

Arsenic Preserved the Animals, but Killed the Museum

A popular taxidermy exhibit in Sioux Falls, S.D., was closed after the toxin was discovered laced throughout the specimens. Many lament the loss of the “works of art.”



A bison and calf on view at the Delbridge Museum of Natural History, in Sioux Falls, S.D., a collection of 150 preserved animals from six continents. Credit...Great Plains Zoo



By [Katrina Miller](#)

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Usually, you go to the zoo to look at live animals. But at the [Great Plains Zoo](#) in Sioux Falls, South Dakota, people also went to see the dead ones.

The attraction, called the [Delbridge Museum of Natural History](#), hosted one of the most impressive taxidermy collections in the country, with some 150 animals from six continents, each meticulously positioned in a diorama depicting their natural habitat. There, visitors could encounter — up close — a (stationary) mob of kangaroos, a pouncing lion, a panda eating bamboo and more.

On Aug. 18, Sioux Falls and Great Plains Zoo officials [announced](#) that the Delbridge Museum had closed after nearly 40 years, citing an increased risk of chemical exposure to staff and visitors as the animal specimens age. At a news conference, [streamed live on Facebook on Aug. 29](#), they specified that a majority of the taxidermy mounts contained arsenic, a toxin that can cause [pregnancy complications, cancer and even death](#).

“When we have a known carcinogen in one of our public displays, we can’t take risk,” Paul TenHaken, the mayor of Sioux Falls, said at the conference. Dave Pfeifle, city attorney for Sioux Falls, added that “there are no acceptable levels of risk regarding arsenic.”

But the museum's closing has drawn a backlash from Sioux Falls residents, many of whom have fond memories of visiting the taxidermy collection and worry that the decision represents the first step toward its disposal. Some feel the city is not being transparent about the risk, while others suspect that the zoo wants to get rid of the museum to make room for newer attractions.

Greg Neitzert, a member of the [Sioux Falls City Council](#), described the closing as an “out of the blue” decision that had come as a shock to him and other council members. He said the reasoning “just isn’t passing the smell test” — that the risk alone should not lead to the museum’s decommissioning.

Conservators at large worry that the museum’s closing could raise undue concern over how safe antique collections truly are. “This is already something that bubbles along the surface for natural history museums,” said Fran Ritchie, chair of [the Society for the](#)

[Preservation of Natural History Collections](#)' conservation committee. "And then to have something boil over like this — it's difficult." Since the closing, she said, her colleagues have been contacted by other museums anxious to know [if they should remove taxidermy pieces from display, or get rid of them entirely.](#)



A panda display. Credit...Great Plains Zoo



Damage on a taxidermy bongo, a forest-dwelling antelope native to West and Central Africa.

Credit...Great Plains Zoo



The closing of the Delbridge Museum has raised concerns about antique collections in museums elsewhere across the country.

Credit...Great Plains Zoo

The presence of arsenic is not uncommon in antique artifacts. The element is prevalently found in green pigments that were once used to dye clothing, [book covers](#) and even artificial flowers, according to Ms. Ritchie. (In the Victorian era, she said, people even ate small amounts of the toxin, hoping to make their skin appear pale.)

Arsenic can exist organically in animals and plants, but it is the inorganic kind, found in soil and groundwater, that can be harmful. Before the 1980s, inorganic arsenic “soap” was used in taxidermy as an embalming agent, applied to the inside of an animal skin to prevent harmful pests. The skin was then pasted over a mannequin shaped in the animal’s likeness, and sewn together to create a realistic mount.

“These aren’t stuffed animals, these are model sculptures,” said John Janelli, former president of the National Taxidermy Association. Most of the specimens at the Delbridge Museum were procured between the 1940s and 1970s by Henry Brockhouse, a Sioux Falls businessman and hunter, and the skins were mounted by [the Jonas family](#), renowned taxidermists in the conservation world, Mr. Janelli said.

Mr. Brockhouse displayed the animals behind glass, in the back of West Sioux Hardware, a store he owned, until his death in 1978. In 1981, his attorney, C.J. Delbridge, purchased the collection at a public auction and donated it to the city of Sioux Falls. Three years later, the Delbridge Museum opened, one of only a few natural history collections in the state.



