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Of Skin and Bones: Revisiting an Inughuit Dogsled Procured by John Ross in 1818

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ABSTRACT. During a British expedition to the Arctic headed by John Ross in 1818, a dogsled made of bones was procured from the Inughuit people in Northwest Greenland, hitherto unknown to Europeans. We present a contextual and technological analysis of this, the oldest known dogsled from the Arctic still intact. Our work leads to discovery of a hidden artefact, a dog whip mounted on the sled. This study highlights that the bone sled reflects a historic period of the early nineteenth century, during which the Inughuit were isolated. We conclude that the dogsled technocomplex (an integrated system of technological components and processes) both demonstrates the opportunistic ingenuity of the Inughuit and has shaped important aspects of the society through time.

Keywords: Arctic; dog sledding; ethnoarchaeology; material culture; technology; Inughuit; cultural contexts

RÉSUMÉ. Durant une expédition britannique dans l'Arctique dirigée par John Ross en 1818, un traîneau à chiens fabriqué en os a été obtenu auprès des Inughuits du nord-ouest du Groenland, jusqu'alors inconnus des Européens. Nous présentons une analyse contextuelle et technologique du plus ancien traîneau à chiens toujours intact en provenance de l'Arctique connu à ce jour. Notre travail a mené à la découverte d'un artefact caché, soit un fouet à chien fixé au traîneau. Cette étude met l'accent sur le fait que ce traîneau en os reflète une période historique du début du XIX^{e} siècle pendant laquelle les Inughuits étaient isolés. Nous concluons que le technocomplexe du traîneau à chiens (un système intégré de composants et de processus technologiques) démontre à la fois l'ingéniosité opportuniste des Inughuits et la façon dont il a façonné d'importants aspects de la société au fil du temps.

Mots-clés : Arctique; traîneau à chiens; ethnoarchéologie; culture matérielle; technologie; Inughuit; contextes culturels

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INTRODUCTION

The Ross sled is a centrepiece in the current ethnographic exhibition at the British Museum. This object, a dogsled made entirely of bones, was one of a handful of rarities procured during an expedition headed by Sir John Ross (1777–1856) to northern Baffin Bay in 1818 (Ross, 1819). The expedition encountered a group of hunters designated by Ross as The Arctic Highlanders, the present-day Inughuit, in Avannaarsuaq, on the Greenlandic side of the Pikialasorsuaq open water area (Fig. 1). On Ross's famous illustration (1819:102–03), a sled that belonged to the hunter Meigack is shown, along with a knife with blades of meteoritic iron, a harpoon shaft of narwhal tusk, and a whip (Fig. 1). The Ross sled was known by nineteenth-century researchers (Bessels, 1879), but then more or less forgotten until the 1980s when King (1983) published a preliminary description of it. King recounts his discovery that the sled, then kept in storage at the Museum of Mankind (at present on exhibit at the British Museum) is not identical to Meigack's sled, as illustrated in Ross' (1819) account (King, 1983).

During a research visit to the British Museum in 2023, the authors realized that there is much more to be discovered by revisiting the Ross sled's history, cultural contexts, and technology. We elaborate on King's discovery (1983) that the sled from Ross's famous illustration, Meigack's dogsled, is not identical to the exhibited sled. We describe the technology behind the exhibited sled and document a dog whip not previously noticed or catalogued, but which we discovered mounted on the sled. We also demonstrate how the sled technocomplex (an integrated system of technological components and processes that through human skills and knowledge interacts with each other) reflects the strategic opportunism of Inughuit hunting society regarding settlement patterns, economy, and external contacts.

THE ROSS SLED AT THE BRITISH MUSEUM

Sir John Ross's voyage in 1818 in search of the Northwest Passage is well known from his own account

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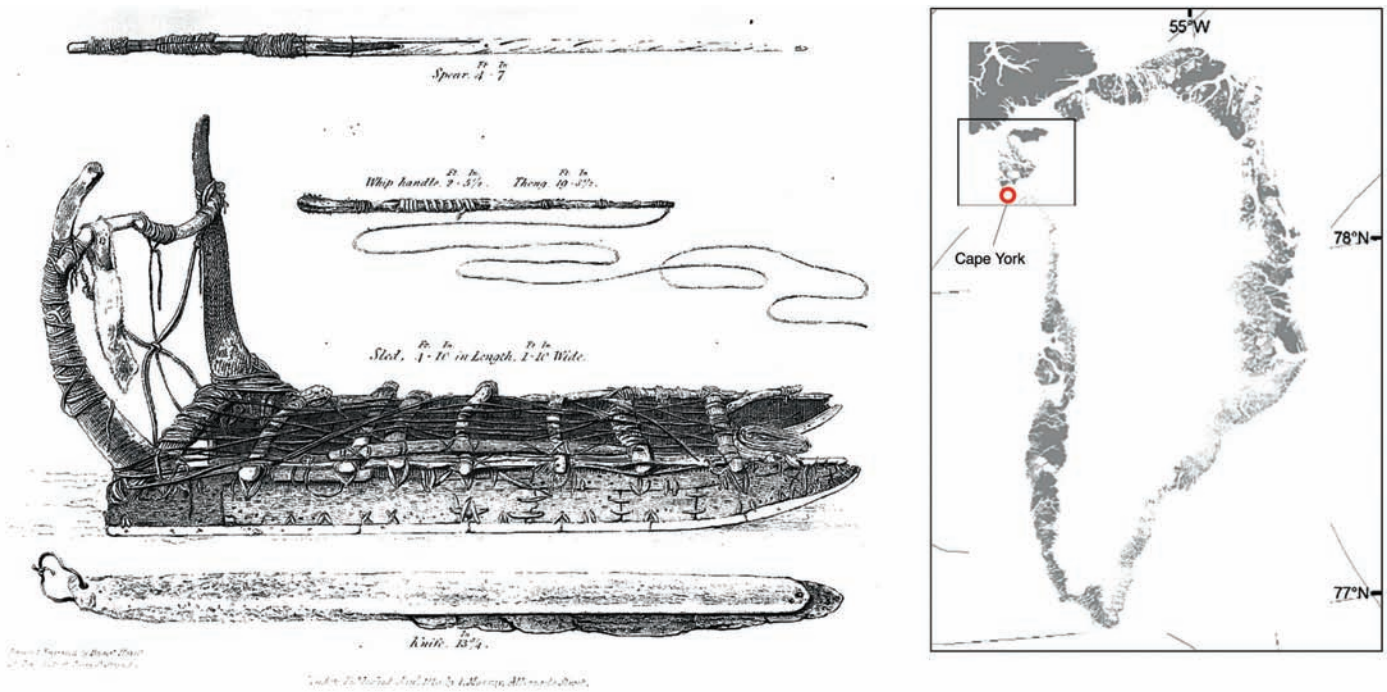

FIG. 1. Left: Ethnographic objects, including Meigack's sled, collected from the Inughuit east of Cape York (Ross 1819: 178). Right: Greenland with square showing the Inughuit range.

(1819). Ross failed to identify the passage, and the British Admiralty considered the voyage a fiasco, despite it having led to Ross's contact with the Inughuit, which was the first encounter between Europeans and this isolated High Arctic community. But to posterity, Ross's (1819) descriptions are of great value even if the meetings between the crew and the Inughuit consisted of only four episodes over five days (9 to 15 August 1818).

