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Lakota winter counts, pictographic records, and record making and remaking histories

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ABSTRACT

Winter counts are pictographic calendars created and used by certain Native American communities as mnemonic devices for remembering the sequence of events that mark each year, and for retelling community stories. Drawing on resources from the Smithsonian Institution's National Anthropological Archives' winter count collections and related literature, this study reviews and discusses the characteristics of pictographic records, traces their making and remaking histories, and revisits the pictorial tradition in the American history of records and record keeping.

KEYWORDS

Winter counts; pictographic records; American history of records and recordkeeping; Native American records

Introduction

Archival science takes a natural interest in understanding the relationships between records, recordkeeping and archives. Areas of research may include the investigation of characteristics of particular types of records, their creation and recordkeeping practices, and their survival stories as permanent collections in archival repositories. This study examines Lakota winter counts as pictographic records created by the American Plains Indians in the nineteenth and early twentieth centuries, explores their unique record-making and recordkeeping processes, and traces their survival stories as reproduced ethnographic cultural objects. The research provides an account of how winter counts are created, kept and preserved; sheds some light on the relationships among them; and explores the value of winter counts as historical records and recordkeeping systems in the United States.

At the start, *Protocols of Native American Archival Materials* highlights the government sovereignty of Native American communities that maintains their own territories, their own laws and their own knowledge systems.[1] Among the knowledge systems created and maintained by Native American communities are their traditional recordkeeping systems. Archival researchers have generally recognised the unique characteristics of three-dimensional record forms created by Native American people such as quipus knotted strings[2] and wampum beads and belts[3] but more detailed analysis has been published by scholars in anthropological or ethnographical fields.

Similar to other traditional Native American recordkeeping systems, Lakota winter counts have been 'the object of scholarly study for more than a century'[4] but pictographic

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calendars as records and recordkeeping systems are not generally covered in detail in research. In the first decade of the twenty-first century, Smithsonian researchers worked with Lakota communities to publish two scholarly works that helped heighten awareness of winter counts in the Smithsonian collection: *The Year the Stars Fell: Lakota Winter Counts at the Smithsonian*[5] and *Lakota Winter Counts: An Online Exhibit*.[6] The searchable database of the online exhibit and the chronological accounts of the winter counts compiled in the book provided valuable data for the analysis of this study.

In the research for this paper, the author consulted the literature relating to the creation and preservation of Lakota winter counts. To better understand the physicality of winter counts as pictographic records, the author also consulted the National Anthropological Archives' winter count collections and reviewed examples of Lakota winter counts. The analysis, as reported in this paper, covers three major components in addition to a brief introduction to Lakota winter counts: cultural and social backgrounds of the development of American Plains winter counts, characteristics of pictographic records, and the creation and preservation histories of such records. The study views Lakota winter counts as a unique example of Native American records and recordkeeping systems, and worth exploring as part of the American history of records and recordkeeping.

Lakota winter counts

Lakota winter counts are pictographic calendars created by the Lakota people – Native American tribes or bands living on the American Plains in the eighteenth and nineteenth centuries. Unlike the Western calendar system, which counts the years by numbers, Native American winter counts name the years after stories translated into pictures. Each year is remembered by one notable event, and each event recalled by a simple pictorial representation. Year by year, these images were painted onto animal hides or cloth, arranged chronologically in sequences that could span more than a century. As the images accumulated, pictographic calendars began to serve as records of a community's history because 'naming rather than numbering years provided a richer and more memorable context in which to frame historical narrative'.[7]

Plains Indians created pictographs for various purposes, but pictographic winter counts primarily 'functioned as meaningful records and not simply as aesthetic expressions of "art for art's sake"'.[8] Winter counts served as 'community annals' that document the winter-by-winter experiences of a tribal community. They were used by winter count keepers (that is, community historians) as mnemonic devices when following the clues recorded in winter count images to recount the past events of the community, so that people would know their own history. Because a memorable event was chosen and painted each year, winter counts were used to name the years they represented, and served as community calendars so that, for example, people could count their ages by knowing, for example, the 'winter' in which they were born.

Plains Indians created winter counts because they needed a system to name and keep track of years. In comparison with other systems that count years by sequential numbers, naming rather than numbering years provided a richer context, but 'it did not ensure proper sequencing'.[9] To assist them with accurately maintaining proper order of the long sequence of years, winter count keepers followed the convention of arranging pictographs in a certain order and recording them on a piece of animal skin, cotton fabric or paper. The chronological

order of years was indicated by the sequential arrangement of images, in spirals or in rows. The single piece of animal skin, cotton fabric or paper provided a convenient mechanism for recording, arranging, storing and consulting winter counts – a unique system rarely seen in recordkeeping history.