Wear and tear above the eye of a female nyala, an antelope found in southern Africa. Arsenic was applied to the inside seams of most specimens, so that as they age the arsenic is exposed where the skin separates from the mannequin.

Credit...Great Plains Zoo

The value of the exhibit extends beyond Sioux Falls, Ms. Ritchie said, in part because many of the species it includes are now protected, so a collection like this could never be replicated. Taxidermy is an invaluable educational tool, offering “a chance to get up close to an animal in a way that you cannot do safely in the wild,” she said. “It creates an experience that’s unlike anything else.”

According to Becky Dewitz, chief executive of the Great Plains Zoo, who spoke at the Aug. 29 news conference, an appraisal had concluded that at least 45 percent of the collection showed wear and tear. In a chemical analysis, 79.5 percent of the mounts tested positive for arsenic.

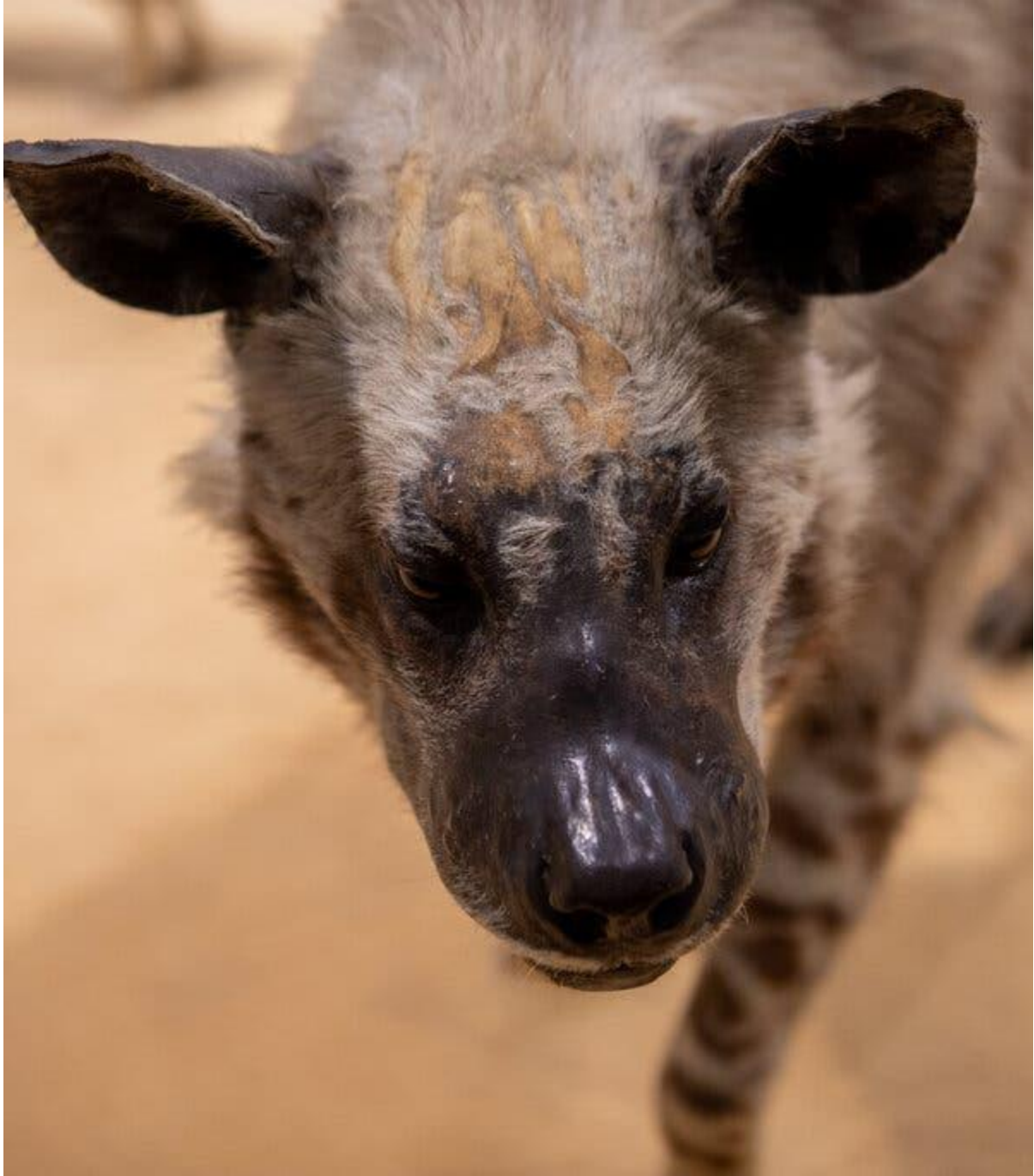
Conservators generally assume that all taxidermy mounts dating from before the 1980s were probably made using arsenical soap, Ms. Ritchie said. That the substance was applied to the inside means that, as the mounts age, arsenic is exposed around the seams, where the skin separates from the mannequin.