The Inughuit were first sighted on 8 August on the ice off Bushnan Island, east of Cape York: "we discovered them to be natives, drawn on rudely-fashioned sledges, by dogs, which they continued to drive backwards and forwards with wonderful rapidity" (Ross, 1819:80). On 13 August Ross purchased from a hunter named Meigack "a spear, made of the sea unicorn's horn and a dog sled. Made chiefly of the bones of the seal, tied together with thongs of seal skin, the runners … being formed of sea unicorns' horn" (Ross, 1819:102). A whip and a sled dog were also part of the deal. In exchange, Meigack received goods including a wine glass.

The next day, Ross procured "a dog sled of the same description as the former, and a couple of knives" (1819:107). Finally, on 15 August, the Inughuit visited the ships for trading. In exchange for European goods, Ross had hoped for nodules of meteoric iron but only received a hammer stone used in iron working. On 16 August Ross's two ships sat sail in search of the Northwest Passage with the two sleds made of bones on board.

Very few ethnographic objects from Ross's expedition are now in British collections. The sparce records show that a sled made of bone was donated to the British Museum by Sir Joseph Banks (1743 – 1820) in 1818 (registration number: Am1818, 1219.1/Am1980, Q.1). Ross must have presented the sled to Sir Banks upon his return to London (King, 1983). However, it can be concluded from Ross's own account that the exhibited sled is not identical to the one he depicted in his account of the expedition, Meigack's sled (1819), which has since disappeared. The exhibited sled was procured on 14 August from an anonymous hunter (Fig. 2).

REVISITING THE EXHIBITED ROSS SLED

The exhibited Ross sled is the oldest known Arctic dogsled still intact. Our visit to the British Museum provided an opportunity to study construction details, raw materials, and stylistic and metric characteristics. The documentation consists of photographs, 3D scans, and records of the sled's metric properties, manufacturing traces, repairs, and lashings. Our analyses have been facilitated by the first author's theoretical and practical insights into dogsled construction (Vitale, 2024).

Overview

Ross describes the Inughuit sleds as made of seal bones, but our analyses show that the exhibited dogsled consists of 89 different pieces made of whale and walrus bones, caribou antler, and walrus ivory (Table 1). They were lashed together by means of sealskin thongs and, in a few cases, flat or twined sinew thread. We identified three small wooden pieces in the construction.

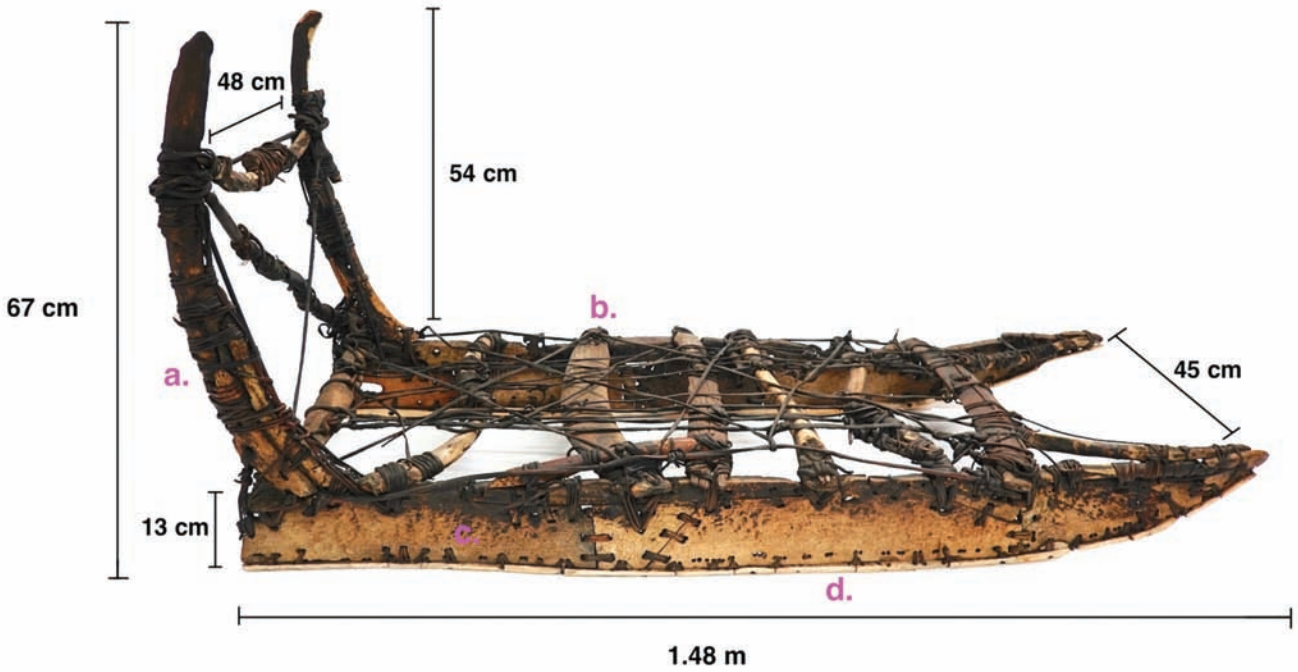

FIG. 2. Metric properties of the exhibited Ross sled and terminology of components of a typical Greenlandic dogsled in English and Greenlandic: a. upstanders (napariai), b. crosspieces (napui), c. runners (qamuk), d. sled shoeing (alaavi). ©The Trustees of the British Museum.

TABLE 1. Materials of the different components of the Ross sled exhibited at the British Museum.

Sled component	Materials	Quantity
Cross-pieces	Whale bone, caribou antler, walrus baculum (penis bone), walrus rib	21
Upstander (Left side)	Whale bone, wood	5
Upstander (Right side)	Whale bone	5
Cross bar	Walrus rib	3
Sled runner (Left side)	Whale bone	16
Sled runner (Right side)	Whale bone, walrus baculum (penis bone)	14
Sled shoeing (Left side)	Walrus tusk	10
Sled shoeing (Right side)	Walrus tusk	14
Reinforcement of runners	Walrus rib	3

Reused Components

Several parts of the exhibited sled were made from reused/recycled whale bone and show signs of continuous episodes of modification and recycling. Many drilled holes on the lower side of the runner components are excessive and do not match the holes in the present sled shoes (the thin ivory that make contact with snow and ice and that serves to protect the bone runners) (Fig. 3b). Some edges of the parts shoe polish resulting from reuse, and some fittings show two different sizes of edges. The presence of these different marks suggests that the exhibited sled was constructed using runner pieces that originally came from older sleds. Likewise, the drilled holes show numerous replacements of sled-shoe components. There are other signs on the sled of reuse. For example, the back part of the left sled runner (Fig. 3a) was probably originally a mattock head (Mathiassen, 1927) prior to being upcycled as part of a runner. The intensive reshaping and reuse of components indicate very restricted access to raw materials.

