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Arsenic and Old Pelts: An Update on Deadly Pesticides in Museum Collections

Alice B. Kehoe

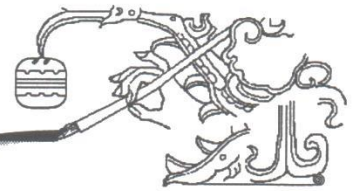
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The Codex



At the
University of Pennsylvania Museum
of Archaeology and Anthropology

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Welcome to the



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28 – year book” of *The Codex*.

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Now in its 28th year, *The Codex* continues to publish materials of substance in the world of Pre-Columbian and Mesoamerican studies. We continue that tradition in this issue.

Although we're entering a new decade in the 21st Century, it was the museum practices of the early 20th Century and the dangers they pose to those who handle the collections that drew the attention of Alice Kehoe and Marshall Becker. They explore the mysterious illness suffered by Clark Wissler at The American Museum of Natural History in the early 1900s, comparing it to what Marshall Becker experienced at the Civic Center Museum and at Tikal in 1963. (Editor's note: I do *not* know how Marshall survived!)

Almenas, or roof ornaments, have not been studied extensively in Mesoamerica, but in his paper, Marshall Becker furthers our knowledge of these unique features of buildings at sites in El Salvador, Guatemala, and Mexico.

Once again, Hutch Kinsman presents an in-depth analysis of astronomical data in association with significant Maya events and accompanying glyphs in his Grammar in the Script Column.

Although *The Codex* has become a publication of substance in the world of Pre-Columbian and Mesoamerican studies, we do not plan to rest on our laurels. We welcome suggestions for new features and ideas for future issues that will build on our success.

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The Codex is a publication of the Pre-Columbian Society at the University of Pennsylvania Museum of Archaeology and Anthropology. Each volume of *The Codex* consists of 3 issues: October, February, and June.

Subscription/Pre-Columbian Society Membership information can be found on the last page of this issue.

We are proud of our tradition of publishing original papers in *The Codex* and are now soliciting contributions for future issues. Manuscripts should be no longer than 15 pages, single-spaced, including illustrations, and may be submitted on CD, on flash/thumb drive, or by e-mail. We welcome submissions on all aspects of Pre-Columbian studies and American studies as they pertain to Native American cultures. Please address all communications regarding *The Codex* to:

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**ANNOUNCEMENTS:
UPCOMING MEETINGS**

17th Annual Tulane Maya Symposium, "Understanding Maya Fare: Beyond Tamales and Cacao," March 5-8, 2020. New Orleans, Louisiana, Tulane University and the Contemporary Arts Center of New Orleans. For further information, see the website: <https://liberalarts.tulane.edu/mari/events/maya-symposium>

2nd Annual Meeting on Community Archaeology & Heritage: "Owning (up to) the Past." Penn Cultural Heritage Center, April 4, 2020. Philadelphia, PA, Penn Museum, For further information, see the website: <https://www.facebook.com/pennchc/>

2nd Annual Maya on the Mountain: "The Lords of Tiho' – Studying the monuments and inscriptions of Dzibilchaltun and Western Yucatan," April 13-15, 2020. Barnardsville, NC, Boundary End Center Annex. (A Boundary End Center Workshop led by David Stuart) For further information, see the website: <https://boundaryend.com/>

10th Annual Maya At The Lago Conference: "Everything Maya," April 16-19, 2020. Davidson, North Carolina. Davidson Day School, 750 Jetton Street. For further information, see the website: <https://www.goafar.org/about-maya-at-the-lago>

85th Annual Meeting, Society for American Archaeology, April 22-26, 2020. Austin, TX, Austin Convention Center and the Hilton Austin. For further information, see the website: www.saa.org

May 2020 Meeting, Northeastern Group of Nahuatl Scholars, Friday, April 24 (noon) -Sunday, April 26. Boston, MA. The meeting will be hosted by the University of Massachusetts, Boston. For further information, see the website: <https://www.facebook.com/nahuatldiscussion/posts/2591348291099045>

47th Annual American Rock Art Research Association (ARARA) Conference, June 5-8, 2020. Great Falls, MT, Holiday Inn Great Falls-Convention Center. For further information, see the website: <https://arara.wildapricot.org/Conference-Info-2020>

EXHIBITIONS:

Metropolitan Museum of Art, "Arte del mar: Artistic Exchange in the Caribbean," December 16, 2019-January 10, 2021. The exhibit explores the artistic exchange around the rim of the Caribbean Sea before the sixteenth century between the Taíno civilizations of the Antilles archipelago and their powerful peers on the continental mainland. Works of art on view in the exhibition, largely drawn from The Met collection, celebrate the region's ancestral traditions, and a twentieth-century painting by an Afro-Caribbean artist explores their enduring legacy. For further information, see the website: <https://www.metmuseum.org/exhibitions/listings/2019/arte-del-mar-caribbean>

