



UNLESS OTHERWISE INDICATED, PHOTOGRAPHS ARE BY THE AUTHORS.

Undergraduate students from Creighton University's course, "Global Environmental History," visiting The Durham Museum collections. Students used this experience to identify the provenance of the objects as the basis for later research.

# Exhibiting Climate Change Without Saying “Climate Change”

## Objects-as-Evidence & the Challenge of Engagement

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Concrete does not often feature prominently in museum exhibitions, but perhaps it should. In 2018, The Durham Museum in Omaha, Nebraska mounted fragments of concrete in a wall case (fig. 1) along with this label: “Concrete is the world’s most used building material. It is a global commodity consumed at a rate of one ton per person per year. Production takes an intense, and largely hidden, toll on the environment.”<sup>1</sup> The concrete fragments came from the museum itself, a renovated 1930s art-deco railroad station, now Omaha’s largest history museum. Undergraduate students in Creighton University’s senior-level environmental history course researched the fragments and wrote the label as part

**Fig. 1.** Fragments of concrete from The Durham Museum were among the 12 objects that students researched and incorporated into the exhibition.



THE DURHAM MUSEUM

1 This figure has since been updated. Current estimates are that people consume approximately four tons/person/year. Colin Waters and Jan Zalasiewicz, “Concrete: The Most Abundant Novel Rock Type of the Anthropocene,” in D. DellaSalla and M. J. Goldstein, eds., *Encyclopedia of the Anthropocene*, Volume 2 (Oxford: Elsevier, 2018), 75–85.

of a collaborative exhibition with the museum entitled *Omaha in the Anthropocene: A Learning Exploration with Creighton University*.

Along with work on 12 other objects, student research on the concrete fragments told a global story of human-induced environmental change.<sup>2</sup> The fragments represented the impact of concrete production, which since 1950 accounts for between five to seven percent of total carbon dioxide emissions. Other objects, such as a mid-century refrigerator, pointed to the impact of chemical aerosols that damaged the earth's ozone layer. Coffee cans from the 1930s showed the commercial reach of Omaha's consumers into tropical ecosystems. These museum objects anchored global environmental relationships to Omaha's local history. The goals of the exhibition were twofold: first, to reach new audiences that neither partner institutions could engage independently, and second, to encourage visitors to consider deeper questions about the roots and meaning of environmental change on an increasingly human planet. These environmental changes are increasingly framed in the context of the "Anthropocene."

### **The Anthropocene & the Challenge of Engagement**

The Anthropocene means "the age of humans." It is a proposed geological epoch currently under consideration for official designation as a new division of geological time by the International Commission for Stratigraphy (ICS). The ICS is an organization of earth scientists tasked with defining units (periods, epochs, and ages) in earth's timeline. Scientists mark these divisions according to environmental changes so significant that

2 *Omaha in the Anthropocene* was a collaborative exhibition at The Durham Museum that ran from March 2018 through March 2019. It was supported by Humanities Nebraska, the Nebraska Cultural Endowment, and Creighton's Center for Undergraduate Research and Scholarship.

they leave a lasting global impression in the earth's ice, soils, and rock layers. Up until this point, scientists relied upon asteroid impacts, glaciations, and mass extinction events to mark breaks in earth's past. The current proposal argues that humans are permanently reshaping the global environment, whether in terms of the composition of its atmosphere, its species diversity, or even the elemental cycles of nitrogen and phosphorus. Not all geologists agree with this proposal, yet its provocative implications – that humans have become one of these "great forces of nature" – have ensured widespread interest.<sup>3</sup> Increasingly, Anthropocene debates have shifted beyond geology into broader academic discourse.

The humanistic implications of the Anthropocene idea are equally significant, and historians have taken a leading role in debates about its origins and meaning. If humans have become agents of environmental change on a geological scale, when and how did this transition take place? What role did the development of agriculture or industrialization play in altering landscapes or changing climate? How has globalization affected species introduction and rates of extinction? How did colonialism or capitalism reshape consumption of natural resources? Did everyone benefit equally or share the consequences of these changes? Debates about the roots of the Anthropocene and responsibility for ecological crises are fundamentally historical, and like much of humanistic inquiry, perhaps best explored through storytelling.

