

Archaeology

Cattle skulls offer grave clues

In 1986, archaeologists working at a British site known as Irthlingborough uncovered a burial pit containing the skeleton of a man surrounded by various signs of wealth, including a long-necked beaker, a flint dagger, an amber ring, and a boar's tusk. The finely crafted items, more than 4,000 years old, marked the deceased as a person of high status.

An examination of animal bones found among collapsed limestone bricks that once formed a mantle for the burial site now indicates that Late Stone Age and Bronze Age residents of the area invested cattle with great symbolic and ritual value.

The remains of at least 185 skulls and smaller numbers of lower jaws, shoulder blades, and thighbones of cattle were found in the rubble, report Simon Davis and Sebastian Payne of English Heritage, an archaeological exploration society in London, England. Only 40 of the 2,511 recovered bones and teeth came from animals other than cattle, such as horses, pigs, sheep, and an extinct species of wild oxen.

Radiocarbon dates for two cattle teeth, two oxen teeth, and a bone sample from the human skeleton extend to the third millennium B.C. and the early second millennium B.C., Davis and Payne assert in the *MARCH ANTIQUITY*.

Large cheek teeth found at the site vastly outnumber smaller teeth from the front of the mouth, the researchers point out. Incisions on the shoulder blades probably resulted from butchery, and tooth features identify almost all the cattle as prime beef animals between 1 and 6 years old. Skeletal parts bearing the choicest cuts of meat do not show up at the burial site, perhaps because they were discarded during a ceremonial feast, the archaeologists say.

The loss of smaller teeth probably occurred during a delay of a month or more between slaughter and placement of skulls on the burial's stone roof, Davis and Payne contend. Spreading roots anchor the cheek teeth in their sockets, but smaller teeth fall out more easily after death, they say.

A similar burial pit, topped by the remains of about 100 oxen, was found in England 57 years ago, but its exact age is unknown, Davis and Payne note.

The researchers suggest that ancient Britons may have used cattle in funeral rites similar to those still observed among some groups living on the island of Madagascar. These Madagascans allow a deceased body to decompose in a temporary grave and then, at an elaborate feast, deposit the bones in a permanent tomb. The skulls of cattle slaughtered for the banquet are placed on or near the grave. Because skulls are considered emblems of virility and power, mourners gather large numbers of them for the tombs of important people.

New look at an old Maya city

Excavations in northwestern Belize indicate that a Maya community flourished there more than 1,200 years ago.

A large-scale investigation of the site, known as La Milpa, began last year under the direction of three archaeologists: Gair Tourtellot III and Norman Hammond of Boston University and Amanda Clarke of York (England) Archaeological Trust.

Field work in 1992 concentrated on La Milpa's ceremonial center, which includes four pyramids, two ball courts, eight stone monuments bearing carved hieroglyphics, and one of the largest public plazas ever built by the Maya.

Written dates on the monuments span the period from A.D. 580 to A.D. 780, the researchers report in the *MARCH ANTIQUITY*. For unknown reasons, some monuments had their top half intentionally broken off and removed.

Pottery found at the site dates to between A.D. 800 and A.D. 1100. La Milpa ceramics resemble those of Maya centers that prospered to the west and south around the same time, Tourtellot's group contends.

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Biology

Elizabeth Pennisi reports from New Orleans at the Experimental Biology '93 meeting

Taking the chill out of hypothermia

Relief for rain-soaked backpackers and others in danger of developing hypothermia may come not from the nearest warm body but from the closest medicine cabinet. For those suffering from overexposure, getting into a sleeping bag with another person works no better than shivering as a way to warm up, says Gordon G. Giesbrecht, a physiologist at the University of Manitoba in Winnipeg.

On three occasions, he and his colleagues cooled each of six people in 8°C water, then allowed them to warm up by one of three methods: shivering alone in a sleeping bag, lying next to and hugging the back of another person while in a sleeping bag, or doing the same with a water-filled mannequin warmed to body temperature.

Hugging an external heat source causes skin temperature to rise and shivering to decrease, but it does not warm the person any faster than shivering alone, Giesbrecht concludes. Only if a person becomes so cold that shivering stops does it make sense to apply an external source of heat, he adds.

However, a combination of two or three commonly used medications may help delay the onset of hypothermia, reports André L. Vallerand, a physiologist at the Defense and Civil Institute of Environmental Medicine in North York, Ontario.

Vallerand evaluated the responses of seven men to an anti-obesity drug marketed in Great Britain. The drug contained 44 milligrams of the decongestant ephedrine, 60 mg of caffeine, and 100 mg of theophylline, an asthma medication. In one test, the men took the drug while clothed and then spent three hours sitting still. In two later tests, they took either the drug or a dummy pill, then sat in a 10°C room for three hours wearing only bathing suits. Neither they nor Vallerand knew whether the men had taken the real drug or the placebo.

Within 30 minutes, the drug causes the body to burn more fat, thereby increasing heat production by 20 percent. The drug's effect was as strong at the end of the three-hour test as it was at the start, says Vallerand.

Caffeine alone does not increase heat production, but ephedrine and caffeine together do, Vallerand says. It is not known how these substances rev up fat metabolism, he adds.

Body teaches children to prefer fats

Children are born liking sweets (SN: 2/15/92, p.110), but they quickly learn to also enjoy "energy-dense" foods — generally, those high in fat. Luckily for nutrition-conscious parents, children also learn to like low-fat foods if they are exposed to them often enough, says Leann L. Birch, a psychologist at Pennsylvania State University in University Park.

In their efforts to understand why children choose to eat the foods they do, Birch, Deborah L. Kern of the University of Illinois at Urbana-Champaign, and their colleagues evaluated the taste preferences of 27 children between the ages of 3 and 4. Twice a week for six weeks, scientists asked one subset of the children to drink yogurt shakes of different flavors and fat contents. One day during the week, the children received fat-free yogurt containing 66 calories; on the other, they consumed yogurt with 18 grams of fat and 228 calories. Before and several times during the test period, the researchers asked the children which flavors they preferred. A second group of kids tasted different-flavored yogurts but did not actually eat them.

"We see very clearly that children learn to prefer the flavors that are paired with high energy densities," says Birch. "[This] helps us understand why reducing dietary fats is so difficult."

The children who only tasted the yogurts, however, began to like the more familiar flavors better regardless of the calorie content, indicating that repeated exposure to foods can increase acceptance of them, adds Birch. She suggests that parents try to offer low-fat foods and snacks frequently to their children.

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