

Locking horns

Rival zoologists are sparring over some twisted horns from an Asian cow-like creature. Are the specimens the reality behind a Cambodian myth, or clever fakes by local artisans? John Whitfield sifts the evidence.

Is there now, or has there ever been, an animal called the spiral-horned ox? It's a question that leads to unexplored forests, ancient texts, eastern mythology — and to rival camps of zoologists, one contending that the world's museums contain genuine specimens of a mysterious cow-like ungulate, the other dismissing them as fakes.

The story began in 1994, when two researchers from Dresden in Germany described a new species from the Vietnam–Cambodia border^{1,2}. The animal is still known only from its forehead and its horns, which have spiral tips and corrugations along their length. The specimen count stands at 21, mostly collected in the past decade from the region's shops and markets.

No zoologist has seen any more of *Pseudonovibos spiralis*, as the beast was named. But Cambodian folklore mentions a snake-eating cow with twisted horns, called the Khting Vor. Believers assert that *Pseudonovibos*, with its snake-like horns, gave birth to the myth³. A description in a Chinese encyclopedia from 1607 of a beast that sleeps while hanging from a tree by its horns — horns that can cure snakebite — might also have been inspired by *Pseudonovibos*⁴.

Confusing results from DNA analysis have suggested that the Khting Vor's abilities include shape-shifting. To a group of Austrian and German researchers, who took DNA from the Dresden specimens, *Pseudonovibos* seemed closely related to sheep and goats⁵. But last year, Russian researchers, using a different DNA sequence and different specimens, asserted it to be a type of buffalo⁶.

Alexandre Hassanin, a molecular systematist at Pierre and Marie Curie University in Paris, has a simpler explanation: *Pseudo-*



Fact or fiction? Are these horns from the Vietnam–Cambodia border evidence of a new species — known from myths as a snake-eating cow — or are they fakes?

novibos never existed. From his own DNA analysis, Hassanin concluded that the animal's apparent goatiness was down to laboratory contamination with chamois DNA⁷. Many of the horns show evidence of having been twisted and carved, Hassanin asserts⁸. And this month, he published the second of two papers^{9,10} arguing that DNA sequences from *Pseudonovibos* are identical to domestic cow DNA. Case closed, claims Hassanin.

Ox or hoax?

Robert Timm begs to differ. True, there are fakes, he says, but Timm asserts that the two sets of *Pseudonovibos* horns at his workplace in the University of Kansas Natural History Museum in Lawrence are genuine. American hunters collected these in Vietnam in 1929 (ref. 11), decades before the Dresden team described the beast from what Timm says really were fakes. “There’s no doubt in my mind that the specimens I have here are real animals,” he says. From X-ray studies, he argues that the Kansas horns got their twists and ridges naturally¹².

Ronald Pine of the Field Museum in Chicago, who has seen the Kansas specimens, has some sympathy with that view. “An awful lot of people seem to regard it as having been established that this animal doesn’t exist,” he says. “I think that conclusion is premature.”

But to Richard Melville, a retired financier who has spent more than 40 years exploring and studying Cambodia and reading memoirs from the country's colonial past, the believers' claims are “tortured conjecture”.

Melville suspects that the horns were manufactured, and were ascribed their powers because of the centrality of snakes to Cambodian mythology, which mixes Hindu and Buddhist traditions¹². Researchers were misled by their cultural ignorance, he claims. “Scientists are trained to look for the facts, not the myths or tricks.”

The two camps came together in print to argue their cases last December¹². The next step, says Timm, is to swap specimens; he is developing DNA tests for the Kansas horns, and is willing to give others access to them. But he does not anticipate closure soon. “We’re not going to have this resolved in the next two or three years,” says Timm.

Of course, the row could be settled tomorrow if a Khting Vor wandered out of the remote forests of Cambodia. But Timm does not expect to get so lucky: “I’m sure it’s gone extinct — people would have found it.”

John Whitfield works in Nature's science writing team.

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