Sled Runners

The runners consist of 30 different parts: 26 are hard parts of whale jaws or whale ribs; one is a splint of wood (Fig. 4d); one is an unidentified bone piece; and two are made from walrus penis bone. A total of 24 pieces of walrus tusk were used for shoeing the runners: 10 on the left side, and 14 on the right. In the frontal, upward curving part of the runners, each tip consists of three pieces of whale bone. Because this is the most exposed position on the sled in case of collisions with rocks or ice, the runner tips show repairs, likely made over several years.

Usually, the upper side of each sled runner is bevelled, which causes these to tilt slightly outwards when firmly tied to the horizontal cross-pieces. Sled makers create this negative camber (or arch), usually ranging between 9˚ and 13˚, to ensure stability and prevent the runners from collapsing inwards (Vitale, 2024). However, given that the sled was mounted by conservators using thin steel rods to stabilize it for display, it was not possible to conclude if the runners originally showed such negative camber.

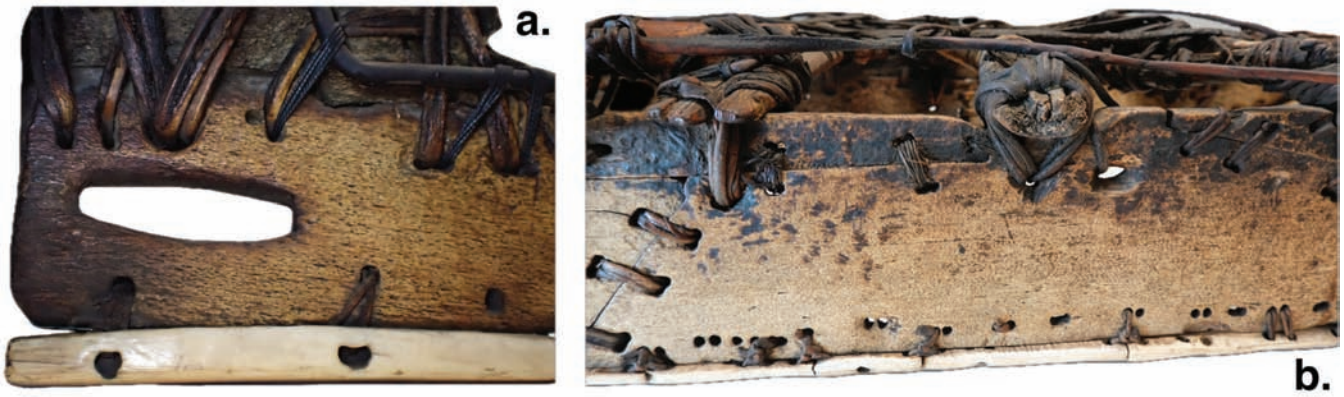

FIG. 3. a) Back part of the left sled runner displaying upcycling, and b) multiple holes on the right sled runner that are not used or do not match holes of the sled shoeing. ©The Trustees of the British Museum.

FIG. 4. a) Clasp on the left runner for attaching trace line for the dogs, b) a hole on the right side of the runner for an equivalent clasp, c) unidentified piece of bone, d) wedge of wood. ©The Trustees of the British Museum.

Most likely during its fabrication, Inughuit inserted a small bone wedge (unidentified species) on the right runner (Fig. 4c). It is possible that the Inuit incorporated an amulet into the sled in parallel to amulets in kayaks, which served to protect the hunter (Rosing, 1994). The front of each runner is reinforced by worked walrus ribs placed on the inner side (Fig. 5a). This is characteristic for the North Greenlandic sled type (Rosing, 1976). In the front of the left runner, a clasp of bone with a line end attached is visible (Fig. 4a). This line served to fasten the trace lines of the dog team. On the opposite runner there is an equivalent hole for the now missing clasp and the sealskin thong that makes up the trace line (Fig. 4b).

Crosspieces

The crosspieces, seven in total, are assembled from 20 pieces, including five pieces of whale bone, one large piece of caribou antler, one walrus baculum (penis bone), and six walrus ribs. The remaining pieces could not be identified from their morphology. Some crosspieces are lashed together from several components, such as the second crosspiece in the front of the sled. This is tied together by four different parts, including two bone wedges (Fig. 5c), one piece of walrus rib, and the only piece of caribou antler on the sled (Fig. 5b). Moreover, it is the most arched crosspiece and likely the most unstable, which explains why the sled makers placed wedges and additional lashings (Fig. 5c).

Upstanders

Upstanders are a feature that separates the Greenlandic sled from other Eastern Arctic sleds. The upstanders need to be solid to endure usage. However, on the exhibited sled they are lashed together by 10 different fragments in total.

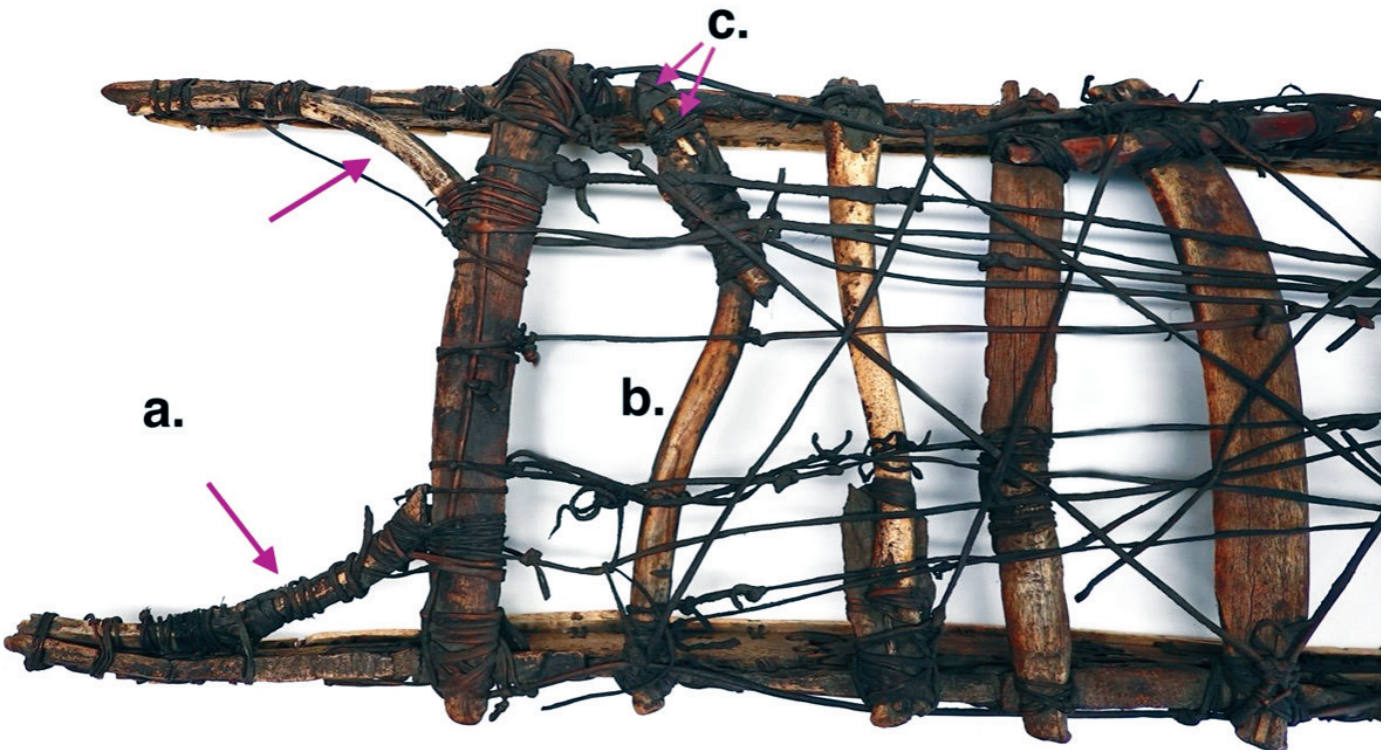

FIG. 5. a) Walrus ribs placed for reinforcements on the inner front side of the runners for reinforcement, b) part of a caribou antler incorporated into the crosspiece, c) two wedges of bone inserted to tighten the lashings. ©The Trustees of the British Museum.