SITE-SEEING: REPORTS FROM THE FIELD

Arsenic and Old Pelts: An Update on Deadly Pesticides in Museum Collections *

by

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27 January 2020

CODE WORDS: Clark Wissler Arsenic Poisoning Heavy Metals
Museum Collections Pesticides in Anthropology

ABSTRACT:

The use of toxic chemicals within museums is an issue only recently addressed by anthropologists and scholars in related fields. A case of arsenic poisoning in an anthropologist during the 1960s is reviewed for what it may tell us about a mysterious ailment that afflicted Clark Wissler 50 years earlier. While no conclusive diagnosis can be made, Wissler's case reminds us that we have come a long way in protecting against one of the lesser known dangers confronting anthropologists.

All museums use pesticides and preservatives of some form, though the health impact of these agents is not always known. This necessary evil in the preservation of ethnographic collections can thus pose a health risk to people who work with or come in contact with treated objects. Here we open one cold case file, in which we believe a prominent American anthropologist may have directly suffered from the effects of poisons commonly used in the early nineteenth-century. Our own experience and recent inquiries provide one possible answer to the cause of the illness suffered by Clark Wissler.

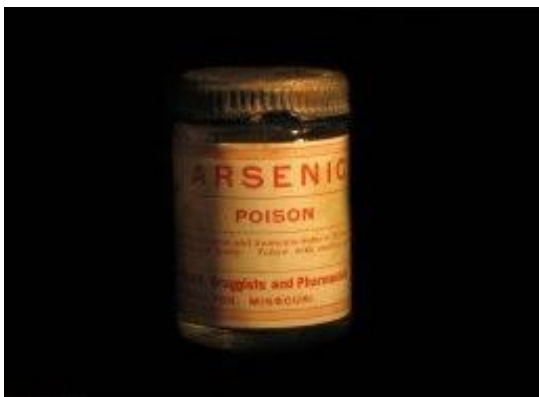


Figure 1. Arsenic.

***An earlier version of this article appeared in *History of Anthropology Newsletter* 41 (2017): <http://histanthro.org/notes/arsenic-and-old-pelts/> In this revised edition, the authors have corrected and expanded the text, and also rearranged and added figures, and placed numbers and captions to the illustrations.**

Clark Wissler (1870-1947) grew up in rural Indiana, where collecting artifacts on farm fields was a popular pastime. Anthropology was barely a discipline in the late 1800s. His academic development, like many other famous anthropologists (e.g. George Peter Murdock) began in other fields. Wissler's studies led him to take a Ph.D. in psychology at Columbia University in 1901. At Columbia he also took courses with Franz Boas, strengthening a latent interest in anthropology. Boas took him on as assistant in ethnology at the American Museum of Natural History in New York City in 1902. There Wissler began his career as Curator of the Department of Anthropology. He soon became the de facto head of Anthropology, and with various ups and downs stayed until his retirement in 1942.



Figure 2. Clark Wissler in 1921, in the middle of his career at the American Museum of Natural History. Creative Commons, ASU Embryology Project Encyclopedia.

Under Boas, Wissler conducted field work with Native American tribes, notably among the Blackfeet. Unlike most of Boas' urban students, with large and sometimes peculiar personalities (think Margaret Mead), Wissler had a very calm demeanor and low profile, similar to many of the Midwestern scholars we know (or Booth Tarkington). Wissler fell ill in 1905 (or 1907 or 1909, depending on the source). As he had only recently begun working in the American Museum of Natural History, the possibility that he was exposed to some toxic materials should be considered. During this same period of time Wissler was doing fieldwork that may have exposed him to biological or organic ailments. Stresses between Boas and Wissler also may have generated psychological tensions, an interesting possibility given Wissler's academic origins in psychology. At some point during the period of Wissler's illness, Museum Director Henry Fairfield Osborn recommended that his own physician examine Wissler. But despite this additional medical consultation, the illness persisted and was never successfully diagnosed—making him appear frail until 1928 when it mysteriously cleared up (Freed and Freed 1983). Others suggest that the ailment, or disease had cleared up as early as 1912. Whatever the etiology of his ailments, the symptoms were severe enough to cause Wissler to give up his fieldwork on the Blackfeet Reservation.

What could this illness have been, with symptoms so debilitating as to disrupt his anthropological studies on the Northern Plains? Efforts to identify specific toxins or projects that Wissler undertook that may have exposed him to harmful agents have not been successful. Wissler's position had put him in charge of the American Museum's collections in anthropology, as well as its department staff and associated researchers. For most of his working years, the museum's approach emphasized accumulating objects, to bring specimens to the intellectual center, to preserve disappearing crafts, and to facilitate comparative studies in cultural and biological anthropology. Wissler spent thirty-seven years in his AMNH office, located adjacent to the vast collection storage areas and scientific laboratories.