At a [city council meeting on Aug. 29](#), Ms. Dewitz showed photos of the deterioration on many of the larger animals in the museum, including a zebra, an elephant and a giraffe. “Gravity and age are not kind, even when you’re 15 feet tall,” she said. Reported levels of arsenic ranged from 0.5 to 54.6 milligrams per kilogram.

But Kerith Schrager, an objects conservator at the National September 11 Memorial & Museum who specializes in hazardous collections, said that such data generally reveal little about the risk of exposure. “I can have a bottle of alcohol sitting on my desk, but if I don’t ever open it or touch it or drink it, I’m not exposed to it,” Ms. Schrager said.

With arsenic, the route of exposure matters. Ingestion is the most harmful, followed by inhalation, then skin contact. Milligrams per kilogram is a common dose measurement for arsenic levels in food, Ms. Schrager said, but it is not useful for assessing surface or air contamination, which are the primary ways that museum staff or visitors might be exposed to the chemical.

Image



A hyena.

Credit...Great Plains Zoo



Giraffe.

Credit...Great Plains Zoo



The Delbridge space currently functions as a warehouse, while officials wait for the recommendations of a work group commissioned by the mayor to determine the specimens' future.

Credit...Great Plains Zoo

To accurately determine that risk requires an in-depth exposure assessment, Ms. Schrager said. This includes monitoring the breathing of a visitor as they “go about their business,” and taking wipe samples of anything touched, to test for cross contamination. Museums can then make adjustments where needed, such as enclosing the mounts in airtight glass cases or working with taxidermists to redo the mounts without arsenical pesticides.

But that comes with a hefty price tag, Ms. Dewitz said. Installing glass and updating the museum’s ventilation system for better climate control could reach up to \$4.2 million; a new building for the collection could cost up to \$14 million.

Sioux Falls residents at the city council meeting responded emotionally. “My soul is just broken,” said Beverly Bosch, the youngest daughter of Mr. Brockhouse. “This was my dad’s life.”

On Sept. 15, Mr. TenHaken, the Sioux Falls mayor, [announced the assembly of a new work group](#) to develop a plan to make the taxidermy collection surplus, which marks the property as no longer useful to the city. But even if that occurs, navigating federal and state laws and figuring out what to do with the collection will prove tricky, as many of the animals are considered protected species.

“These are like works of art,” Mr. Neitzert said. “You don’t throw works of art away — not lightly.”

Mr. TenHaken affirmed that the city would not simply dispose of the collection in a landfill. “We wouldn’t just take artifacts like this and treat them like a Papa John’s pizza box,” he said at the Aug. 29 news conference.

But some Sioux Falls residents want to keep the animals on display. A Facebook page for the effort has amassed over 15,000 followers. Mr. Neitzert plans to propose that the city hire a conservator to independently assess the situation.

John Sweets, owner of the building that used to be West Sioux Hardware, said he felt a personal obligation to help save the collection, because he is so frequently stopped by older residents reminiscing about the magic of the building’s former contents.

The space currently functions as a warehouse, but Mr. Sweets dreams of turning it into an artists’ bazaar, perhaps with taxidermy mounts arrayed throughout: the elephant here, the giraffe and hippo there. If the zoo can no longer house the animals, “let’s get them to a place where they can go,” he said. “And it just so happens that I own a place.”