FIG. 6. Right side upstander lashed together from five pieces of whale bone (marked by colours). ©The Trustees of the British Museum.

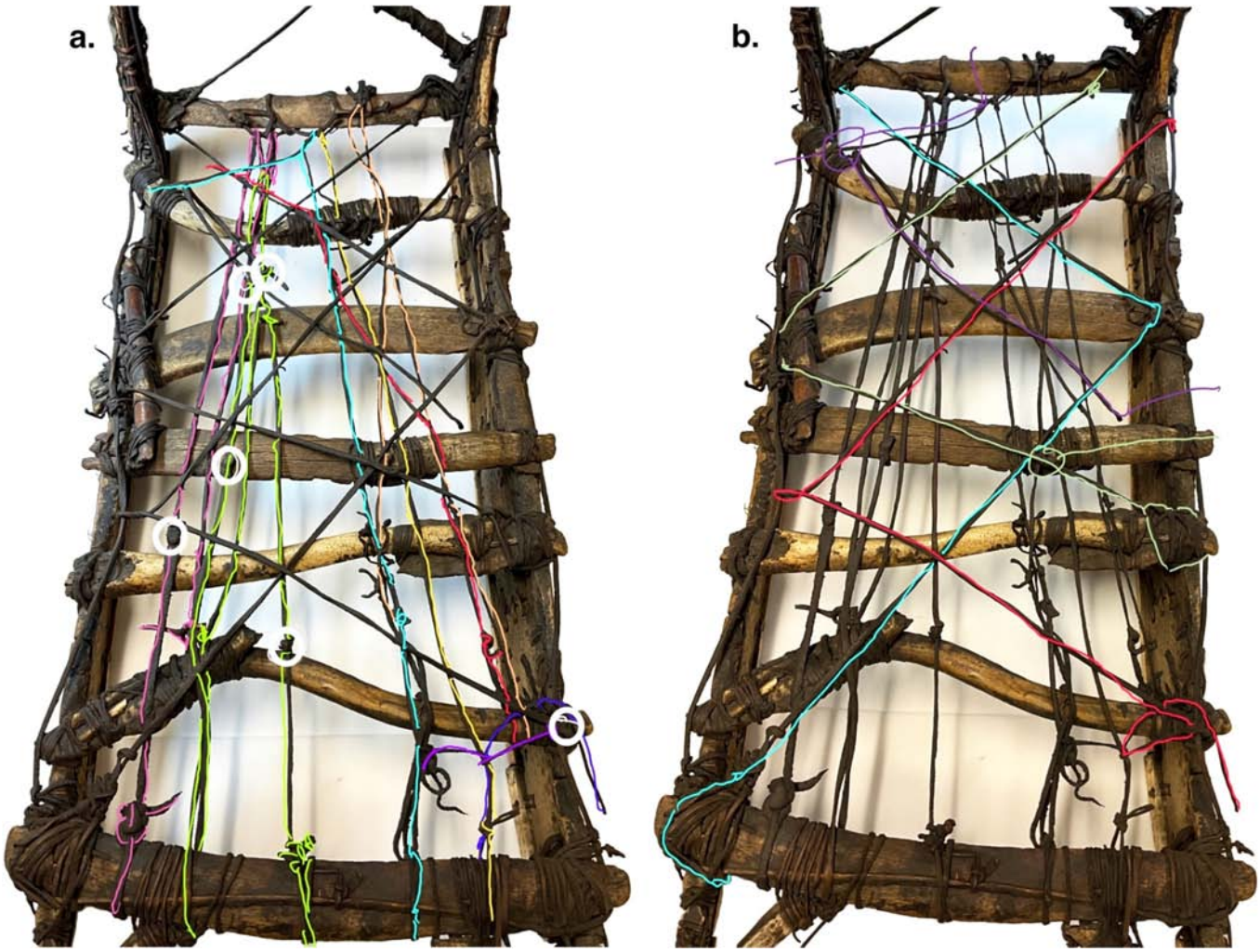

FIG. 7. Sealskin thong traces (marked by colours) with white circles marking where two pieces of thong have been hitched together, a) thongs on top of crosspieces, parallel with runners, for stabilising the construction, and b) upper lashings placed diagonally, probably for mounting sled skins and securing the load. ©The Trustees of the British Museum.

The right one consists of five pieces of whale bone (Fig. 6), whereas the left upstander includes a fragment of wood and a piece of whale bone, as well as three other bone pieces. Here, ZooMS analysis of the species (a mass-spectrometry process for species identification) could provide further information on raw material selection (e.g., Ebel et al., 2023).

Lashings and Knots

Lashings increase the strength and flexibility of the sled while crossing terrain. To make firm lashings, sealskin thongs are initially soaked in water. They then tighten when drying. Five individual traces of sealskin thongs were lashed on top of the crosspieces, from the back end of the sled to the foremost crosspiece (Fig. 7a). In at least six cases, two different sealskin thongs were hitched together, and only one of the coherent traces was long enough for double crossing. Since these lines were placed underneath the diagonally crossed sealskin thongs, they probably enhanced the sled's stability, as the upper lashings placed diagonally are used for securing the load (Fig. 7b).

The assembled sled parts were tied together with thongs passed through drilled holes. The ends of the lashings were secured by several loops. The different knots on the sled represent a variety of universally used knots, including reef knots, granny knots, half hitches, and bowline knots, for tightening the sled components together (Fig. 8). Thongs mostly end in a half hitch placed on the inside of a runner to avoid tearing (Fig. 8d). The loops are often made by means of a cut splice or a bowline knot.

Based on first-hand experience in constructing and assembling dogsleds (Vitale, 2024), we estimate that around 55 m of sealskin thong were used: about 15 m for lashing the upstanders, 10 m each for the runners, and 20 m for the crosspieces and top layer of thongs (Fig. 7).

Hidden Dog Whip

During inspection of the exhibited sled, we discovered a hidden wooden artefact integrated into the dogsled. Previously, this piece was considered part of the construction: a bar placed diagonally between the two

FIG. 8. Techniques for making knots and slices: a) cut slice, b) reef knot, c) bowline knot, d) end of a lashing, e) end of a lashing on the left upstander, and f) two pieces of sealskin thong have been hitched together with a granny knot at the end of the crosspiece. ©The Trustees of the British Museum.

upstanders. However, this would have made the sled less flexible, and the thin bar would easily have broken. Furthermore, upstanders are typically connected diagonally with thongs for stability (Rosing, 1976; Hansen, 2008). The artefact is not registered in the museum database, and it was likely not noticed when Sir Banks originally donated the sled.