Traditional winter counts were painted on animal hides, following the American Indian pictographic tradition. Towards the latter part of the nineteenth century, hides became scarce owing to the dramatic decline of the buffalo population and the disappearance of hunting grounds, and were replaced by 'materials introduced by Whites'.[10] Consequently, 'non-traditional supports, such as cloth and paper, and non-traditional media, such as commercial pigments, pencil, colored pencil, watercolors and ink began to be used to produce drawings and historical records'.[11] Thus, Lakota winter count pictography has gone through several major changes – from 'pre-contact period painted animal hides to drawings on protohistoric trade cloth and reservation-period ledger books'.[12]

According to Russell Thornton, there are more than one hundred and fifty known Lakota winter counts.[13] Curator and anthropologist Christina E Burke provides a detailed description of winter counts collected in the Smithsonian Institution, mainly hosted in two repositories: the National Anthropological Archives and the National Museum of the American Indian.[14] The total number of winter counts listed in the book is 17, including pictographs painted on buffalo/cow/deer hide and drawn on muslin/linen/cloth/sketchbook, as well as handwritten/typed text on paper, some in physical objects and some only represented by photographs. The book also provides a list of related copies or versions of Smithsonian winter counts found in other states and in Germany and Canada. The scope of this study is limited to the Lakota winter counts reported in the Smithsonian collections and covered in related literature available to the researcher, particularly as a starting point for further examination of Native American winter counts as recordkeeping systems which remain little known in the wider archival community.

Lakota winter counts: cultural and societal roots

At his advanced age, Percy Bullchild, a Blackfeet Indian from Browning, Montana, decided to put down in writing the oral prehistory of his natives as he heard it told from his elders – as a published book.[15] As this history was handed down orally from generation to generation, he began his book with a tribute to the importance of oral history for his native Indian people:

> We Indians do not have written history like our white friends. Ours is handed down from generation to generation orally. In this way we have preserved our Indian history and our legends of the beginning of life. … All history the Native learns by heart, and must pass it on to the little ones as they grow up. … we Natives preserved our history in our minds and handed it down from generation to generation, from time unknown, orally. From the time human life began.[16]

The creation of winter counts was deeply rooted in the long oral tradition of Native American culture. From time unknown, American Indians related their history from memory and passed it on from generation to generation. Sometimes they created tools to help remember their complex cultural past, and to keep track of passing time. Winter counts are such a physical tool, representing the rich traditions of oral history and storytelling, and particularly useful as mnemonic devices to assist in the oral tradition of naming years. Comprised of simply sketched pictures suggestive of year names, winter counts acted as outlines for

oral historians to recollect and narrate the past through stories, and for the community to maintain a cultural history and mark passing time.

In addition to its oral history root, the creation of winter counts was an integral part of the pictographic tradition among Native American peoples. In Central and South Americas, pre-Columbia writing and recordkeeping systems are highly pictorial, combining hieroglyphics, pictorial images and abstract signs. Typical picture-writing was also found in the Mixtec and Aztec recordkeeping systems in Mesoamerica. The ideographic systems are characterised by a high proportion of visual description, with meaning conveyed through pictorial and conventionalised images.[17] Using the phrase 'records without words' to refer to Aztec pictorial histories, Elizabeth H Boone describes three historical presentational forms used by history painters (not authors!): the event-oriented history, the cartographic history and the continuous year-count annuals.[18] The last of these forms, the continuous year-count annuals, functions to document time-oriented history, similar to the North American winter counts. In year-count annuals, events are painted around the years, often linked to them by a line, or merely painted adjacent to the corresponding year(s). The depicted events cover natural and climatic phenomena, wars and conquests, mythical or ritually important events, and other topics.[19] Similarly, different types of glyphs, that is, pictographic symbols designating personal names, dates and places, are found in the Mixtec codices. For example, the name of the warrior 8 Deer is depicted by eight large 'dots' connected to an image of a deer head.[20] Lakota winter counts frequently contain similar name glyphs.