Museums have begun to explore new ways of presenting and interpreting these stories. Art, science, and natural history museums have already curated numerous Anthropocene

3 The literature on the Anthropocene is vast and expanding. For a primer on the origins of the term in its interdisciplinary context, see Will Steffan, Paul J. Crutzen, and John R. McNeill, "The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature?" *Ambio* 36, no. 8 (2007): 614–21.

# How can museums convey engaging stories that connect the history of global crises to viewers' lives and decisions?

exhibitions.<sup>4</sup> History museums have a largely unrealized potential to further broaden this dialogue. They are well positioned to engage diverse audiences in the humanistic implications of environmental change and crisis, but they must navigate significant challenges. Global-scale environmental change can feel abstract, distant, or unconnected from visitors' everyday experience. Environmental changes on a geological timescale (extending millions of years) amplify this distance for viewers. How can museums convey engaging stories that connect the history of global crises to viewers' lives and decisions? The politicization of environmental subjects presents additional difficulties. If museums worry that activist messaging risks alienating viewers or supporters, they may avoid controversial subjects.<sup>5</sup> Climate change, for instance, is a fundamental element of human impact on the earth system and central to the Anthropocene idea, yet it is also undeniably

4 Libby Robin, Dag Avango, Luke Keogh, Nina Möllers, and Helmuth Trischler, "Displaying the Anthropocene in and beyond museums," in Jennifer Newell, Libby Robin, and Kirsten Wehner, eds., *Curating the Future: Museums, communities and climate change* (London: Routledge, 2016): 252–66. For a list of climate change/global warming/Anthropocene exhibitions, see "Climate Change Exhibitions," *Museums & Climate Change Network*, accessed August 4, 2019, <https://mccnetwork.org/exhibitions/>.

5 Henry McGhie, "Climate Change Engagement: A Different Narrative," in W. Leal Filho, Bettina Lackner, and Henry McGhie, eds., *Addressing the Challenges in Communicating Climate Change Across Various Audiences* (Cham, Switzerland: Springer, 2019), 13–30; Riley E. Dunlap, Aaron M. McCright, and Jerrod H. Yarosh, "The Political Divide on Climate Change: Partisan Polarization Widens in the U.S.," *Environment: Science and Policy for Sustainable Development* 58, no. 5 (2016): 4–23.

controversial. How can museums present potentially contentious environmental issues and still reach the broadest possible audiences?

*Omaha in the Anthropocene* faced both challenges. The exhibition content spanned thousands of years and addressed local and global themes. The Durham Museum also believed that including the terms "climate change" and "global warming" on labels might trigger immediate negative responses from viewers, thus preventing consideration of the exhibition's broader messaging. Collaborators at Creighton and The Durham addressed these challenges by framing the Anthropocene as a question rather than an outcome. It asked viewers to consider what evidence of the Anthropocene might look like. In the hands of the student researchers, mundane objects became evidence of environmental change, connecting Omaha's local past and present to historical changes in human society and the global environment. Students also employed strategic language to exhibit climate change without saying "climate change." By engaging viewers in the process of scientific and humanistic inquiry, the exhibition was able to present potentially controversial content in a way that felt less alienating.<sup>6</sup> This approach had benefits and drawbacks at every stage of development.

## Exhibition Planning

The exhibition began as part of The Durham Museum's Community Classroom. This initiative makes museum staff and resources available to local universities, providing use of objects and a space to present research to a wider public. *Omaha in the Anthropocene* was the first collaboration with Creighton University – a private Jesuit institution in

6 Ken Arnold, "Presenting Science as Product or as Process: Museums and the Making of Science," in Susan Pierce, ed., *Exploring Science in Museums* (London: Athlone, 1996): 57–78.