The diagonal wooden bar can confidently be identified as a dog whip shaft through comparisons with the whip belonging to Meigack's sled, illustrated by Ross in 1819 (Fig. 9a). The two shafts show similarities (Fig. 9b), as they both consist of several slender pieces of wood, probably local willow twigs, and small driftwood pieces lashed together with flat sinew or sealskin thread. They both also have a whip lash fastened to the side of the shaft's distal end. But there are differences: the shape of the handle on the exhibited sled is more arched than the straight whip handle in the illustration. The handle of the exhibited sled is shorter (60 cm) than the one from Meigack's sled (75 cm), and the lashings are placed differently.

Importantly, a short, round knob (protruding approximately 3 cm from the shaft end) lashed with flat sinew thread is mounted in a perpendicular position to the proximal end of the shaft (Fig. 9c). The shape and structure of this solid bone or antler bar with blunt ends form a parallel to the "spine" on the end of the ethnographically described whip handles (Holtved, 1967:67). Its function is to provide a better grip and enhance the effects of punishing dogs with the shaft.

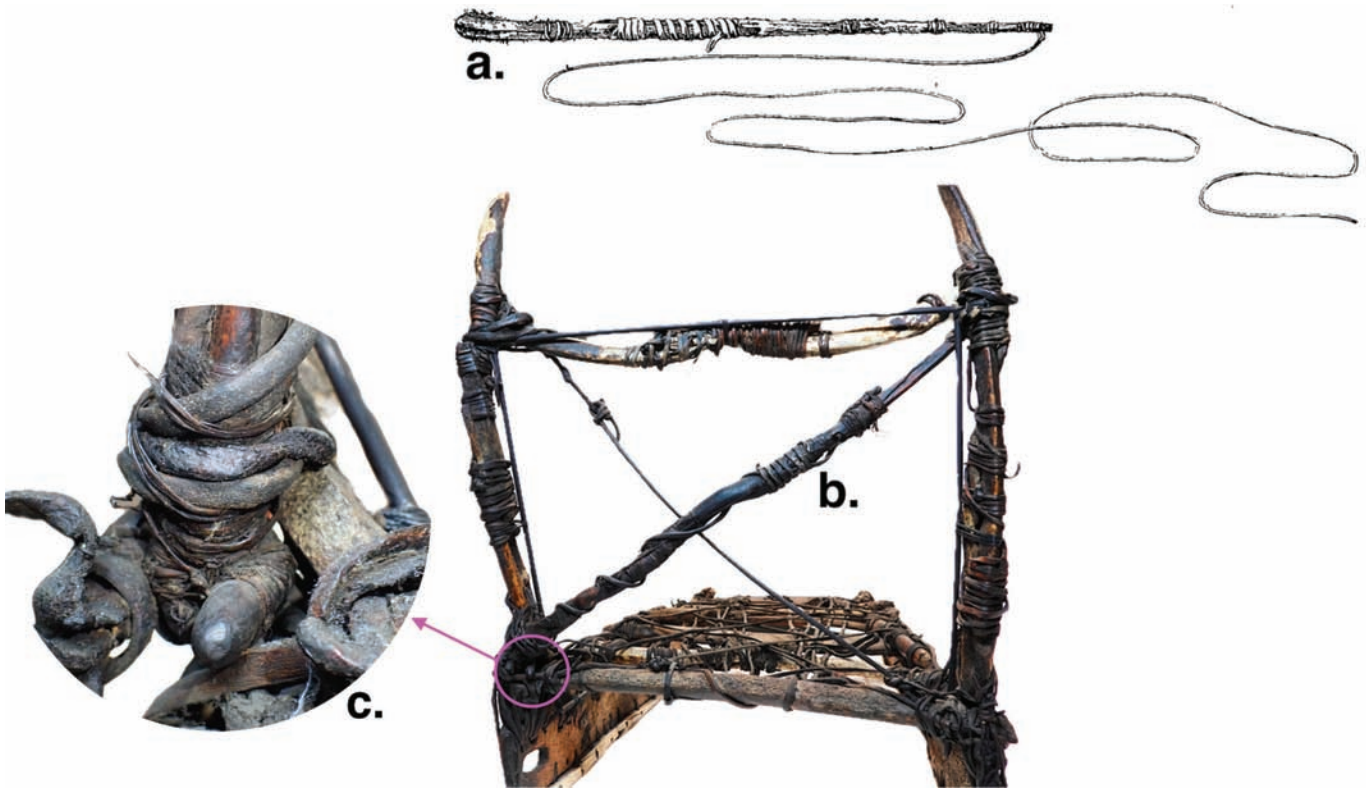

FIG. 9. a) Illustration of a dog whip from Ross's (1819) A Voyage of Discovery, b) hidden dog whip placed diagonally between the two upstanders on the exhibited Ross sled, c) a knob or hook mounted at the end of the whip handle on the dog whip we observed on the exhibited sled. ©The Trustees of the British Museum.

The dog whip is held in place at the base of the left upstander by the finely worked whip lash, which is twisted around the shaft and the upstander. The upper end of the shaft is connected to the right upstander by a thin sinew string in what looks like a casual, weak construction. Thus, the whip could have been placed loosely on the sled when the Inughuit handed it over to Ross.

Comparing Sleds

From the historical sources, we concluded that the sled exhibited at the British Museum is not the one in the illustration of Meigack's sled in Ross's account (1819). Allowing for later, minor alterations of the exhibited sled and inaccuracies in the illustration of Meigack's sled, a visual comparison confirms this in several ways. First, the exhibited sled consists of more parts. For instance, its upstanders are each built from 5 pieces lashed together (Fig. 10a). On Meigack's sled, one of the upstanders is made of a single bone piece, and the other upstander is made of two pieces. Second, the horizontal crossbar between the two upstanders has a downward curve on the exhibited sled, whereas the illustration shows an s-shaped curve on Meigack's sled (Fig. 10b). Third, the drawing of Meigack's sled displays cross lashings between the upstanders, but only a single thong remains on the exhibited sled (Fig. 10c). Fourth, Meigack's sled contains eight crosspieces made of individual pieces of bone, whereas the exhibited sled has seven crosspieces, four of which are made of two or three different pieces (Fig. 10d). Fifth, the lashings on top of the sleds differ: on the exhibited sled, they are more frequently crossed in comparison to the depicted Meigack sled, on which they are predominantly placed in straight lines (Fig. 10e). Finally, Meigack's sled runner consists of six pieces, with a shoeing of seven ivory pieces (Fig. 10f), whereas the right runner of the exhibited sled consists of nine recycled pieces, with 14 ivory shoe components attached (Fig. 10g).

Both sleds show a bone rod, possibly of walrus baculum, lashed to the upper side of the crosspieces and parallel to the right runner (Fig. 10h). This could be a handle or a reinforcement of a weak part of the construction intended to keep the sled straight (information from members of the Sisimiut Dog Sled Association, Qimusseq Sisimiut, 2024).

