the fields of cancer and heart disease.

Scientists at the University of Tasmania have established that the devil has characteristics which make it ideal for research into these diseases.

The Tasmanian devils which have died in captivity have all been found to have died of cancer, and although the blood of the devil clots much more readily than that of humans, none of them have died of heart disease.

The senior associate in the department of chemistry at the University of Tasmania, Dr. R. S. Parsons, says economy is another factor which could make the devil important for research work into the two diseases.

It eats almost nothing. "You can put it on any diet you like and as it gets older its blood vessels harden just like human blood vessels," Dr. Parsons says.

PALEONTOLOGY

Fossil fish as ancestor

New Zealand geologists in Antarctica have found the fossilized remains of a fish that lived more than 350 million years ago. The almost perfect lower jaw was left at the site because it could not be removed without danger of disintegration.

The jaw is part of a fish that could breathe air; experts believe the first land animals are its descendants. It was discovered in Victoria Land, Australian Antarctic Territory, 150 miles from Scott Base, as part of one of the richest hauls of fossil animals yet made in Antarctic rocks. The team of scientists collected hundreds of pounds of rock containing fossil fish.

The jaw will be extracted by future parties after it has been strengthened and tested.

TOXICOLOGY

Ridding the body of DDT

Preliminary studies at the University of Miami suggest that two commonly used drugs may act to remove DDT from the body. Dr. John E. Davies and colleagues tested blood and body fat samples of persons taking phenytoin (Dilantin), used to control epilepsy, and phenobarbital, a sedative, and found DDT levels to be far below the average of the general population, and nonexistent in four cases. The next studies planned will attempt to show how long it takes to eliminate DDT from the body.

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