**Fig. 2.** The Durham staff visited Creighton’s campus earlier in the semester. Most students had never worked on a public history project before. This was the beginning of a collaboration that lasted the entire semester.

Omaha. Creighton’s history department had already developed a strong relationship with The Durham Museum through The Durham’s internship program, and the Community Classroom represented an opportunity to expand that partnership. Students enrolled in the fall 2017 semester of “Global Environmental History” conducted the research component of the exhibition. At the start of the semester, the lead curator (fig. 2) of the project visited the class on campus. She offered a primer on museum exhibition development, discussed how to write labels, and presented strategies for how students could use objects to tell environmental stories. Students then practiced what they had learned by brainstorming the environmental implications of objects in their possession, like cellphones and coffee cups. Objects became primary documents and their mundaneness connected the students’ everyday, local choices about consumption to global environmental impacts like tropical deforestation, climate change, and the mining of rare earth minerals. This class prepared students for their visit to the museum, developing their research projects, and working with additional museum staff.

Both the students and the museum immediately recognized the value of the collaboration. For the students, collaborating with the museum afforded the opportunity to work with unique objects (intro image) and the museum’s extensive photographic collections (fig. 3). Many had never visited the

museum. Students also expressed excitement about the public nature of the project. They would give a public lecture, their label texts would be read by a museum audience that averages 200,000 visitors per year, and their extended essays would be included in an online companion website.<sup>7</sup> The museum was equally excited about the opportunity. In partnering with Creighton, the project connected The Durham’s resources to wider audiences. The exhibition ultimately garnered media attention from local news outlets, student newspapers, visiting museum directors, and academic and professional publications.<sup>8</sup> Student research would also contribute to catalog records on the objects displayed, and the collaboration fit the mission of the museum to provide “relevant educational and entertaining opportunities” for the public.<sup>9</sup> Perhaps more importantly, the exhibition represented a new and very visible partnership between Creighton and

7 The online exhibit can be accessed at *Omaha in the Anthropocene*, [www.steppingintothemap.com/anthropocene/](http://www.steppingintothemap.com/anthropocene/).

8 Blake Ursch, “Creighton, UNO Students Partner with Durham Museum to Create Exhibits,” *Omaha World Herald*, August 25, 2017, [www.omaha.com/lifestyles/creighton-uno-students-partner-with-durham-museum-to-create-exhibits/article\\_ob4cbcee-97b8-5340-ad1c-f37cdd2e6ac7.html](http://www.omaha.com/lifestyles/creighton-uno-students-partner-with-durham-museum-to-create-exhibits/article_ob4cbcee-97b8-5340-ad1c-f37cdd2e6ac7.html); Charlotte Higgins, “Artifacts Make Sustainability Tangible,” *The Creightonian*, November 13, 2018, [www.creightonian.com/article\\_a105d354-e7b4-11e8-ba4c-13b884b642a8.html](http://www.creightonian.com/article_a105d354-e7b4-11e8-ba4c-13b884b642a8.html); Greg Staskeiwicz, “Omaha in the Anthropocene,” *The Gateway. Independent Student Newspaper of the University of Nebraska-Omaha*, September 27, 2018, <http://unothegateway.com/omaha-in-the-anthropocene/>; “The Durham Museum,” *Museum Magazine* (July/August 2018), 8. Collaborators also presented the exhibition in numerous public and academic forums, including Creighton University’s Sustainability Lecture Series and the World Congress for Environmental History in Florianópolis, Brazil.

9 “Mission Statement,” *The Durham Museum*, accessed August 4, 2019, <https://durhammuseum.org/our-museum/>.

**Fig. 3.** Students had access to The Durham Museum's Photo Archive, including free use of high-resolution images from its digital catalog. During their visits to the museum, students also gained "hands-off" experience with original negatives and an introduction to photographic preservation work.



The Durham Museum based on their mutual investment in public service and engagement.