Researchers also highlight the widespread utilisation and significant social functions of pictographic representation systems – including 'writings carved in stone and painted on pottery'.[21] In his study of the Native American West before Lewis and Clark, Professor Colin G Galloway, following a Lakota woman's metaphor, used the term 'One Vast Winter Count' to describe the 'storied landscape' of American Indian country.[22] On this vast winter count, rock carvings and paintings were found in thousands of rock art sites; 'petroglyphs and pictographs etched or painted on outcrops, cliff faces, and boulders' were the most conspicuous:

> Often created in spectacular settings and sacred places, rock carvings and paintings reflect the connection between Native peoples and their natural and spirit worlds. … Their images span at least five thousand years, with some possibly dating as far back as twelve thousand years. Some rock art scenes … convey 'only enigmatic message from an unknown past' and provide glimpses of a complex cosmography. Other scenes depict hunting ceremonies, battles with enemies, and in some cases, the arrival of horses. Some scenes can 'be read almost like a simple sentence', dated to a particular time, and attributed to a specific people; in other cases, traditional knowledge held by Indian people, past and present, is key to understanding the images.[23]

In comparison to rock carvings and paintings, the 'more modern specimens of picture-writing displayed on skins, bark, and pottery are far more readily interpreted than those on rocks, and have already afforded information and verification as to points of tribal history, religion, customs, and other ethnologic details'.[24] Rock art provides the earliest evidence of Plains Indian pictography, but the Plains Indian art of painting on animal hides has been widely documented, preserved and studied. It was also believed to have a long history, antedating 'the period of white contact with Plains tribes'. The earliest record of the existence of native painting on buffalo hide can be traced back to the middle of the sixteenth century. Early explorers and traders also mentioned the hide painting of the northern and central Plains tribes in written accounts of their adventures from the first half of the eighteenth

century. The earliest specimen of Plains Indian buffalo hide painting still in existence was painted around 1800; it is preserved in Harvard University's Peabody Museum.[25]

Pre-contact painting on skin mediums done by Plains Indians was a natural and intuitive process. This initial painting was 'executed on buffalo robes, tipi covers, parfleches, and other hide or skin objects. The colors were derived largely from iron-containing clays, which yielded brown, red, and yellow, while a black earth or charcoal provided black'.[26] Pictographic painting on animal hide was also 'regarded as a means of communication rather than as an expression of the artistic urge', serving two major documentation purposes. The 'realistic pictures on robes or tipi covers drawn by the Indians served mainly to record significant events in the owner's life, especially a martial exploit or a visionary experience; some tribes, notably the Dakota and the Kiowa, also kept "calendric" hides on which were depicted the outstanding tribal events of successive years'.[27]

The calendric recordkeeping function of Plains Indian hide painting is well represented in Lakota winter counts. In spite of the long oral history of naming years, the creation of pictographic calendars is believed to have started no earlier than the nineteenth century, with the practice flourishing into the latter part of that century before declining in the early twentieth century.[28] Nevertheless, histories of those winters preceding the creation of pictographic calendars were retrospectively recorded in the winter counts. This time period, during the nineteenth and twentieth centuries, coincides with several historical incidents in the United States; incidents that dramatically changed the lifestyles of Plains Indians. To begin with, the Lewis and Clark expedition, which launched at the start of the nineteenth century, triggered the country's century-long journey of westward expansion. Then, between treaties with American Indian tribes, institutions of Indian removal and forced assimilation policies, and the creation of Indian reservations, toward the latter part of the nineteenth century the 'classic buffalo-hunting culture' so cherished by the Plains Indians began to disappear. What had once been traditional hunting grounds became established permanent settlements.

Lakota winter counts are widely recognised as part of the legacy of American Indian oral and pictographic tradition, as evinced by a review of the literature pertaining to American oral and pictographic history. As equally evident is the impact of westward movement on the creation of the Lakota winter counts, because the two almost happened at the same time. The impact was deep and wide, from the materials and tools used, the information content covered, to the art style and the representation medium itself. The latter eventually uprooted the pictographic nature of Lakota winter counts, which were first 'drawn on native tanned skins, and then on fabric', later 'produced on paper' and at last 'included only text and no pictographs'.[29]

Along with the transformations of support material and media, the style of art changed. Early examples of Plains Indian paintings made at the beginning of the nineteenth century are 'characterized by crudely painted, schematic figures in which the forms of men and horses are merely suggested in sketchy manner', but later on 'a semi-realistic, decorative treatment of the figure was developed in the central Plains'.[30] Attributed to this transition from the pre-contact symbolic form of recordkeeping is the influence of the European artistic tradition of realism. In his 'Early White Influence upon Plains Indian Painting', John Ewers from the US National Museum provided one of the earliest available examples of how Western European artists influenced the development of the painting styles of 'at least two prominent Mandan Indian artists who had rare opportunities to observe their

artistic activity closely while these white artists were recording the native culture of their tribe'.[31] Ewers analysed pictographic painting examples to demonstrate that the visit of two European artists in the summer of 1832 introduced the Indian artists to 'the traditional, realistic 19th-century style of western European culture'. Until that time, 'Mandan Indian painting remained in the aboriginal tradition'.[32]