Figure 3. Sketch of the American Museum of Natural History. (Cover of *The American Museum Journal*, December, 1916 Volume XVI, number 8.)

Our initial interest was piqued when one of this article's authors (Kehoe), who has been visiting the Montana Blackfeet Reservation for many years and often has drawn on Wissler's publications and notes, wondered whether pesticides used in the collections stored around Wissler's office might have contributed to the mysterious illness from which he suffered. She discussed her suspicions with Marshall Becker, whose reflections on his own experience lent credence to Kehoe's suspicions and provoked this article.



Figure 4. Postcard of The University Museum with the Commercial Museum in the background, 1904.

During the first three months of 1963, Becker held the position of Registrar for the Civic Center Museum in Philadelphia, formerly the Commercial Museum. The Civic Center Museum was located immediately to the south of The University Museum of Archaeology and Anthropology of The University of Pennsylvania where Becker was completing his doctoral coursework. Among his many unusual tasks, he was charged with the destruction of approximately 98% of the collection by volume, which, incidentally, and tragically, included one of only two complete sets of Eadward Muybridge's stop motion photographs – as well as the world's best animal pelt collection. "This peculiar task did not compute in my ethnographic brain," being simply beyond the understanding of any reasonable person! Reflecting on the experience many years later he realized that he stumbled along, discarding vast bales of cotton, sacks of cacao beans, and huge chunks of coal (this was a commercial museum, showcasing the world's products) while trying to figure out how to store the vast ethnographic collection into a large room or two that had been designated for things to be saved. "After some months I realized that my instructions were exactly as I write them here— my job was to destroy the collection!"



Figure 5. The Civic Center Museum, formerly Commercial Museum (on the left), and the Philadelphia Convention Hall and Civic Center (on the right), ca 1934. Photo from: <https://www.facebook.com/oldimagesofphiladelphia/posts/the-philadelphia-civic-center-34th-civic-center-boulevard-originally-known-as-th/1835023283227268/>



Figure 6. Curator Charles R. Toothaker and staff at the Philadelphia Commercial Museum prepare objects for the West Africa display, 1921. (From: *Expedition Magazine*. Penn Museum, 2015 Web. 11 Feb 2020 <http://www.penn.museum/sites/expedition/?p=22585>)

When it finally dawned on Becker that everyone in the Museum was serious about total destruction of incomparable ethnographic materials, he quit. Fortunately! The vast animal pelt collection, and probably ethnographic textiles of every type, had been heavily and repeatedly treated with arsenic. Generations of moths had developed complete immunity to these poisons! “Every work night I went home looking like a coal miner, covered in a black grime that also coated my lungs. In those few months I had inhaled a significant dose of arsenic and had become, as is commonly understood, mad as a hatter!” Hatters became “mad” because they ingested mercury used in the felt making process to strip the hair from hides such as those provided by the “fur” trade in North America (cf. “plumber’s colic”, caused by lead fumes). Could arsenic ingestion have caused Wissler’s woes?



Figure 7. Two exhibit rooms at the Commercial Museum, ca 1910:
a: The Commercial Museum Japanese collection (Photo from: <https://www.pinterest.it/pin/254312710179395200/>) ;
b: Polynesian display, Philadelphia Commercial Museum. (From: *Expedition Magazine*. Penn Museum, 2015 Web. 12 Feb 2020 <http://www.penn.museum/sites/expedition/?p=22587>)

By May of 1963 Becker had arranged to continue a project involving residential structures at Tikal in Guatemala, in parallel with a project run by William A. Haviland. While the field work was a rare example of hypothesis driven research among the ancient lowland Maya ruins, the laboratory work involved extensive use of Duco brand cement, acetone, and other products that exacerbated symptoms of heavy metal poisoning. The massive and carefully regulated spraying of DDT around every building in Guatemala during that period had killed most of the cats in the country, as well as a pet ocelot at Tikal. “The DDT sprayed around every building in the Tikal camp can’t have helped my situation! The primary symptoms of heavy metal poison as I experienced them included a vague and persistent feeling of being unwell, lethargy, proclivity to spontaneous outbreaks of irrational rage – out of body experiences, and still other nasty problems.” In addition to being crazy as a coot, advanced symptoms included the ulceration of mucous membranes. As that phase progressed, and his mouth became a raw mess, Becker could no longer eat solid food, and could barely speak. His diet had devolved to warm milk and warm liquid Jello.