The challenges of engaging audiences in the meaning and implications of the Anthropocene were immediately apparent. The Durham is not a science or natural history museum. It focuses on the social history of Omaha and Nebraska and had never internally curated an environmental exhibition before. Plus, its space was limited. In 100 linear feet (one-third of a football field) along a hallway (fig. 5), the exhibition would need to introduce the concept of the Anthropocene and frame it as an historical question, with enough space for students to present their stories of environmental historical change. Language would also be a challenge. Believing that politically charged words and technical language might alienate visitors, The Durham requested that politicized concepts be limited to ensure the broadest possible engagement with the exhibition. The term “climate change,” for instance, could not appear as text in the exhibition. Museums are among the most trusted sites for public information.<sup>10</sup> Relative to other institutions, research demonstrates that the public perceives them as “impartial, ‘safe’, places” for conversations and civic engagement.<sup>11</sup> The Durham Museum believed that maintaining that trust and reaching broad audiences required careful framing of environmental themes, which included avoiding language that might trigger politically biased dismissal of the exhibition as a whole.<sup>12</sup>

To navigate these challenges, the partners opted

10 “Most Trust Museums as Sources of Historical Information,” *American Association of State and Local History*, accessed August 4, 2019, <https://aaslh.org/most-trust-museums/>.

11 Fiona Cameron, Bob Hodge, and Juan Francisco Salazar, “Representing climate change in museum space and places,” *WIREs Climate Change* 4, no. 1 (2013): 9–21.

12 Lee Ahern, Colleen Connolly-Ahern, and Jennifer Hoewe, “Worldviews, Issue Knowledge, and the Pollution of a Local Science Information Environment,” *Science Communication* 38, no. 2 (2016): 228–50.

## **To navigate these challenges, the partners opted for an evidence-based approach to Anthropocene storytelling.**

for an evidence-based approach to Anthropocene storytelling. Rather than describing climate change as an outcome, it presented historical and scientific evidence of its significance. Interpretation of objects like concrete chunks, for instance, pointed to the significance and impact of the concrete industry’s greenhouse gas emissions. Strategic use of the phrase “greenhouse gases” helped us point to measurable factors contributing to climate change, while avoiding potentially charged language. Mundane objects connected personal experience and local history to global change. Using objects as evidence encouraged viewers to consider the social construction of scientific knowledge by calling attention to the contested meanings of the Anthropocene. It also condensed the space necessary to define the term. In effect, the entire exhibition encouraged visitors to formulate their own understanding of the Anthropocene. Beyond a small panel introducing the geological concept, the exhibition offered no definitive claim about its broader implications.

### **Exhibition Construction**

Following initial planning, exhibition development proceeded on two fronts. At Creighton, students spent the fall semester researching their objects and drafting exhibit label text. At The Durham, staff assisted

**Fig. 5.** Visitors at the opening of *Omaha in the Anthropocene*. The limitations imposed by the hallway exhibition space required collaborators to use a thematic approach to Anthropocene storytelling.

students with research questions and designed and built the exhibition. Faculty, students, and museum staff worked closely together throughout the fall semester in preparation for the March 2018 exhibition opening.

On the research front, students embraced the object-oriented format of the project. The structure of the course, which also presented the Anthropocene as a series of arguments, facilitated this approach. Students quickly intuited that the local history of their objects informed their own lives in Omaha. Historic streetcar tokens spoke to students who now live in Omaha's "streetcar suburbs," 1930s-era coffee cans from the Butter-Nut Coffee Company reminded them of their daily consumption of commodified tropical environments, and a fragment of the original transcontinental telegraph wire from 1861 seemed antecedent to their own tele-connected lives. Identifying these relationships lent materiality and immediacy to historical change. This process of discovery modeled the outcome we hoped audiences would experience: that they would see historical objects as directly connected to their current consumer choices, and that accompanying stories of past environmental change remain relevant today.<sup>13</sup>