The influence is also noticeable in the informational content of Lakota winter counts. In the illustrated book *The Indians*, the author of the text includes an analysis that shows that Long Dog's winter counts contain 'seven references to trade with the white men and four references to epidemics of such white man's diseases as measles and smallpox'.[33] As an example, the 1840–41 count displays a pictograph of two hands in different colours reaching out to each other which was interpreted as: 'a peace with the Northern Cheyennes was symbolized by a handshake – a custom adopted from the white world'.[34] In a preview of annotated Lakota winter counts published by the Smithsonian Institution, one easily comes across some historical moments about the encounters between the Indians and the Whites. There was one 'saw a white woman winter' accompanied by the collector's notes that 'the dress of the woman indicates that she was not an Indian', and the image was 'obviously noted as being the first occasion' they 'saw a white woman'.[35] Another winter, 'the Good- White-Man returned and gave guns to the Dakotas'.[36] An image of a white man's head placed in a square indicates people in the band lived in log houses (white man's house) for the first time.[37] The 1851 Fort Laramie Treaty was marked with an image of an open blanket, and annotated as the year they received blankets.[38] When time moved to the last decade of the century, Indian chiefs/men were depicted as wearing Western clothes or uniforms – the 'black shoes and flat-topped hat often used in pictographs to identify whites'.[39]

Perhaps the most notable influence of European culture on the pictographic winter counts is the adoption of alphabetic and numeric writing, and the subsequent consequences. The European interference and the introduction of a new writing system can be seen in occasional key words embedded in the pictures, such as 'good' to indicate 'good white man', and 'boy' and 'girl' to indicate 'sent the boys and girls to school winter', or Arabic digits to indicate numbers. The gradual acquisition of alphabetic literacy among the Indian population generated at least two consequences. One is conceptual and one is real. Later analysis found that, conceptually, the pictographic symbols of the winter counts 'meet the requirements of the first level of a general pattern in writing development', but 'because of European interference', they were 'never allowed to continue on their path of development'.[40] The second consequence, which is real, is the abandonment of the use of pictographic writing 'after the English learned in government and mission schools began to replace native tongues as the principal language of discourse among Native Americans'.[41] The practice of pictographic recordkeeping continued into the early part of the twentieth century, and then was replaced by handwritten or typed texts.

Lakota winter counts were mostly created in the nineteenth century, concomitant with the movement of westward settlement. The impact of the movement was strong, deep and lasting, consequently shaping and reshaping the art, content and form of pictographic winter counts. In spite of its relatively modern history, picture-writing in Lakota winter counts undoubtedly belongs to the long tradition of oral and pictographic representations in American Indian culture. The unique cultural and societal encounter has left a rich legacy of pictographic records and recordkeeping in the history of the United States.

Winter counts as records, and more importantly, pictographic records

Winter counts are records, but not just records like any other types. They are, above all, pictographic records comprised of hand-drawn pictures. The challenge of analysing pictographic records lies in our understanding of the power and limitation of 'writing without words', that is, using symbols instead of texts to convey meanings. In the article 'Winter Counts as Possible Precursors to Writing' published in *Nebraska Anthropologist* in 1997, sign language researcher Petra Eccarius examined winter count pictographs and found examples of three types of symbols related to the development of writing systems: examples of direct representation of objects by pictures of those objects, such as various dwellings and animals; examples of common nouns represented by typical members of their category, such as birds and persons; and examples of words of any kind, including complex concepts, represented by arbitrarily and consistently assigned signs, such as killing, enemy, friend, disease and numbers.[42]

The interpretation of winter count pictographs in relation to the development of records and recordkeeping may require a different taxonomy. Winter counts serve as a unique example in the American history of records and recordkeeping, and we are not familiar with how they function to document events and record activities. Analysing winter counts as pictographic records, therefore, might lead us to address a series of questions, such as: how do they record actions, how do they name people, how do they keep numbers and how do they describe events and natural phenomena?

Lakota Plains Indians lived a vigorous life full of activities: hunting, trading, fighting, dancing and peace-making. They enjoyed harmony and plentitude, but also suffered adversities and tragedies. Records kept about their life experiences are naturally full of description of different types of actions or community and individual activities. Typical actions symbolised in winter counts include *open confrontations* such as killing and being killed, capture and attack, and fighting in warfare; *physical or psychological distresses* such as starving, pain, cold, suffering from diseases, and death; and *communal activities* such as ceremonial feasts, trading, peace-making or treaty-making.

