

## Cave evidence chews up cannibalism claims

In the last decade, anthropologists have increasingly questioned claims of cannibalistic customs in Stone Age and modern societies. A new study adds to the doubt by challenging the long-standing assumption that Neandertals practiced cannibalism in Italy's Guattari Cave between 50,000 and 100,000 years ago.

The cave achieved scientific notoriety in 1939 when an archaeologist entered one of its chambers and found an adult male Neandertal skull within what he described as a ring of stones. Someone had apparently struck the individual on the right temple and enlarged the hole at the base of the skull, the scientist observed. The scenario suggested that Neandertals had engaged in ritual cannibalism, killing their compatriot and extracting his brains for consumption.

A Neandertal jaw, probably from the same individual, also turned up among numerous animal bones that littered the cave floor. In 1950, another chamber of the cave yielded a second Neandertal jaw.

But in the first two systematic studies of the cave remains, described in the just-released April CURRENT ANTHROPOLOGY, researchers have found no evidence that cannibalism occurred or even that Neandertals consistently inhabited the site.

The cave probably served as a den for Stone Age hyenas, which scavenged the remains of deer, bears and other animals, possibly including an occasional deceased Neandertal dragged from a shallow burial, reports Mary C. Stiner of the University of New Mexico in Albuquerque. Hundreds of animal bones scattered across the floor of the cave come from the relatively small, portable parts of animal bodies typically found in modern hyena dens, Stiner asserts. The bones show no grooves or "cut marks" created by Neandertal-fashioned stone tools, she adds.

Older layers beneath the cave floor, excavated between 1939 and 1955, contain animal bones mixed with stone scrapers and other Neandertal tools. The great number of skull remains from older animals indicates that Neandertals scavenged already picked-over carcasses and returned to the cave with their booty, Stiner maintains.

The allegedly cannibalized Neandertal skull, however, lay on the cave floor in the heart of the hyena den, and shows no signs of tampering by either Neandertals or modern humans, report Tim D. White of the University of California, Berkeley, and Nicholas Toth of Indiana University in Bloomington. The skull displays no polish, no cut or scrape marks, no peeling or flaking and none of the beveling found on apparently cannibalized crania of Melanesians and southwestern Native Americans, the researchers note in their paper.

Gnaw marks consistent with carnivore

chewing appear on several parts of the Neandertal skull, White and Toth point out. Moreover, the so-called circle of stones surrounding the skull is an "irregular cluster," not an intentional construction, they argue.

The two new studies offer a "convincing rejection" of claims for Neandertal cannibalism at Guattari Cave, says Jill Cook of the British Museum in London. But other cases of alleged cannibalism may prove less straightforward, she adds. For instance, researchers long viewed human bones found in 1899 at a Yugoslavian cave as the remnants of a cannibal

feast that occurred more than 50,000 years ago. In the last six years, some have claimed the bones show no evidence of human modification; others have claimed they contain cut marks created when flesh was removed during ritual reburials, not cannibal gatherings. For now, scientists lack a firm grasp on ancient activities at the Yugoslavian cave, Cook concludes.

Evidence suggesting human cannibalism has emerged at other sites, including a 6,000-year-old French cave (SN: 7/26/86, p.52). But scientific opinion remains split on whether cannibalism was practiced routinely and systematically at such locations or occurred only in rare cases of imminent starvation. — B. Bower

## Helping cancers mature so they might die

Promising results from a pair of new U.S. studies bolster the credibility of retinoic acids, compounds derived from vitamin A, as drug treatments — and even potential cures — for certain cancers. Retinoic acids differ from other cancer treatments because they help malignant cells grow normally instead of simply killing the cells off.

Researchers reported conducting successful trials with one of the drugs nearly three years ago in China and last year in France. The National Cancer Institute (NCI) in Bethesda, Md., has recently approved more than 50 U.S. requests to conduct human trials with retinoic acids against various cancers, says David R. Parkinson of NCI's Cancer Therapy Evaluation Program.

The rare but difficult-to-treat acute promyelocytic leukemia (APL) proved the first cancer to succumb to a retinoic acid. This disease, striking roughly 1,500 people in the United States each year, is characterized by the uncontrolled growth of a subclass of immature white blood cells bearing a specific chromosomal abnormality. Oncologists cannot effectively treat APL patients with chemotherapy because this disease leaves its victims vulnerable to excessive bleeding, which the drugs only exacerbate.

In the previous Chinese and French APL studies, a retinoic acid named tretinoin cured all of 24 patients, and 14 of 22 patients, respectively. Now a team of U.S. researchers led by Raymond P. Warrell Jr. of the Memorial Sloan-Kettering Cancer Center in New York City reports administering tretinoin (all-*trans*-retinoic acid) to 11 patients with APL. In the May 16 New ENGLAND JOURNAL OF MEDICINE, the group reports that while tretinoin failed to benefit two patients, it caused complete remission in the other nine by prompting their immature — and otherwise immortal — leukemic white cells to finish developing and die off after a normal white-cell life span.

The leukemic cells made defective re-

ceptors for retinoic acid, and Warrell's group says this could explain their failure to develop normally. The researchers believe the tretinoin treatment entered the cells by other means.

Rohini C. Vyas from M.D. Anderson Cancer Center in Houston, a member of Warrell's group, gave a more detailed account of tretinoin's curative effects two weeks ago. At the annual meeting of the American Association for Cancer Research, in Houston, she reported that two chromosomes in all of the APL patients' white cells had swapped large pieces, leaving the cells arrested in early development. Vyas found that once tretinoin treatment began, however, the cells began aging normally despite their chromosomal abnormalities. In the patients who sustained a cure, Vyas notes, all abnormal white cells had died and had been replaced by young cells capable of normal development.

Last week, at the annual meeting of the American Society of Clinical Oncology, in Houston, Scott M. Lippman from M.D. Anderson reported on another retinoic acid success — this time against advanced squamous cell carcinoma of the skin. Treatment that combined isotretinoin (13-*cis* retinoic acid) with alpha interferon reduced tumors in 16 of 26 patients with squamous cell carcinoma of the head and neck. The drug combo caused complete remission in six of the 16.

Advanced squamous cell carcinomas of the head and neck have been difficult to treat, Lippman notes, because surgery and radiotherapy are often disfiguring, and chemotherapy has proved largely ineffective. But in this study, he says, relatively low doses of the two compounds produced nearly double the benefits of either one alone.

Retinoic acids are "the most interesting story in molecular biology applied to cancer," concludes M.D. Anderson oncologist Razelle Kurzrock. "It makes you think that we'll be able to solve cancer."

— C. Ezzell