Museum staff also worked to convey the connectedness between historic objects, viewers' experiences, and global environmental change. Students submitted their research as label drafts to the course instructor, who edited them before passing them on to the museum. The curatorial team, including the Curator of Collections, Collections Manager, Chief Curator, and Exhibit Designer enriched this content with supportive text, photographs,

<sup>13</sup> This approach builds on best practices developed by climate communication experts to address the psychological distance global climate change can engender. Sander van der Linden, Edward Maibach, and Anthony Leiserowitz, "Improving Public Engagement with Climate Change: Five 'Best Practice' Insights from Psychological Science," *Perspectives on Psychological Science* 10, no. 6 (2015): 758–63.



secondary objects, and designed a layout for the information. Creighton funded a student from the class to assist with this additional research. The limitations imposed by the exhibition space (with no defined entry or exit) required curators to organize the objects thematically, rather than chronologically. In addition to providing labels, students brainstormed these thematic "sections."

The section titled "Living in a World of Our Own Making," for instance, showcased material products of industrial society and their "invisible" consequences. A section panel introduced this theme and grouped together objects, (fig. 6, p. 67) including a photograph of Omaha's historic lead smelter, a fallout shelter sign, and concrete fragments. Student labels connected these objects to their historic consequences, whether lead poisoning (Omaha hosts the nation's largest residential Superfund site due to industrial lead pollution), radioactive fallout, or greenhouse gases. This theme asked viewers to consider how many other "invisible" materials influence our lives and connect us to the global environment. Taking inspiration from science textbooks,



museum staff color-coordinated themes and objects on section panels (fig. 7) to signify their connections. Curators used bold type to emphasize critical concepts and terms in the section panels. This thematic approach and these design decisions encouraged viewers to consider multiple interpretations of the Anthropocene, what evidence might look like, and why it matters today.

### Exhibition Feedback

Students were excited to make connections between local and global history and their own environmental impacts, but they were initially less than enthusiastic about The Durham's depoliticized approach. Most students recognized the gravity of environmental crises, especially climate change. They saw the project as an opportunity to inform viewers and advocate for environmental action. Some bristled at The Durham's request to avoid specific language on museum labels. Faculty and museum staff were highly sensitive to the students' concerns as well as those of The Durham Museum, and worked to accommodate both positions.

Although the term "climate change" did not appear in the exhibition text, students nevertheless discussed it extensively. They described the important role of industrial agriculture, deforestation, and industrialization in the accumulation of greenhouse gas emissions. They noted the disproportionate contributions of western societies and places like Omaha to this crisis and their unequal consequences elsewhere. They explored the cascading impacts of these changes throughout the earth system. Students wrote extended essays that museum viewers could access via QR codes on the exhibit labels. These essays had no limitations and displayed the fullest realization of their research efforts.

The exhibition design also explicitly addressed climate change as one of several important and measurable indicators of the Anthropocene. An enlarged graph served as a background to the exhibition and tracked the increase of social-economic and environmental changes, such as carbon dioxide and surface temperature, along with global population growth, increased fertilizer consumption, and tropical forest loss. The graph (fig. 8) made an argument about the pace and scale of change over time. The choice of indicators presented a causal claim that linked object narratives to broader social and environmental changes.

Feedback from visitors and students was overwhelmingly positive. The museum received visitor input via phone, email, and social media. Donors indicated that *Omaha in the Anthropocene* was among the best exhibitions of the year. One visitor even acknowledged the challenge the exhibition navigated by noting "I can imagine that given the political polarization of environmental issues in American society today, some people in the community might be upset about discussion of the environment in the Anthropocene exhibit and I imagine they might be very loud in voicing that opposition." That visitor found the exhibition "thought-provoking," "aesthetically beautiful," and they appreciated how objects connected Omaha's past to "global history and geology." It was more difficult to assess whether this strategy appealed to visitors who might otherwise avoid environmental subjects, however. The Durham did not conduct a survey and our feedback arrived unsolicited. It may be significant that the museum received no negative responses to the exhibition, but the lack of a dedicated space for visitors to provide feedback proved an important weakness that future designs will seek to avoid.