Killing or being killed is a dominant theme expressed in winter counts, and is usually symbolised by weapons or causes that lead to the killing. Arrows pointing to animal or human bodies with blood stains symbolise animals (usually buffalos, deer or horses) or people being killed, and arrows pierced into tipis indicate the entire village being slaughtered. In contrast, arrows pointing in the outward direction symbolise the action of attacking and killing others. A man figure being struck in the head with a hatchet means the person was killed with his skull being crushed. Winter count pictographs not only record killings between groups of Indians, but also between white traders. A white man pointing a gun at a smaller white man figure with a declining position refers to the fact that one white man shot another white man who was killed by gun fire.

Associated with killing and being killed are images of attacks and battlefields. Winter counts use simple drawings of horse hooves to represent fighting on horseback, and arrows and bullets flying back and forth to depict fierce battle scenes. For example, the fight-on-the-ice-winter pictograph vividly depicts horsemen and footmen fighting on the opposite sides of an iced river. Horsemen are represented by C-shape (signs of horseshoes) and footmen by T-shape (signs of human feet). Both sides have guns and bows, as shown by the bullet-marks and the arrows. The red marks represent bloodstains on the ice.[43]

Death caused by diseases or other physical sufferings is another dominant theme in winter counts, represented by different symbols, mostly relating to the cause of the death. Women who died of bellyache in childbirth were represented by a female figure with an unborn baby in her body and a coiled sign (symbol of pain) in the abdominal region. Starving to death was symbolised by a man figure with lines across the chest – the bare ribs denoting starvation. In the case of a soldier frozen to death in winter, a falling snow sign over a crouching figure with his legs drawn up to his abdomen, one hand in an armpit and the other in his mouth, are all indicative of intense cold.[44] There are images in the winter counts documenting people dying of epidemics of whooping cough – a blast of air represented by lines issuing from the mouth of the man figure symbolises this fatal disease. Smallpox and measles are two other deadly disease outbreaks documented in winter counts. They are commonly represented by multiple red blotches dotted on the face or body of a human figure; very little artistic variation was observed in the pictographic representation of smallpox and measles, as the Indian diagnosis makes little distinction between these two diseases.[45]

Community events and activities are common themes represented by pictographic images. A figure with a buffalo head represents a buffalo bull dance, and an image of a calumet represents a calumet dance before going to war. More symbolic events, such as making peace, are represented by a simple image of two clasped or approaching hands; the two hands, or arms, are painted in different colours to represent people from different tribes or groups. In later years, when pictographs become more sophisticated, a figure of a white officer in uniform shaking hands with an Indian symbolises a treaty was made between them. The unceremonious hand clasp or hand shaking was said to have been introduced to the Indians by Europeans.[46] Perhaps the most difficult activities to be described by pictographic symbols are being liked or hated, or having plenty or scarcity. In 'The Good White Man Came winter', the gesture made by the white man's hands suggests the Indian gesture for the expression of 'good'.[47] The buffalo hide, hung on the drying pole with the buffalo head above it, indicates an abundance of meat.[48]

As in other types of records, winter counts document not only what actions were performed, but also what kind of people performed the actions. Like other Indian pictographic images, winter counts have unique naming systems in order to describe and distinguish things or people. Some of them are vivid and creative. Name glyphs are commonly used in winter counts: a man with a bird name (Red Bird, White Goose, Yellow Bird Flying) or an animal name (Long Fox, Big Red Buffalo, Yellow Coyote) has an image of the corresponding bird or animal drawn over his head connected by a thin line to his mouth. It is not surprising that a man named Long Hair wears long hair, and a man named Little Face has a long, flat and narrow face. However, it takes a bit more imagination to depict a man named No-Neck or Broken-Leg; the former was depicted with an empty space between head and body (no neck), and the latter with the lower part of his leg detached from his body. A Left-Handed-Big-Nose man is drawn with his left arm extended and his nose remarkably conspicuous. It is also common, in winter counts, to indicate a person's demographic or culture by what they wear, for example a white man is always depicted wearing a hat, and a white woman wearing a dress; or by what they are known as from their hairstyles, for example using short hair or ponytail to depict enemies[49] or different hairstyles indicating different tribal groups.