THE ROSS BONE SLEDS IN PERSPECTIVE

The Inughuit Sled Before First Contact

The fact that wood was not used as raw material in the two 1818 sleds demonstrates that Ross met the Inughuit at a moment in time when they had been cut off from trade networks and probably isolated from other Inuit groups for at least some decades (Schledermann and McCullough, 2003). Driftwood is rare in Avannaarsuaq (Grønnow, 1996). Nevertheless, turning to the Thule Culture archaeological materials from earlier periods, including the pioneering Ruin Island phase (c. 1280–1400 AD) (Holtved, 1944; McCullough, 1989), wooden artefacts are found in permafrozen culture layers. Like meteoritic iron, wood must have been exchanged between distant regional Inuit groups in the High Arctic (Mønsted et al., 2023). Thus, wood probably played a more important role in dogsled building in this phase. This is corroborated by finds like the fifteenth-century boat frame, an *umiaq* (women's boat) from Peary Land (Grønnow and Jensen, 2003). However, the use of wood in sled construction is difficult to document archaeologically because of preservation conditions and intensive reuse of wood among the Inughuit. Surviving components from the centuries before the contact period therefore mostly consist of bone: runner fragments and crosspieces of whale bone, an antler cross-slat from the front part of a sled, and several sled-shoe sections, mainly of walrus ivory (Holtved, 1954; McCollough, 1989). These fragments fit small sleds like the Ross ones.

Later Thule finds from the region also include a few bone-sled components (Holtved, 1944; Schledermann and McCullough, 2003). Thus, the skill of wood-saving sled construction goes back at least to the Ruin Island phase, even if we must assume that driftwood from the exchange networks was not as rare as during the later period of isolation.

Inughuit Sled Developments

Ross's voyage paved the way for European whaling. While waiting for the ice to break up in the hunting grounds in western Baffin Bay, whalers would pursue their prey in Melville Bay and farther north and trade with the Inughuit. Commercial wood found its way in exchange for fox fur, ivory, and "souvenirs" (Rasmussen, 1919:43 ff).

Using accounts by explorers and museum collections, we can follow the development of the Inughuit sled in the nineteenth and early twentieth centuries. The earliest documented sled following Ross's contact with the Inughuit is from Kane's Expedition, 1853–55 (Kane, 1856). Their ship was lost and no collections survived, but illustrations of sleds and their equipment are informative. A sled made of "cellular bone of whale" and a dog whip with a bone rod in the proximal shaft end (Kane, 1856:205) both resemble the Ross artefacts.

As one of the very few mid nineteenth century explorers, Hayes, in 1861, managed to bring back ethnographic objects and human remains from the Inughuit (Hayes, 1866; Bessels, 1879). Museum records are sparce, but the small sled in the Smithsonian Collection, USNM number E2676-0 (1866) must have come from the Hayes exploration. With its length of only 71.2 cm, it must be considered a child's sled, but importantly, it is made almost entirely of wood.

Bessels (1879), who joined the Hall Expedition (1871–73) and became curator at the Smithsonian, depicted exactly this sled and contrasted it with the sled illustrated by Ross. He presented the wooden Hayes sled

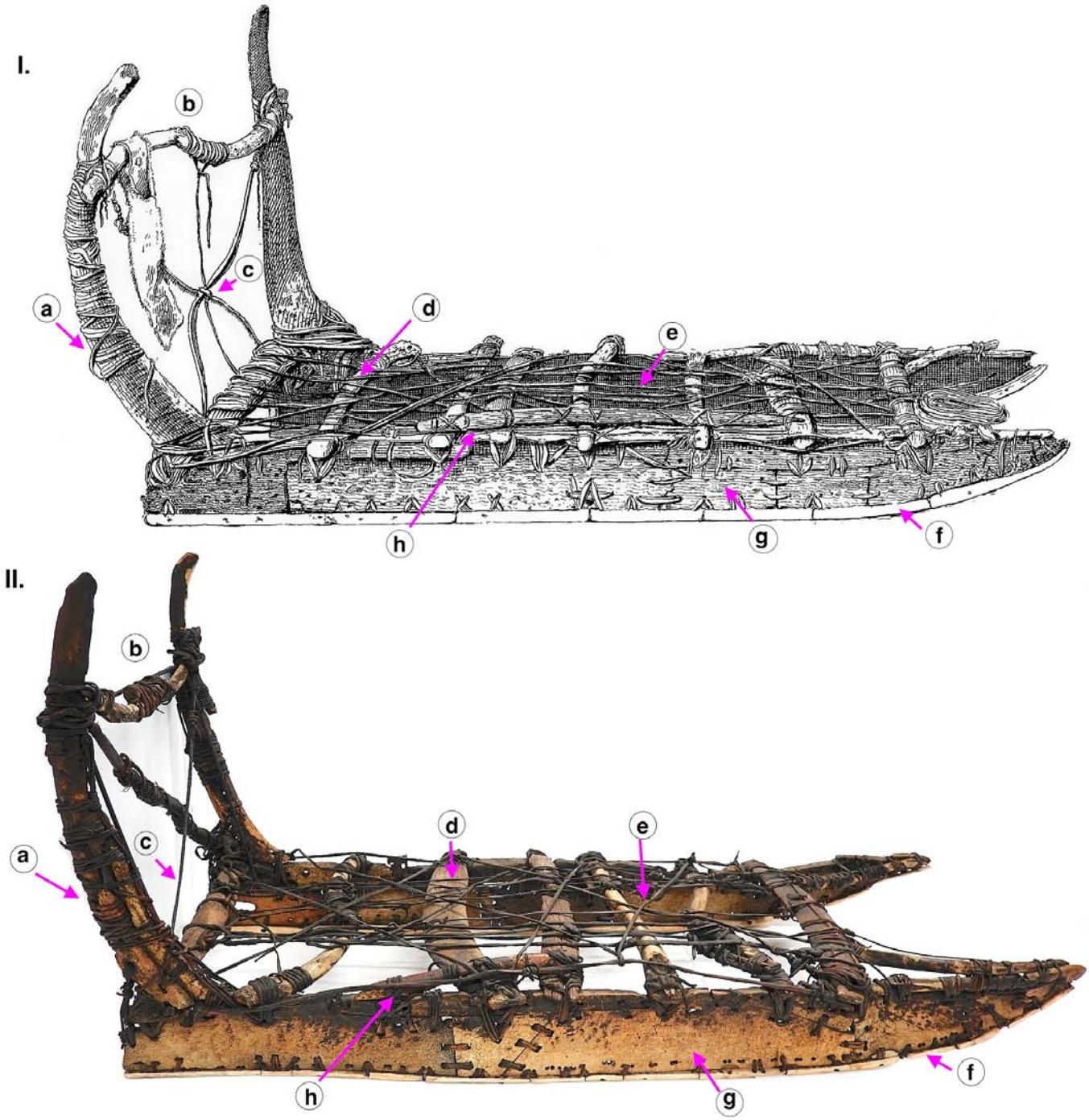

FIG. 10. Comparison between the dogsled in Ross's account (1819) (i.e., the hunter Meigack's sled) and the sled on exhibit at the British Museum. ©The Trustees of the British Museum.

as a *moderner Schlitten*, and thus, from the 1860s onwards, industrial wood had become an important raw material for Inughuit sled building. Boards and beams were trade goods from whalers and other wood was cropped from wrecked ships, cabins, and caches (Bessels, 1879).