Faculty received student feedback on the collaboration systematically through course



**Fig. 6.** The exhibition was divided into four themes, each including three objects. The section entitled “Living in a World of Our Own Making” included concrete fragments, a fallout shelter sign, and an historic photograph of Omaha’s lead smelter. Each symbolized the “invisible” environmental consequences of industrial growth.



**Fig. 7.** The Durham Museum printed full-scale renderings of introductory text, section panels, and object labels for review by faculty and staff before final production. All objects and section panels were color coded to highlight connections, and bold text emphasized student argumentation about historical change and why it matters today.



COURTESY OF JESSICA SCOTT

**Fig. 8.** The exhibit background showcased nine graphs of linked socio-economic and environmental changes, including global population, tropical forest loss, carbon dioxide, and fertilizer consumption. Each variable increased dramatically after 1950, a period termed the “Great Acceleration.”

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evaluations. The elevated expectations of the course encouraged correspondingly positive assessments. Virtually all course evaluations identified the public nature of the class as its most rewarding aspect. Even the depoliticized approach, which earlier in the semester provoked some hesitancy, seemed worthwhile by the end. They noted that the project gave them a deeper appreciation of their social and environmental positions and their own power as agents of change.<sup>14</sup> They hoped their work might inspire similar reactions for visitors. Many noted that it encouraged them to think creatively about environmental communication, particularly in contexts where their positions may diverge from those of the audience. Although the evidence-based approach to *Omaha in the Anthropocene* was designed to accommodate the needs of a museum presentation, students found that addressing the challenge itself was a valuable experience.

## Conclusion

Museums are powerful forums for presenting meaningful stories about environmental change and its impacts. Yet the complexity of these narratives and the fraught nature of political discourse surrounding them present significant challenges for interpretation. Climate change in particular presents unique challenges due to its complexity and political implications. Exhibitions risk oversimplification if they present environmental challenges uncritically and self-censorship if they fail to acknowledge the reality of ongoing crises. At the same time, effective environmental communication strategies require careful framing of the message, attention to audience, and mode of presentation.<sup>15</sup> These imperatives need not

14 John C. Anderson and Melissa A. Williams argue that conveying a sense of empowerment should be a primary objective of museum education. John C. Anderson and Melissa A. Williams, "Engaging Visitors to Create Positive Futures," *Journal of Museum Education* 38, no. 3 (2013): 256–59.

15 Susanne C. Moser, "Communicating climate change: history, challenges, process and future directions," *Wiley Interdisciplinary Reviews: Climate Change* 1, no. 1 (2010): 31–53.

be contradictory, yet no single strategy likely works for all audiences.

*Omaha in the Anthropocene* experimented with two strategies: 1) employing strategic language and 2) foregrounding mundane objects as evidence to encourage dialogue about the origins, meaning, and implications of environmental change. This approach embraced the complexity of environmental crises by focusing on evidence that linked local environmental choices to global consequences. It also embraced the reality of climate change, even if it did not include the words. Neither faculty nor museum staff would argue this was a perfect solution. Despite repeated references to climate change, this message could have been lost without explicit language signifying the connection. "Greenhouse gases" and other language that appeared in the exhibition may have also triggered viewers predisposed to climate denial. Although we did not receive feedback that this was the case, a lack of negative response does not indicate absence.

Despite these potential limitations to our approach, faculty, museum staff, and students agreed the collaboration across institutions was successful. It helped both institutions reach new audiences and think creatively about presenting environmental themes. Environmental crises demand broader engagement, whether via collaborations that expand audiences or exhibition strategies that encourage visitors to see environmental change in a new light. Our approach to fostering engagement by collaboratively exhibiting the process of scientific and humanistic inquiry is one potential strategy to convey complex, controversial content in an accessible manner.

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