The recording of numbers is an important element in recordkeeping, and winter counts are no exception. However, it is challenging to indicate numbers pictographically, especially numbers of a large quantity. The simple drawing of multiple figures is only conducive to

small numbers. For large numbers such as 30 or 50, black parallel lines are drawn and divided by columns, especially used to document the number of people who died in warfare. In the winter when nine white men came to trade with them, the image shows the covered head with a hat (standing for a white man) and the eight dots over the head indicating the rest of the number. In the winter when many of their horses were killed, one horse head was depicted and accompanied by many C-shaped horseshoes indicating an unknown large number.

The practice of keeping winter counts was observed by different groups of Plains Indians. Each group (band or tribe) had its own winter count keeper. It was a community-based recordkeeping practice that relied on the experience and observation of individual tribal groups that may have lived close by or been interrelated. As a result, some winter count pictographs look 'so similar that they can be considered exact copies or closely related variants, … Others share many of the same references, but the keepers selected different aspects of the same event to illustrate, or they interpreted the event's significance in a distinct way'.[50] A perfect example is a series of winter counts pictographs that display the meteoric shower observed by all tribal groups in winter 1833, 'the year the stars fell'. There are multiple displays recorded by different tribes, and the images all look different.[51] Some of them use small crosses that have four points to represent stars, some use star-shaped images and one of them draws 'a globular object followed by a linear track'.[52] The image of meteoric showers was also represented differently, from a large mass of small crosses, a tipi with stars falling around it, to a single large star. The differences in winter count pictographs represent the specific creative impulses of the record makers of various tribal groups.

Sketchily drawn pictographs in winter counts document the community history by describing actions and events, naming people and things, and counting numbers. Thriving in the nineteenth-century Plains in the middle of the American expansion, Lakota winter counts exemplify the characteristics of pictographic records in transition, especially when the practice was obviated by textual written form in the twentieth century.

Winter counts made, kept and preserved

The life of records exists in relationship with the people who find them useful, and in interaction with the purposes they fulfil. Winter counts as we know today were created and survived in a long process of record making, recordkeeping and preservation, involving people from different communities in more than two centuries. A review of the process can guide us to know some of the key players, the roles they played and the purposes they served, and, in the long run, understand winter counts as a unique form of records and recordkeeping in the history of the United States.

The Lakota Indians, originally located in the Great Lakes region, 'moved to west to take advantage of new opportunities'. The migration started in the seventeenth century to 'the prairie regions of southern and western Minnesota' and continued into the late eighteenth and early nineteenth centuries 'across the Missouri River and onto the High Plains'.[53] Like other Plains Indians, Lakota people 'lived in bands of extended family groups', and each band of about 150–300 people camped together year round.[54] The tradition of winter counts was thus established in the nineteenth century, with many of these Lakota Indians bands scattered on the Great Plains:

> It is believed that each band had a tribal historian who was responsible for keeping the chronicle and its stories. In consultation with a council of elder men, he would choose a single event to mark the year that had passed. The winter count keeper was charged with adding it both to the calendar and to his verbal repertoire. Often winter counts covered over 100 years, more than the lifespan of one keeper. In such a case, the calendar and the responsibility for its maintenance were passed down to a male apprentice (usually a son or nephew) who would carry on the tradition of recording and reciting the band's stories.[55]

The tribal historians, or winter count keepers, generation after generation, were responsible for recording and remembering events. Using the pictographic calendars as their guides, they could 'read' the images and recite the narratives of remarkable occurrences to their community members.[56] The keepers were the key players in the process of making and keeping winter counts. Equally important in the process were the band members, that is, the community that relied on the winter counts when they needed to refer to the passage of time and their own community history. Each time the winter count keepers unrolled their painted hides to their band members, the quiet pictographic images were given new life in the stories told by the keepers and heard by the community members. And each time community members counted back on the year names to recall when they were born, the pictographic images were called back to life in the memories of people who named the years.

Researchers generally agree that winter counts were created and used to serve two major functions, but opinions differ as to which one was primary. Some highlighted the calendric function of winter, arguing that winter counts were created primarily to 'establish a chronological sequence that individuals could rely on to remember personal experiences', and therefore 'viewed the events entered into winter counts as secondary'[57] Others highlighted the information content represented in pictographic images and associated events, and considered them 'critical to group survival' and 'bound to strengthen group identity and pride'.[58] But it is evident that the two functions are closely related. 'The pictograph thus served as a mnemonic device for recalling the year names. Year names, in turn, stood for events of significance to the band or individual, and thus served to codify and preserve band history'.[59]