Due to Robert Peary's expeditions to Northwest Greenland from 1891–95 and 1906–11, information on sleds is more complete by the early 1890s. At least four sleds were collected by him or connected auxiliary expeditions. Kept at the Smithsonian Institution and Peabody Museum of Archaeology and Ethnology, these sleds certainly deserve modern documentation. However, from Keely (1892) it appears that, by then, the Inughuit sleds had changed: they were considerably larger than before (1.83–2.44 m), and industrial wood was the dominant raw material. Wood is still quite rare, and generally the sleds went through constant repairs (Keely, 1892).

This type of sled, primarily constructed from traded wood, was used by the Inughuit when The Literary Greenland Expedition re-opened the sled route across

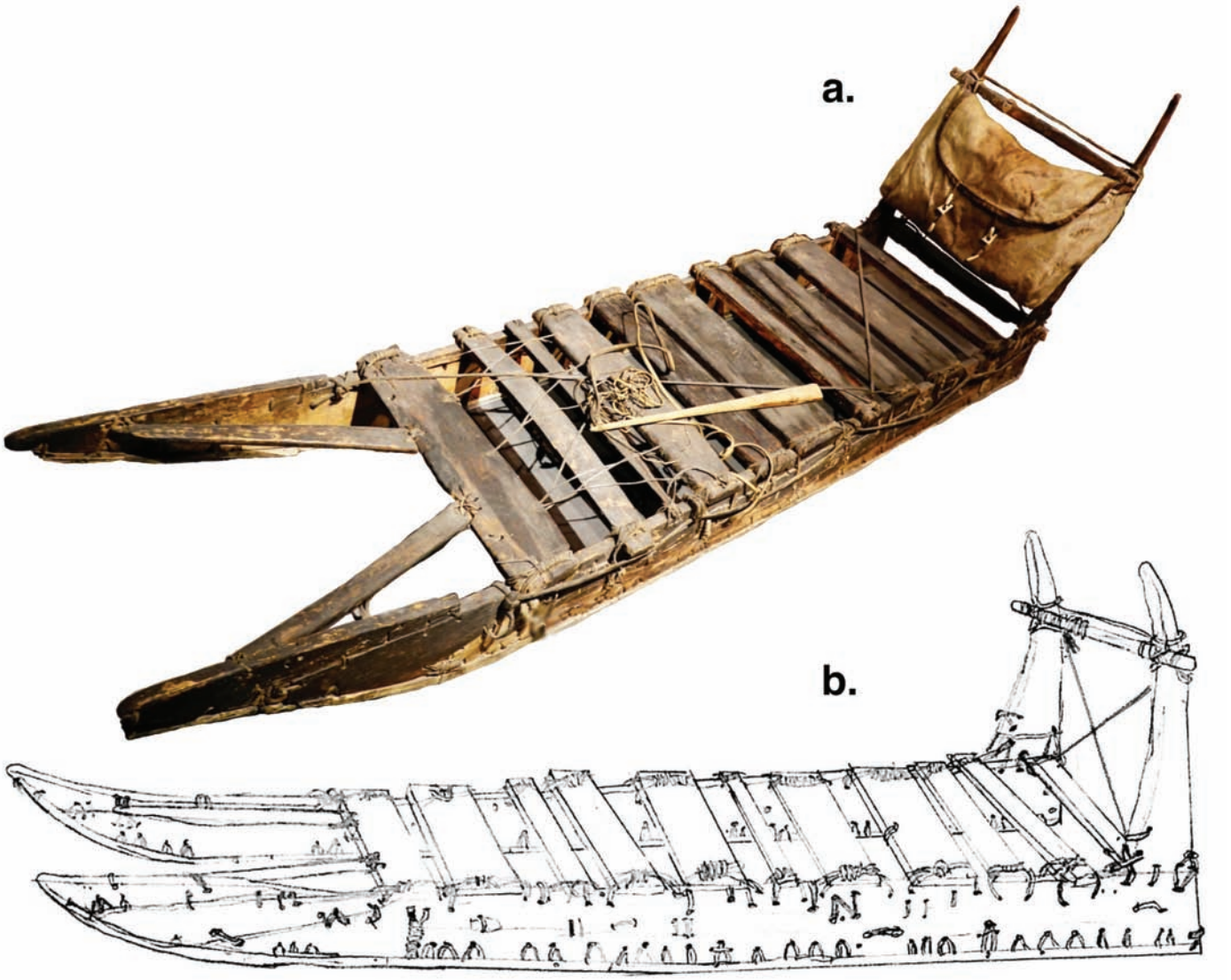

FIG. 11. a) Dogsled from Innaanganeq/ Cape York, Thule (ca. 1902–04). Greenland National Museum. Catalog no. KNK1007-L.2168. The sled was retrieved during The Danish Literary Expedition to Greenland in 1902–04. It derives from the Polar Inuit of Cape York. b) Illustration of details on the dogsled from Innaanganeq.

Melville Bay and stayed in the area in 1903–04. Two sleds were briefly described and measured: 1) a sled of an older type that is 2.40 meters long and 0.56 m wide (made entirely of wood, the runners are shod with ivory); and 2) a sled of a more recent construction that is 2.87 m long and 0.60 m wide. Made entirely of wood, the runners are shod with lists of wrought iron (Mylius-Erichsen and Molkte, 1905). The expedition procured two of these sleds (Fig. 11).

However, in the wake of the opening of the sled route to trade posts in the Upernavik area in West Greenland, and following the 1910 establishment of Rasmussen's trading post, called Thule Station, the technology changed dramatically. Conspicuously large sleds drawn by 12–16 dogs and capable of carrying huge loads (800–1000 kg) became part of the subsistence–settlement system that was based on long-distance journeys of entire families and transportation of heavy loads of resources like walrus meat and blubber (Grønnow, 2016). The market for transporting large sled loads for Rasmussen's and other explorers' intensive activities in the early twentieth century may also have accelerated this development. Holtved (1967) described 10 of these large Inughuit sleds from the 1930s. Merely by the length of these specimens, we can witness the immense leap in size from the Ross sleds (length around 1.47 m) via the nineteenth-century sleds (average lengths 2.5 m, range: 1.83–2.87 m) to this Thule Station Period (Fig. 12). By the 1930s the average length of dogsleds is no less than 3.48 m (range: 2.87–4.75 m).

CONCLUSIONS

Whereas most other Inuit groups used wood from northern forests, natural driftwood, or industrial wood for sled building, the early nineteenth century Inughuit only had limited raw materials to select from due to

FIG. 12. Dogsled development in Northern Greenland. From left: the Ross sled exhibited at the British Museum, sled from The Literary Greenland Expedition (Catalog no. L.2167), and Inughuit hunter Kutsikitsoq with his large dogsled. Photo: Erik Holtved, 1936. The National Museum of Denmark.

minimal influx of driftwood and demographic isolation. We propose that the breakdown of networks connecting the Inughuit with other groups in the Canadian Arctic and West Greenland during this period in history forms the background for the ingenious construction of bone sleds.