Figure 8. Richard Adams and Vivian Broman restoring Itza material from Temple I, in the laboratory, May 1958. Broman’s use of a latex glove in the restoration work was far ahead of the times. (William R. Coe, University of Pennsylvania Tikal Project Negative CX58-4-31, All rights reserved. University of Pennsylvania Museum.)

Leaving the project by the end of August to take up a teaching position at the University of Toledo, Becker fortunately was directed to an elderly German-trained nose and throat specialist who immediately diagnosed him with “plumber’s colic,” or lead poisoning and told him to stay away from all sources of heavy metals and to chelate the remaining arsenic and other metals by drinking more milk. “My new dentist in Toledo, much younger than my otolaryngologist, also immediately saw the ‘lead line’ on my gums and recommended that I take action at once!”

Becker’s experiences led us to look further into the possible link between Clark Wissler’s museum appointment and the never-identified ailment from which he long suffered. We queried the Council of Museum Anthropologists, and promptly received copies of horrifying accounts of pesticide use. David H. Thomas, at present a curator at the AMNH, checked with the staff and reported that their conservators “use XRF [X-ray fluorescence] to test our collections on loan... in addition to arsenic, they routinely identify methyl bromide on a huge number of objects, and sometimes mercury as well” (personal communication, 6/12/2017). Further, one study on pesticide use in collections noted that “salt, herbs, alum, spices, or tobacco” had been used in the eighteenth century to preserve natural history specimens, but collectors found these to be unsatisfactory; “Naturalists then decided to try new techniques for preserving bird and mammal skins. They substituted techniques that had been used in dried collections for a new group of very strong and effective poisons, for example, mercuric chloride dissolved in water, corrosive sublimate, or arsenic” (Marte, Péquignot, Von Endt 2006, 143-144).

Catherine Hawks has noted collectors' evolving other practices of pest control. "Collection growth, the use of cabinets to store specimens, and discoveries in organic chemistry eventually led to the use of gas-phase chemicals as fumigants for the contents of individual cabinets or for large-scale treatments. The legacy of pesticide use continues to pose problems for staff and various collections users, especially the recipients of repatriated objects" (Hawks 2001, 2; see also Hawks et al 2011, Odegaard et al. 2005, and also Henry 2015 on toxins in repatriated materials). Indeed, such concerns not only apply to collections at the AMNH; as Lisa Goldberg's work shows, for a number of years, the Smithsonian regularly used arsenic and mercury compounds for similar ends (see Goldberg 1996: 29).

Clark Wissler's papers are now housed at Ball State University (Wissler 2014). Perhaps there are clues to the riddle of his illness in this recently catalogued archive of his personal papers. We may never know the cause of this illness that may have lasted for twenty-three-years, nor why it cleared up in 1928, but poisoning from the pesticides that surrounded his working quarters is a tenable hypothesis. If only he had gone out to the pure air of the Blackfeet Reservation, despite his symptoms, he might have enjoyed healthy summers and perhaps figured out that his illness was associated with his home or work environment. Had he relocated to an office removed from the collections storage areas lining the corridors of the Anthropology Department, he might have reduced his intake of poisons. If our hypothesis is correct, Wissler's exposure to toxins was more diffuse, less intense than was Marshall Becker's, yet both men's researches were curtailed in some respects: Becker's for sure from toxins, Wissler's perhaps.



Figure 9. The Blackfeet Reservation, Montana. The scene would have been familiar to Wissler. (Photo by Alice B. Kehoe In: *Amskapi Pikuni: The Blackfeet People*, by Clark Wissler and Alice Beck Kehoe; with the collaboration of Stewart E. Miller. SUNY Press, 2012.)

Acknowledgements:

We are deeply grateful to William Green, Lea McChesney, L. McEnaney, Nicolette Meister, Felicia Pickering, David Hurst Thomas, John Tresch and Laila Williamson for their rapid and very useful responses to our earlier queries about the use of pesticides in museums. Anita Fahringer's careful editing of this text and her impressive retrieval of illustrations is very much appreciated. Prof. Kehoe thanks Luke Eric Lassiter and Larry Nesper, faculty members at Ball State University in 2003, for calling her attention to the Wissler papers that are curated there. Eric and Beth Lassiter provided hospitality for Dr. Kehoe during her examination of those papers. Prof. Becker wishes to acknowledge his special thanks to Prof. Mary Page (The University Librarian, West Chester University) for support in all aspects of research. Sincere thanks also are due her entire staff for their encouragement of these projects. The continuing support of Prof. Heather Wholey, Chair of Anthropology at West Chester University, has been critical to the development of this paper. The ideas expressed here and any errors of interpretation or presentation are, of course, solely the responsibility of the authors. If any readers of this note know of anthropologists poisoned by pesticides used in association with collections, please let us know.

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