The value of records directly relates to the community in which the records are created, maintained and used. Although winter counts can be kept for a long time, no evidence shows that communities would maintain them forever for calendric purpose. This was because there was no 'compelling interest to maintain year names indefinitely', and as a result 'earlier year names would be dropped off, or perhaps simply forgotten'.[60] In other words, there would be a natural attrition process in using winter counts as a community-based calendar. If pictographs created were no longer relevant to the community, they would be removed or forgotten. Moreover, if pictographs were no longer used to name years and help people to keep track of the passage of time, the practice would be discontinued. This was exactly what happened when history moved to the twentieth century. With the adaptation of the alphabetic writing system and Western calendar, the community adopted the new and more convenient system and no longer relied on winter counts to know and count the years. The primary function of winter counts as pictographic calendars came to an end in the early decades of the twentieth century.

There is no doubt that some community members, if not all, would continue to preserve their winter counts even if they no longer used them for counting the years. This was due to the fact that winter counts were also created and used as collective memories connecting

people with their community histories and individual identities. In this case, the historical function became the predominant reason for their continual existence when the calendric function was fading out. The production and preservation of winter counts was also affected by 'sociopolitical changes', most significantly the establishment of Indian reservations. As a result, 'camps of extended families that had lived together were split into smaller family units and scattered across reservations, causing a shift in the marking of events', and as larger bands were broken up into smaller family units, 'individual families kept their own versions of the community's winter count'.[61] One such example is the 'transcript of the pictorial history of the Sioux nation as kept by the White Horse family' discovered a few years ago. This neatly typed, 32-page document was recorded in 'a simple looking binder of legal-sized paper with red margins on both sides of the sheets', and covered the community's history, beginning in the year 1799, and told 'by Chief White Horse of White Horse Station, Cheyenne River Indian Reservation, South Dakota, on September 8th, 1910'. After it was typed out by the current owner's great-grandmother 100 years ago, the item was said to have been 'packed away' in 'one big musty old trunk' and left untouched by her descendants until its accidental discovery in 2009.[62]

History cannot afford to be left totally to random and accidental discoveries. In his *One Vast Winter Count: The Native American West before Lewis and Clark*, Colin G Calloway used more than four hundred pages to explore the history of the Native American West from prehistory to 1800. Calloway argues that although the Lewis and Clark expedition started the modern recorded history of the American West, the histories of the Native American West predated the history of United States. Other than bringing the West into US history, Lewis and Clark 'brought the United States into western history'.[63] The histories of the Native American West and American history are, hence, intermingled and become part of each other.[64]

The collection and preservation of winter counts has resulted from this intermingled history. Although it was a common practice in the native community, winter counts were copied mainly for the purpose of meeting local recordkeeping needs, especially when copies needed to be passed on to new keepers. However, between the last quarter of the nineteenth century and the early decades of the twentieth century, additional copies were produced to meet the needs of non-native collectors, mostly army officers, government agents, ethnographic scholars, traders, photographers, artists and so on. Needless to say, most winter counts collected and preserved in the archives and museums across the country today can be traced back to the work accomplished by those earlier pioneers.

The first great winter count collection in the Smithsonian Institution's National Anthropological Archives was accumulated and interpreted by Garrick Mallery (1831–94) out of his lifelong ethnographic research efforts. A Yale graduate majoring in mathematics and language, and a practising lawyer by training, Mallery served in the Civil War. He continued serving in the military after the war, and was stationed on the Plains as a signal officer, later working for the US Geological and Geographical Survey to help with mapping the western landscape, and with gathering ethnographic and linguistic data in the region. Mallery's close contact with the West stimulated his interested in 'the complex systems of nonverbal communication created and used by Plains Indians, including smoke signals, sign language, and pictography' and he published his first scholarly study of winter counts in 1877. After retiring from the army, he worked as a staff ethnologist at the Smithsonian's Bureau of American Ethnology and continued 'his collection and study of Indian material

culture and symbolic systems'. Mallery mostly relied on his 'extensive connections with army personnel and others in contact with Indians on the plains' to collect winter counts and related information for him. Much of the research for his work was 'accomplished by other army officers'. With the help of interpreters, the army officers recorded explanations of the events in English and collected copies made by calendar keepers from original winter counts.[65]

Other collectors used similar or different methods to acquire and accumulate winter count and other Indian ethnological object collections. The collecting efforts of George Gustav Heye led to the founding of the National Museum of the American Indian in 1915. Heye himself collected most of the winter counts, though he also 'hired a number of archaeologists and ethnologists to collect for him'.[66] John Anderson, a photographer and merchant, started his collection of ethnological objects in the late nineteenth century. Through a trading post located near an Indian reservation, he 'obtained numerous Lakota objects in payment for food and other goods purchased in the store, or as gifts for his generosity and willingness to assist the Lakota'.[67] Anderson later built his private Indian museum; one winter count associated with his collecting efforts was rediscovered in a related family old trunk in 1998 and donated to the Smithsonian in 2000.[68]

