

Biology

Mastodon remains yield oldest life

Scientists have isolated living, 11,000-year-old bacteria from what appear to be the intestinal contents of a mastodon. Partially preserved remains of the elephantine animal that harbored the microbes turned up more than a year ago as golf-course developers excavated a pond near Newark, Ohio.

Paleontologists recovered the mastodon's largely skeletal remains from portions of a peat bog that remained a chilly 45° F year-round. A three-foot cap of clay had sealed the site. "We think the conditions of the peat bog slowed down the growth of the bacteria, putting them into a state of suspended animation," says Gerald Goldstein, the Delaware, Ohio-based researcher who cultured them. "These could be the oldest living organisms ever found."

Goldstein, of Ohio Wesleyan University, obtained the microbes from a reddish-brown cylinder of malodorous material found near the mastodon's ribs. He determined that the bacteria did not come from the surrounding soil by searching for them in 12 soil samples from the excavation site. All 12 turned up negative; a second "blind" analysis at Lyle Laboratories in Columbus, Ohio, confirmed those results.

Investigation disclosed that the ancient bacteria were *Enterobacter cloacae*, a distant ancestor of microbes that aid digestion in many animals today. They were found amidst bits of vegetation — such as swamp grass, leaves and seeds — that Goldstein says others have traced back to the last ice age, 11,000 years ago. Carbon dating indicates that wood embedded in the material also dates from the last ice age.

Goldstein presented his findings last week at the annual meeting of the American Society for Microbiology in Dallas. He is now working under the direction of the Licking County (Ohio) Archaeology and Landmarks Society to isolate the ancient microbe's DNA for comparison with DNA isolated from modern bacteria.

Earlobe crease hints at heart disease



Look in the mirror. If your earlobes bear diagonal creases, you could run a higher risk of developing heart disease, according to results from an eight-year-long prospective study of more than 100 men and women.

Since 1958, anecdotal evidence had suggested a link between ear creases and heart-disease risk. William Elliott, a University of Chicago physician, decided to investigate the connection in 27 groups of people. Each group

included two pairs of individuals matched for age, sex and race: one pair with established coronary heart disease and another pair of apparently healthy people. A single member of each such pair also bore creased earlobes.

After eight years, a significantly greater number of people with ear creases had died of heart disease, whether or not they were known to have heart disease at the start of the study. The link between earlobe creases and heart disease remains unclear, says Elliott, who reported his findings last week in Seattle at a meeting of the American Federation for Clinical Research. However, it could have something to do with similarities between arteries that supply blood to the ear and those that supply it to the heart, he speculates. Elliott encourages other physicians to monitor patients with earlobe creases more carefully for symptoms of heart disease.

But Albert Oberman of the University of Alabama in Birmingham, who serves as chairman of epidemiology for the American Heart Association, remains skeptical. He argues that since "there are also several studies which have found no relationship" between earlobe creases and heart disease, this medical curiosity "awaits further corroboration."

Biomedicine

Kathy A. Fackelmann reports from New Orleans at the annual meeting of the American College of Obstetricians and Gynecologists

Menopausal hormone therapy: A new risk?

Many women turn to hormone therapy during menopause to avoid night sweats, hot flushes and more dangerous problems, such as bone loss or heart disease. A new study now suggests one form of this therapy may cause an unexpected thickening of the endometrium, the lining of the uterus. If confirmed, the finding might reignite an endometrial-cancer scare that first erupted during the mid-1970s.

During the early days of hormone therapy, women received estrogen alone to block the undesired changes characteristic of menopause. When physicians started seeing an elevated endometrial-cancer risk among these women, scientists blamed estrogen, pointing to its ability to spur endometrial growth. Today physicians prescribe both estrogen and the hormone progesterone, which counters estrogen's endometrial growth message.

But once-a-day pills of both estrogen and progesterone may cause the endometrium to thicken, according to Kenneth A. Morhain, an obstetrician at Wright State University School of Medicine in Dayton, Ohio, and his colleagues. Though menstruating women develop a similar thickening, which sloughs off monthly, such an endometrial-cell buildup does not normally occur after menopause. However, the significance of this buildup "is really unknown," Morhain told SCIENCE NEWS.

His team studied the medical charts of 452 women treated daily for at least three months with progesterone and estrogen. The researchers focused on 32 women who experienced abnormal bleeding during therapy. Biopsies of their endometrial tissue showed an unexpected proliferation of cells in 22 women, or 69 percent. Morhain says the finding challenges earlier research indicating endometrial cells remain quiescent in postmenopausal women receiving continuous estrogen and progesterone therapy.

"It's an interesting finding," says Thomas E. Nolan of the Medical College of Georgia in Augusta. However, he warns that Morhain's team has not linked the thickening to cancer. Morhain agrees, but says that until further research proves the proliferation harmless, he may rely on a different regimen, one that more closely mirrors the natural cycle.

Clues to a perilous pregnancy

The development of high blood pressure during pregnancy often serves as the first sign of preeclampsia and eclampsia. These related conditions constitute the third leading cause of pregnancy-related deaths in the United States, federal researchers determined last year. The same scientists are now homing in on factors — such as inadequate prenatal care — that may help identify women at mortal risk from these killers.

Women who suffer from preeclampsia, the milder condition, generally develop high blood pressure and a swelling of the hands and feet. Those who go on to develop eclampsia can also suffer seizures — and sometimes coma.

After analyzing maternal-mortality data from a large survey of U.S. hospitals between 1979 and 1986, Herschel W. Lawson and his colleagues at the Centers for Disease Control in Atlanta discovered that minority women face twice the risk of death from complications of preeclampsia compared with white women with preeclampsia, and run a 60 percent greater risk of death from eclampsia than do white women with this condition.

When the researchers adjusted for age and race, their data revealed that unmarried women with preeclampsia die at twice the rate of their married counterparts. Lawson says his team was also surprised to find that many of the women who died of preeclampsia or eclampsia had not received adequate prenatal care. This suggests that some of these deaths might have been prevented, he says.