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DISCOVERIES

The Boston Globe

Humans may not be to blame for mammoth, horse die-off

May 15, 2006

EXTINCTIONS

A little more than 10,000 years ago, large mammal species -- including wild horses and 10-ton elephants known as woolly mammoths -- mysteriously died off in the Americas. Many scientists believe that human hunters were the culprits, but a new study suggests otherwise. Dr. Dale Guthrie of the University of Alaska dated more than 600 large mammal bones from the so-called Pleistocene-Holocene transition when the mass extinctions occurred. He found that the extinctions do not seem to coincide with the arrival of humans in the Americas. According to Guthrie, this suggests that the extinctions were due to ecological factors such as climate and vegetation changes, not human hunting.

BOTTOM LINE: People have one less thing to feel guilty about: Humans may not have been involved in mass extinctions of mammoths and horses 10,000 years ago.

CAUTIONS: The conclusions of this study are based on considerable speculation by the author. Other experts might conclude that the fossil dating patterns are still consistent with the hypothesis that human activity led to the mass extinctions.

WHAT'S NEXT: Guthrie dated bones only from a handful of the large mammal species that existed when the mass extinctions occurred. More work is needed to date fossils from other species.

WHERE TO FIND IT: Nature, May 11, 2006

MICHAEL E. HOCHMAN

THYROID CANCER

Rising incidence may be due to better detection

Over the past 30 years thyroid cancer rates in the United States have more than doubled. Experts have suggested numerous explanations for this trend, including increasing levels of environmental radiation. Now, researchers from the Veterans Affairs Medical Center in White River Junction, Vt., have data to support another theory: Thyroid cancer rates may not actually be increasing at all. Instead, according to their new study, it appears that doctors have simply been detecting the disease more frequently. The researchers analyzed data from a large database of records compiled by the National Cancer Institute in five states from 1973 until

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2002. They found that although thyroid cancer rates have increased considerably during this time, most of the increase has been due to the detection of very small cancers that may never have killed anyway. In addition, mortality rates from thyroid cancer have remained unchanged during this time period.

BOTTOM LINE: The apparent rise in thyroid cancer rates in the United States over the past 30 years may be due to increased detection of small, usually harmless, tumors.

CAUTIONS: This study does not prove that the apparent rise in thyroid cancer rates is due to increased detection of the disease. It is possible that earlier detection is saving lives, keeping the mortality rate from the disease constant.

WHAT'S NEXT: Even though most small thyroid cancers are harmless, some can be deadly. More research is needed to determine how aggressively doctors should treat small thyroid tumors.

WHERE TO FIND IT: The Journal of the American Medical Association, May 10, 2006

MICHAEL E. HOCHMAN

ENERGY

Professor amps up output of power from bacteria

Three years ago, Derek Lovley, a professor at the University of Massachusetts in Amherst, announced he was able to power the equivalent of a single Christmas tree light by using the natural electric output of microorganisms found everywhere from ocean muck to mountaintop soil. As these organisms feed, they produce tiny currents of electricity. Now Lovley has figured out a way to boost that power by a factor of 10 by packing more cells into the same space. The output is still tiny -- only a couple of watts -- but his finding changes how researchers thought the organisms worked and brings them closer to using the bacteria to fuel low-power antennas or sensors.

BOTTOM LINE: Researchers are deriving more and more energy from the tiny bacteria that are all around us.

CAUTIONS: Lovley and his team say they still know very little about how microbes produce electricity.

WHAT'S NEXT: The team want to learn how to better use these bacteria to extract even more power.

WHERE TO FIND IT: Lovley announced the discovery last week in Denver at a meeting of the Electrochemical Society. He has submitted the work for publication.

ELIZABETH DALEY ■

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