The collecting efforts of Mallery, Heye and Anderson covered several decades of the nineteenth and twentieth centuries. This time period coincides with that of the prime production of winter counts, as most of winter counts studied today were made between the 1870s and 1930s.[69] The survival of winter counts was mostly derived from this new demand of trading them as cultural products, as illustrated by Christina E Burke:

> By the late 1870s, copies of winter counts were being commissioned by non- Indian collectors, serving the growing market for Indian ethnographic objects. Between 1879 and 1880, American Horse, Cloud Shield, and Battiste Good were all commissioned to make copies from original calendars that remained in their possession. Other winter counts, including The Flame and The Swan, were copied from the originals by collectors or unknown Indians. With the large number of Lone Dog copies (at least 13 in collections throughout the world), it is clear that creating such objects became something of a cottage industry, even into the 20th century.[70]

The survival history of winter counts through reproduction as ethnographic objects speaks for the connection between artefact value and record value. However, it may also raise the question of objectivity and fixity of archival records if they are not directly handed down from record creators to archives. If not for their artefact value, winter counts may not be reproduced and survive in archives today. Through the reproduction process, winter counts may have lost their original record context, even though they could be reproduced verbatim. This explains why winter counts in Smithsonian collections are closely associated with documentation of earlier collectors' ethnographic expedition and research, not as records of Indian tribal communities.

Deprived of their original record context, winter counts thus re-created and collected are valued mostly as evidence of Native American culture, and as part of the history of the United States. They are no longer just community-based devices to remind people of the passage of time, or of their ethnic identities. They are collected, preserved and utilised as cultural heritage objects, and some of them have eventually made their way to becoming permanent collections of museums, archives, historical societies and other cultural heritage memory institutions. The continual preservation of the collective memory of the Native American as part of American history relies on the persistent and creative efforts of a

new generation of key players – curators, archivists, researchers and educators. The most recent examples are the Lakota winter counts online database and related publications made available by the Smithsonian Institution's National Anthropological Archives, which has provided inspiration and resources for this study.

Conclusion and implications

The discussion of Lakota winter counts as a legacy recordkeeping system is not new, but this study offers a new angle of recounting the stories of winter counts in the framework of the relationships between records, recordkeeping and archives. The study made a deliberate effort to trace and capture the natural and distinctive processes of record making, maintenance and preservation. Lakota winter counts, as a classic type of pictographic records originating on the American Plains, naturally inherited the long tradition of Native American oral history, storytelling and art of pictography. At the same time, the unique sociopolitical environment of the nineteenth-century American West left a strong and prevailing impact on the history of Lakota winter counts. As a result, Lakota winter counts as pictographic records vividly document the interactions between two cultures in terms of information content, materials and tools, artistic techniques and writing systems. These interactions eventually changed the purposes of the creation of winter counts, resulting in their reproduction and, finally, preservation as ethnographic cultural objects in museums and archives.

When Colin G Calloway used 'One Vast Winter Count' to describe the Native American West before Lewis and Clark, he planned to document the histories that may not traditionally be considered 'history' in the same way as other historical sites and objects.[71] The same is true of the study of Plains Indian pictographic calendric records. Reading nineteenth-century American history left its readers with several prominent historical images. Among them, the prologue of American industrialisation and the disappearance of the Native American West have left indisputable footprints in the American history of records and recordkeeping. When President Thomas Jefferson dispatched the Lewis and Clark expedition at the beginning of the nineteenth century, the country mostly used quill pens to write and letter presses to duplicate and store documents. By the end of the nineteenth century, typewriters, carbon paper and vertical files started to gain popularity. When Native Americans in the West were forced to migrate towards the latter part of the century, they also left behind them documentary evidence in oral history and pictographic writings, such as winter counts. The American history of records and recordkeeping would not be so complete if this page had been turned over and missed entirely. Lakota winter counts have been promoted in the school social studies curricula as primary sources for students to learn about such subjects as multicultural US history, natural sciences (astronomy, diseases) and language arts.[72] They can also be used as valuable resources for archival students to understand that records can be spoken, drawn or written; and that there is an oral, pictorial and textual tradition in the American history of records and recordkeeping.

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No potential conflict of interest was reported by the author.

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