The exhibited Ross sled was assembled by lashing no less than 89 different bone pieces together, many of them small and irregular re- and upcycled components from whale, walrus, and seal bones, as well as caribou antler. Three small wooden wedges seem to have been symbolic additions to the object. This technique made the construction less robust and, importantly, delimited its size and, thus, the sled's capacity for carrying people and resources like blubber and meat. Nevertheless, by applying advanced lashing techniques, bone working skills, and multiple reuse of materials, the Inughuit managed to construct small and fast sleds drawn by five to six dogs.

Our analyses show that the exhibited sled was not the same as Meigack's sled, which was illustrated in the expedition record. Ross procured two Inughuit sleds in 1818: the hunter Meigack's sled, which has since disappeared, and the exhibited sled. Furthermore, we discovered that a dog whip was hidden in the exhibited sled, mounted diagonally between the upstanders, probably for storage.

The exhibited Ross sled demonstrates that the Inughuit were remarkably opportunistic and innovative when constructing sleds. Following first contact, the Inughuit dogsled went through marked changes, starting by the mid-nineteenth century, when imported wood began to replace bone as the preferred raw material. This development accelerated in the late nineteenth century, when commercial wood became available in large quantities. The size of the sleds increased accordingly.

Finally, the establishment of Knud Rasmussen's trading station in 1910 paved the way for remarkably large sleds made from traded wood and capable of carrying huge loads. Long-distance travelling, the accelerating fox fur trade, and intensive exploitation of walrus and small whales were a precondition for a complex, early-colonial subsistence-settlement system with a very high turnover of resources. On one hand, the development of huge dogsleds drawn by teams of 12–16 dogs opened new ranges of economic and social possibilities, but on the other hand, these sleds were necessary for maintaining the prestigious and energy consuming large dog teams, a high degree of food security and mobility (Grønnow, 2016). Thus, the Inughuit dogsled can be regarded as an important technological actor (Gell, 1998) that has both reflected and shaped Inughuit society through time.

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REFERENCES

Bessels, E. 1879. Die amerikanische Nordpol-Expedition [The American North Pole Expedition]. Leipzig: Wilhelm Engelmann.

Ebel, E., LeMoine, G.M., Darwent, C.M., Darwent, J., and Kirby, D.P. 2023. Using bone technology and ZooMS to understand Indigenous use of marine mammals at Iita, Northwest Greenland. The Journal of Island and Coastal Archaeology 19(4):678–699. https://doi.org/10.1080/15564894.2023.2213662

Gell, A. 1998. Art and agency. An anthropological theory. Oxford: Clarendon Press.

Grønnow, B. 1996. Driftwood and Saqqaq Culture woodworking in West Greenland. In: Jacobsen, B., ed. Cultural and social research in Greenland 95/96: Essays in honour of Robert Petersen. Cophenhagen: Ilisimatusarfik/Atuakkiorfik. 73–89.

———. 2016. Living at a high Arctic polynya: Inughuit settlement and subsistence around the North Water during the Thule Station Period, 1910–53. Arctic 69 (Suppl. 1):1–15. https://journalhosting.ucalgary.ca/index.php/arctic/article/view/67614

Grønnow, B., and Jensen, J.F. 2003. The northernmost ruins of the globe. Eigil Knuth's archaeological investigations in Peary Land and adjacent areas of high Arctic Greenland. SILA Meddelelser om Grønland/Monographs on Greenland Man & Society 29. Copenhagen: Museum Tusculanum Press.

Hansen, K. 2008. Nuussuarmiut: Hunting families on the big headland; demography, subsistence and material culture in Nuussuaq, Upernavik, Northwest Greenland. Commission for Scientific Research in Greenland, Meddelelser om Grønland. Man & Society 35.

Hayes, I.I. 1866. The open polar sea. A narrative of the voyage of discovery towards the North Pole, in the schooner United States. London: Sampson Low, Son & Marston.

Holtved, E. 1944. Archaeological investigations in the Thule District I: Descriptive part. Meddelelser om Grønland, 141(1). Copenhagen: Kommissionen for Videnskabelige Undersøgelser i Grønland.

———. 1954. Archaeological investigations in the Thule District III: Nûgdlit and Comer's midden. Meddelelser om Grønland 146(3). Copenhagen: Kommissionen for Videnskabelige Undersøgelser i Grønland.

———. 1967. Contributions to Polar Eskimo ethnography. Meddelelser om Grønland 182, No. 2. Copenhagen: Kommissionen for Bidenskabelige Undersøgelser i Grønland.

Kane, E.K. 1856. Arctic explorations: The Second Grinnell Expedition in search of Sir John Franklin, 1853, '54,'55, Vol. 1. Philadelphia: Childs and Petersen. https://doi.org/10.5962/bhl.title.147879

Keely, A.J. 1892. Arctic seas: The voyage of the "Kite" to the land of the midnight sun. London: John Murray.

King, J. 1983. A preliminary description of a Polar Eskimo sledge collected by Sir John Ross. Inter Nord 16:278–281.

Martinón-Torres, M. 2002. Chaîne opératoire: The concept and its applications within the study of technology, Gallaecia. Universidade de Santiago de Compostela: Departamento de Historia I: Prehistoria, Arqueoloxía, Historia Antiga, Ciencias e Técnicas Historiográficas e Biblioteconomía e Documentación. 29–44.

Mathiassen, T. 1927. Archaeology of the Central Eskimo. Report of the Fifth Thule Expedition, 1921– 24, Vol. 4. Copenhagen: Gyldendalske Boghandel.

McCullough, K.M. 1989. The Ruin Islanders. Early Thule Culture pioneers in the eastern high Arctic. Archaeological Survey of Canada, Mercury Series 141. Ottawa: Canadian Museum of Civilization.

Mønsted, A., Appelt, M., Gotfredsen, A.B., Houmard, C., Zazzo, A., Cersoy, S., Tombret, O., and Grønnow, B. 2023. An early Inuit workshop at a Qassi, a men's house, Nuulliit, Northwest Greenland. Arctic Anthropology 59(1):3–38. https://doi.org/10.3368/aa.59.1.3

Mylius-Erichsen, L., and Molkte, H. 1905. Grønland [Greenland]. Copenhagen: Gyldendalske Boghandel, Nordisk Forlag. Rasmussen, K. 1919. Grønland Langs Polhavet [Greenland along the Arctic Ocean]. Copenhagen: Gyldendal.

Rosing, E. 1976 Qimusseq. Vol. 1. Nuuk: Ministry of Greenland.

———. 1994. Tunuamiut aarnuaat. Østgrønlandske amuletter. Nuuk: Atuakkiorfik. 45–48.

Ross, J. 1819. A voyage of discovery, made under the orders of the Admiralty in His Majesty's ships Isabella and Alexander, for the purpose of exploring Baffin's Bay, and inquiring into the probability of a North-West Passage. London: John Murray. Schledermann, P., and McCullough, K. 2003. Late Thule Culture developments on the central east coast of Ellesmere Island. Copenhagen: Danish Polar Center Publication No. 12.

Vitale, E. 2024. Approaching the past through practice: Reconstruction of a historical Greenlandic dog sled. https://doi.org/10.1017/aaq.2024.65